

Factors associated with relapse of schizophrenia

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Summary

Schizophrenia is a chronic psychiatric illness with high rate of relapse which is commonly associated with noncompliance of medicine, as well as stress and high expressed emotions. The objective of the study was to determine the factors of relapse among the schizophrenic patients attending in outpatient departments of three tertiary level psychiatric facilities in Bangladesh. This was a cross sectional study conducted from July, 2001 to June, 2002. Two hundred patients including both relapse and non-relapse cases of schizophrenia and their key relatives were included by purposive sampling. The results showed no statistically significant difference in terms of relapse with age, sex, religion, residence, occupation and level of education ($p>0.05$), but statistically significant difference was found with marital status and economic status ($p<0.01$). The proportion of non-compliance was found to be 80% and 14%, of high expressed emotion was 17% and 2% and of the occurrence of stressful life events was 10% and 1% in relapse and non-relapse cases respectively which were statistically significant ($p<0.001$). The study indicated that stressful life events, high expressed emotion, and non-compliance with medication had a role in schizophrenic patients for its relapse.

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Introduction

Schizophrenia is a chronic psychiatric illness with high rate of relapse. The worldwide prevalence of schizophrenia is about 1%.¹ In Bangladesh, prevalence of schizophrenia is found to be 2.4 per 1000 population in a study among rural population living adjacent to Dhaka city.² The prevalence rate of schizophrenia in India was generally reported to be between 2 to 3 per 1000 population.³ In 1990, the direct and indirect costs of schizophrenia in United States of America (USA) were estimated to be \$33 billion and treatment costs accounted for 25% of total health care expenditure.⁴

The efficacy of antipsychotic in the treatment of schizophrenia has been established beyond doubt.⁵ The antipsychotic has demonstrable efficacy in the prevention of relapse in stabilized schizophrenic patients.^{6,7} Eighty percent patients of schizophrenia receiving antipsychotic medications fail to comply with treatment.⁸ Psychotic relapse is known to be closely linked to non-compliance to drug.⁹ Long term antipsychotic treatment has been shown to be effective in preventing relapse but even with continuous medication, about 40% of patients relapse during first year of discharge from hospital, compared with about 70% of patients taking placebo.¹⁰ Apart from medication non-compliance, social

stressors (life events and unfavorable family atmosphere) seem to be important. The results of various studies found that relative's expressed emotions influence the relapse of schizophrenia.^{11,12} Patients whose relatives showed high expressed emotion had higher relapse rate than those whose relatives showed low expressed emotion. These studies suggested that the courses of schizophrenia are mediated by biological as well as psychosocial factors.¹³ A study found increased frequency of independent life events in three weeks period before onset or relapse of schizophrenia.¹⁴ A survey showed that before introduction of first antipsychotic drug, recovery from mild psychotic symptoms and return to premorbid functioning level occurred in about 35% of the patients. The introduction and widespread use of antipsychotics led to improvement in 48.5% of patients.¹⁵

Factors affecting relapse of schizophrenia are noncompliance to drug, loss of medication efficacy, high expressed emotion and stressful life events. It also inflicts incalculable sufferings on patients and their families and imposes a substantial economic burden on society.¹⁶ In a developing country like Bangladesh with limited psychiatric services, it is difficult for the family, the society and the state to bear this economic burden. In this background the objective of the study was to determine the factors of relapse of schizophrenia.

