

FAMILY HISTORY OF PSYCHIATRIC ILLNESS AMONG THE INDIVIDUALS WITH SCHIZOPHRENIA SPECTRUM AND OTHER PSYCHOTIC DISORDERS

MARUF MM¹, SARKAR M², ABBASSI NA³, DATTA J⁴, ISLAM F⁵, SHAKALAN S⁶, KAMAL ZM⁷

Abstract

Background: Genetic factors are considered to be more influential than environmental factors in the development of schizophrenia. We aimed to find out the history of psychiatric illnesses among the first and second degree relatives as well as the sociodemographic factors of individuals with schizophrenia spectrum and other psychotic disorders attending in the outpatient department of a tertiary care psychiatric hospital.

Materials and methods: This was a cross-sectional study carried out among the individuals with schizophrenia spectrum and other psychotic disorders attended at the outpatient department of National Institute of Mental Health, Dhaka, during October, 2020 – March, 2021. Convenient sampling technique was applied. After having the consent of the individuals with the disorder or their guardians, sociodemographic and other information were collected by a predetermined semi-structured questionnaire through face-to-face interview. To determine the history of psychiatric illness among the first and second degree relatives, the family history method was followed. Completed data of 153 respondents were analyzed using Statistical Package for Social Sciences (SPSS), version 24. $p \leq .05$ was considered statistically significant.

Results: The mean age of the respondents was 29.86 ± 12.784 . Most of the respondents were male (52.3%), Muslim (94.8%), unmarried (46.4%), unemployed (31.4%), and living in rural areas (49.7%). Regarding educational status, majority (32.0%) belonged to the secondary level of education (class VI – Secondary School Certificate). About one-third (32.0%) of the respondents had family history of psychiatric illness. The correlation of family history of psychiatric illness with gender ($p = .209$) and marital status ($p = .266$) was not statistically significant.

Conclusion: About one-third of the individuals with schizophrenia spectrum and other psychotic disorders had family history of psychiatric illness.

Key words: Family history, Schizophrenia, National Institute of Mental Health

DOI: <https://doi.org/10.3329/jdmc.v31i1.65473>
J Dhaka Med Coll. 2022; 31(1) : 86-92

Introduction

Schizophrenia is a chronic and relapsing psychiatric disorder with lifetime prevalence of approximately 1% in the adult population.¹ The median point estimate of schizophrenia prevalence is approximately 0.5% according to a systematic review which summarized estimates from 46 countries.² With much

researches and debates concerning the aetiology, it is considered to be a heterogeneous disorder with multiple risk factors. Current evidence suggests that aetiology of schizophrenia can be described best by a multifactorial model including genetic, epigenetic, environmental and social factors.^{3,4}

1. Dr. Mohammad Muntasir Maruf, FCPS (Psychiatry), Assistant Professor of Psychiatry, National Institute of Mental Health, Dhaka, Bangladesh.
2. Dr. Mekhala Sarkar, Associate Professor of Psychiatry, National Institute of Mental Health, Dhaka, Bangladesh.
3. Dr. Nayem Akhter Abbassi, Assistant Register, National Institute of Mental Health, Dhaka, Bangladesh.
4. Dr. Jahar Datta, Resident, National Institute of Mental Health, Dhaka, Bangladesh.
5. Dr. Faijul Islam, Resident, National Institute of Mental Health, Dhaka, Bangladesh.
6. Dr. Sayeedus Shakalan, Resident, National Institute of Mental Health, Dhaka, Bangladesh.
7. Dr. Zubair Mahmood Kamal, Resident, National Institute of Mental Health, Dhaka, Bangladesh.

Correspondence: Dr. Mohammad Muntasir Maruf, Assistant Professor of Psychiatry, National Institute of Mental Health, Dhaka, Bangladesh. Contact: +88-01711339516. e-mail: marufdmc@gmail.com.

Received: 12-10-2021

Revision: 05-01-2022

Accepted: 10-04-2022

Various environmental factors were hypothesized to be contributing which include paternal age, maternal malnutrition, exposure to infectious agents in utero, obstetric complications, maternal tobacco and cannabis abuse, and migration.⁵ Still, genetic factors are considered to be more influencing in the development of schizophrenia with a high heritability rate (81%) where multiple genetic variants of varying frequencies contribute.⁶

It is obvious that for developing schizophrenia, family history of the disorder is the most important risk factor.⁷ Researchers assumed an inherited basis of schizophrenia risk due to familial aggregation of the disorder or its milder variants.⁸ Family studies found that the rate of schizophrenia was higher in the relatives of individuals with schizophrenia than in the general population.^{9,10} A meta-analysis demonstrated that compared to healthy control, estimates for schizophrenia risk for first-degree relatives of one proband with schizophrenia were 8-fold and for first-degree relatives with two probands with schizophrenia were 11-fold.¹¹ In a study conducted in Denmark, schizophrenia was strongly associated with history of schizophrenia and related disorders among first-degree relatives. However, almost any other psychiatric disorder among first-degree relatives increases the risk of schizophrenia. Several studies had shown that positive family history of psychiatric disorders in schizophrenia patients was associated with poorer prognosis and outcome.^{12,13} Younger age at onset and substance abuse were reported more in schizophrenia patients with positive family history of schizophrenia.¹⁴

In Bangladesh, the national survey on mental health conducted in 2018-19 documented that 1% of the adult population had schizophrenia spectrum disorders and the prevalence was higher in women than men.¹⁵ Studies about family history of psychiatric disorders in persons with schizophrenia in Bangladeshi population are rare. In this research, we aimed to find out the history of psychiatric illnesses among the first- and second-degree relatives of individuals with schizophrenia attending the outpatient department of a tertiary care

psychiatric hospital. We also assessed the sociodemographic factors of individuals with schizophrenia and association of gender and marital status with the family history of psychiatric illnesses.