Materials and methods

This was a cross sectional study conducted from July, 2001 to June, 2002 among the patients with schizophrenia attended in psychiatry outpatient departments of Bangabandhu Sheikh Mujib Medical University (BSMMU), Shahbag, Dhaka, Bangladesh, National Institute of Mental Health (NIMH), Sher-E-Bangla Nagar, Dhaka, Bangladesh and Pabna Mental Hospital (PMH), Pabna, Bangladesh. One hundred relapse and one hundred non-relapse cases of schizophrenia that fulfilled the inclusion criteria, with their key relatives, were taken as sample by purposive sampling technique. For each group, 40 patients were selected from BSMMU, 30 from NIMH and 30 from PMH. An interview schedule was developed consisting of Diagnostic and Statistical Manual of Mental Disorders, 4th edition, text revision (DSM-IV-TR), semi-structured questionnaire for socio-demographic profile and relapse related questionnaire. For relapse related questionnaire, translated Bangla version of the level of expressed emotion scale, relative version,^{12,14} seven point compliance rating scale¹⁷ and presumptive stressful life event scale^{18,19} were used. Data were collected through face-to-face interview. An informed written consent was taken from each patient by using consent form. The research was conducted in full accord with ethical principle. After proper processing and handling, data were encoded. Analysis was done by the help of Statistical Package for Social Sciences (SPSS) for windows version 12. In the study, $p < 0.05$ was considered as statistically significant.

Results

The mean age of the patients was 28.7 ± 7.4 years for relapse and 27.9 ± 6.0 years for non-relapse cases. The highest percentage of patients was in the age group of 20-29 years in both relapse (44.0%) and in non-relapse (51.0%) cases. Among patients, 139 (69.0%) were male and 62 (31.0%) were female. Ten (5.0%) of them were unmarried, 81 (40.5%) were married and 9 (4.5%) were divorced or separated. Relapse cases were higher (8.0%) among the divorced or separated. No statistically significant difference was found between relapse and non-relapse cases in terms of level of education of the patients ($p > 0.05$) and relapse cases were higher among the patients of lower economic status ($p < 0.05$) (Table 1). Out of 200 patients, 37 (18.5%) had positive family history of psychiatric disorder. Proportion of relapse cases was higher among the patients having family history of psychiatric disorder and was statistically significant ($p < 0.001$) (Table 2). Among patients, 106 (53.0%) were compliant and 94 (47.0%) were non-compliant. Proportion of non-compliance was higher among the relapse patients (80.0%) than the non-relapse (14.0%) and was statistically significant ($p < 0.001$) (Table 3). Among patients, 19 (9.5%) had high expressed emotion and 181 (90.5%) had low expressed emotion, proportion of high expressed emotion was higher among the relapse patients (17.0%) compared to non-relapse patients (2.0%) and the difference was statistically significant ($p < 0.001$) (Table 4). In intrusiveness subscale, the proportion of

high expressed emotion was higher among relapse (51%) cases compared to non-relapse (23%) and was statistically significant ($p < 0.001$). In emotional responsiveness subscale, the proportion of high expressed emotion was 38% among relapse cases and 24% among non-relapse was statistically significant ($p < 0.03$). Regarding attitude towards illness, among the high expressed emotion was 7% in relapse and no patient in non-relapse was statistically significant ($p < 0.007$). In regards to tolerance and/or expectations, high expressed emotion was 19% and 5% among the relapse and non-relapse cases which was statistically significant ($p < 0.002$) (Table 5).

Table 1: Socio demographic characteristics of the respondents (n=200)

Characteristics	Respondents		Total (n=200)	p value
	Relapse (n=100)	Non-relapse (n=100)		
Age in years				
<20	13 (13.0)	8 (8.0)	21 (10.5)	
20-29	37 (37.0)	51 (51.0)	88 (44.0)	0.107 ^{NS}
30-39	40 (40.0)	37 (37.0)	77 (38.5)	
≥ 40	10 (10.0)	4 (4.0)	14 (7.0)	
Sex				
Male	71 (71.0)	67 (67.0)	138 (69.0)	0.541 ^{NS}
Female	29 (29.0)	33 (33.0)	62 (31.0)	
Marital status				
Unmarried	56 (56.0)	54 (54.0)	110 (55.0)	0.039 ^s
Married	36 (36.0)	45 (45.0)	81 (40.5)	
Others	8 (8.0)	1 (1.0)	9 (4.5)	
Religion				
Islam	92 (92.0)	95 (95.0)	187 (93.5)	0.390 ^{NS}
Hinduism	8 (8.0)	5 (5.0)	13 (6.5)	
Residence				
Urban	33 (33.0)	27 (27.0)	60 (30.0)	0.355 ^{NS}
Rural	67 (67.0)	73 (73.0)	140 (70.0)	
Occupation				
Unemployed	46 (46.0)	27 (27.0)	73 (36.5)	
Service	10 (10.0)	18 (18.0)	28 (14.0)	
Business	8 (8.0)	8 (8.0)	16 (8.0)	0.046 ^s
Housewife	8 (8.0)	18 (18.0)	26 (13.0)	
Student	10 (10.0)	12 (12.0)	22 (11.0)	
Agriculture	18 (18.0)	17 (17.0)	35 (17.5)	
Level of education				
Illiterate	16 (16.0)	18 (18.0)	34 (17.0)	
Primary	14 (14.0)	13 (13.0)	27 (13.5)	0.947 ^{NS}
Secondary	34 (34.0)	30 (30.0)	64 (32.0)	
Higher	28 (28.0)	32 (32.0)	60 (30.0)	
secondary				
Graduation	8 (8.0)	7 (7.0)	15 (7.5)	
and above				
Economic status				
Lower	56 (56.0)	40 (40.0)	96 (48.0)	0.024 ^s
Middle	44 (44.0)	60 (60.0)	104 (52.0)	

Table 2: Distribution of patients by family history of psychiatric disorder (n =200)

Family history of psychiatric disorder	Respondents		Total (n=200)	p value
	Relapse (n=100)	Non-relapse (n=100)		
Yes	33 (33.0)	4 (4.0)	37 (18.5)	0.001 ^s
No	67 (67.0)	96 (96.0)	163 (81.5)	
Total	100 (50.0)	100 (50.0)	200 (100.0)	

S= significant, Figure in parenthesis indicate percentage

Table 3: Distribution of patients by compliance (n=200)

Compliance	Respondents		Total (n=200)	p value
	Relapse (n=100)	Non-relapse (n=100)		
Compliant	20 (20.0)	86 (86.0)	106 (53.0)	0.001 ^s
Non-compliant	80 (80.0)	14 (14.0)	94 (47.0)	
Total	100(50.0)	100(50.0)	200(100.0)	

S= significant, Figure in parenthesis indicate percentage

Table 4: Distribution of patients by expressed emotion (n=200)

Expressed emotion	Respondents		Total (n=200)	p value
	Relapse (n=100)	Non-relapse (n=100)		
Low	83 (83.0)	98 (98.0)	181 (90.5)	0.001 ^s
High	17 (17.0)	2 (2.0)	19 (9.5)	
Total	100 (50.0)	100 (50.0)	200 (100.0)	

S= significant, Figure in parenthesis indicate percentage

Table 5: Distribution of respondents by expressed emotion (n=200)

Characteristics	Respondents		Total (n=200)	p value
	Relapse (n=100)	Non-relapse (n=100)		
Intrusiveness				
Low	49 (49.0)	77 (77.0)	126 (63.0)	0.001 ^s
High	51 (51.0)	23 (23.0)	74 (37.0)	
Emotional responsiveness				
Low	62 (62.0)	76 (76.0)	138 (69.0)	0.032 ^s
High	38 (38.0)	24 (24.0)	62 (31.0)	
Attitude towards illness				
Low	93 (93.0)	100 (100.0)	193 (96.5)	
High	7 (7.0)	0 (0.0)	7 (3.5)	0.007 ^s
Tolerance and or expectations				
Low	81 (81.0)	95 (95.0)	176 (88.0)	0.002 ^s
High	19 (19.0)	5 (5.0)	24 (12.0)	

S= significant, Figure in parenthesis indicate percentage

The percentage distribution of patients by stressful life events showed that 11(5.5%) patients had history of stressful events and 89 (94.5%) did not have. Among relapse and non-relapse cases, 10 (10.0%) and 1(1.0%) patient had stressful events respectively (Table 6).

Table 6: Distribution of patients by stressful life events (n=200)

Stressful life events	Respondents		Total (n=200)	p value
	Relapse (n=100)	Non-relapse (n=100)		
Yes	10 (10.0)	1 (1.0)	11 (5.5)	0.005 ^s
No	90 (90.0)	99 (99.0)	189 (94.5)	
Total	100 (50.0)	100 (50.0)	200 (100.0)	

S= Significant, Figure in parenthesis indicate percentage

Discussion

The study was carried out in the psychiatry outpatient departments of three tertiary level hospitals of Bangladesh. Previous studies have shown that non-compliance with medication,^{9,12,20-22} high level of expressed emotion^{11-14,23-25} and stressful life events^{13,14,26,27} are strongly associated with relapse of schizophrenia.²⁶

Regarding factors associated with the relapse of schizophrenia, among two hundred schizophrenic patients, 94 (47%) were noncompliant with medication. This finding was similar to the findings of a study which found that 40% - 60% schizophrenic patients were noncompliant with medication.²⁸ In the present study the percentage of noncompliance with medication was higher in relapse cases than in the non-relapse (80% vs. 14%), which was statistically significant ($p < 0.001$). This finding supported the assumption that medication noncompliance was strongly associated with relapse of schizophrenia. The higher proportion of medication noncompliance among relapse cases might be due to poor psychiatric services, social stigma, ignorance and poor economic condition of the patients. The number of medication compliance among relapse was 20(20%). In spite of medication compliance, percentage (20.0%) of relapse was lower in this study than that of developed countries (40.0%). This might be due to lower percentage of high expressed emotion, fewer stressful life events and well knit family support in our country. In this study out of two hundred key relatives of schizophrenic patients, 19 (9.5%) had high expressed emotion. Previous studies found that prevalence of high expressed emotion in urban London and California were 57% and 67% respectively, but 23% in India.²⁹ The prevalence of

high expressed emotion was found to be significantly low in India than in developed countries.³⁰ In Bangladesh, high expressed emotion (9.5%) was found to be lower than that of India (23%) and also lower than those of London and California. The proportion of high expressed emotion was higher among relapse patients (17%) than that of non-relapse patients (2%). It was evident that high expressed emotion associated with relapse was statistically significant ($p < 0.001$). This finding supported the assumption that high expressed emotion was associated with relapse.^{12,23,24} The lower percentage of high expressed emotion in Bangladesh might be due to extended family structure, more tolerance towards patients, religious belief etc. Kavanagh (1992) found that high expressed emotion was more common in developed countries than that of developing countries.³¹ In this study, out of 200 schizophrenic patients 11(5.5%) had history of stressful life events. Among relapse cases, 10 (10%) and among non-relapse patients only 1(1%) had stressful life events.

Although this study revealed that relapse was more in male than in female, difference was not statistically significant ($p > 0.05$). Similar pattern of result was reported by Hogarty et al. (1977).¹⁰ Regarding marital status, among relapse cases, 56(56%) were unmarried, 36(36%) were married, 8(8%) were divorced or separated. On the contrary, among non-relapse cases, 54 (54%) were unmarried, 45(45%) married and 1(1%) divorced. These findings indicated that relapse was more among divorced and separated than in married. These findings were consistent with western setting where marriage appeared to have protective role against relapse.¹² Regarding residence, the proportion of relapse was higher in urban compared to non-relapse (33% vs. 27%) and non-relapses were higher in rural areas compared to relapse (73% vs. 67%). Vaughan et al. (1976)¹² found that relapse was more in urban area than in rural area. Regarding occupation, it was found that non-relapse was higher among housewives than relapse (18% vs. 8%). Higher proportion of non-relapse among housewives might be due to good social support. Regarding economic status, lower class (56%) represented more than middle class (44%) among relapse, which was statistically significant ($p < 0.05$). More relapse in lower social class might be due to poor economic condition, social stigma and ignorance.

Conclusion

The study indicated that stressful life events, high expressed emotion, and non-compliance with medication had a role in schizophrenic patients for its relapse. This study provides information about socio-demographic and other related factors which can offer important guideline for future study. Sufferings of the patients, their relatives and burden of society

can be relieved by early detection of factors related to schizophrenia and prevention of relapse.

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