Materials and methods

This was a cross-sectional study carried out to determine the sociodemographic factors and family history of psychiatric illnesses among the individuals with schizophrenia spectrum and other psychotic disorders attended at the outpatient department of National Institute of Mental Health, Dhaka during October 2020 – March 2021. Included in the study were the individuals who were diagnosed with schizophrenia spectrum and other psychotic disorders by a board-certified psychiatrist by best estimate method. The diagnosis was based on the criteria of Diagnostic and Statistical Manual of Mental Disorders, version 5 (DSM-5). Convenient sampling technique was applied. Initially, subjects were selected by the attending physician based on their previous medical records which showed that they had been diagnosed as a case of any of schizophrenia spectrum and other psychotic disorders. Uncooperative patients, patients with emergencies and violent aggressive patients were excluded from the study. The attending physician referred the probable patient to the research team. Then a psychiatrist from the research team assessed the patient thoroughly and re-confirmed the diagnosis following the best estimate method. If the psychiatrist from the research team differed from the initial diagnosis, the individual was excluded from the study. The rest were approached for their consent to participate in the study. A total of 180 individuals were initially selected during the period of data collection, but 5 were not included due to diagnostic confusion. A total of 175 respondents were approached, but 12 refused to participate in the study. After having the consent of the rest or their guardians, sociodemographic and other information were collected by a predetermined semi-structured questionnaire through face-to-face interview of the respondents and their accompanying

informants. To determine the history of psychiatric illness among the relatives, the family history method was followed in which the proband and/or the available informant were asked about the history of psychiatric illness in relatives. We have considered psychiatric illness among first degree (individual’s parents, full siblings, and children) and second degree (individual’s grandparents, grandchildren, uncles, aunts, nephews, nieces, and half-siblings) relatives. A total of 163 respondents were interviewed but during data processing, some responses were dropped due to missing data, inconsistencies, or inaccuracies. Completed data of 153 respondents were analyzed using Statistical Package for Social Sciences (SPSS), version 24. Ethical approval was taken from the Institutional Review Board of National Institute of Mental Health, Bangladesh. Ethical issues were addressed properly throughout the study.

Results

Sociodemographic characteristics

Analysis performed on data of 153 respondents showed that the mean age of the respondents was 29.86±12.784. The youngest respondent was 15 years and the oldest, 70 years. Among the respondents, more than half (52.3%) were male. Most of the respondents were Muslim (94.8%) and living in rural areas (49.7%). Regarding educational status, the majority (32.0%) belonged to the secondary level of education (class VI – Secondary School Certificate). Around one-third (31.4%) of the respondents were unemployed. The study found that nearly half (46.4%) of the respondents was unmarried. More 7.9% remained single due to separation, divorce, or death of spouse.

Our study reflected that the number of family members ranged from 1 to 13, with a mean of 5.19±2.2. About three-fourths (73.2%) lived in a nuclear family. The lowest monthly family expenditure was 3000 BDT and highest 55000 BDT, with a mean of 17200±9571.513 BDT (Table - 1).

Table-I
Socio-demographic characteristics of the respondents (n = 153)

Socio-demographic characteristics	Frequency	Percent
Gender		
Male	80	52.3
Female	73	47.7
Religion		
Islam	145	94.8
Hindu	7	4.6
Others	1	.7
Current residence		
Urban	54	35.3
Village	76	49.7
Sub-Urban	23	15.0
Educational status		
Illiterate	12	7.8
Can sign only	11	7.2
Primary	47	30.7
Secondary	49	32.0
Higher Secondary	18	11.8
Graduation and above	16	10.5
Current occupation		
Unemployed	48	31.4
Home-maker	47	30.7
Student	24	15.7
Service-holder	11	7.2
Businessperson	7	4.6
Day-laborer	10	6.5
Farmer	5	3.3
Others	1	.7
Marital Status		
Unmarried	71	46.4
Married and staying together	70	45.8
Married but staying separated	7	4.6
Divorced	2	1.3
Widow/ Widower	3	2.0
Family type		
Nuclear	112	73.2
Non-nuclear/ Extended	41	26.8
Number of family members	Mean: 5.19±2.2; Range: 1-13	
Monthly family expenditure (in BDT)	Mean: 17200±9571.513; Range: 3000-55000	

Table II
Family history of psychiatric illness (n = 153)

Family history of psychiatric illness	Frequency	Percent
Present	49	32.0
Absent	104	68.0

Table III
Gender and family history of psychiatric illness (n = 153)

Gender	Family history of psychiatric illness			Test statistic
	Yes	No	Total	
Male	22 (27.5%)	58 (72.5%)	80 (100%)	$\chi^2_{(1)} = 1.578$
Female	27 (37.0%)	46 (63.0%)	73 (100%)	^a p = .209

Table IV
Marital status and family history of psychiatric illness (n = 153)

Gender	Family history of psychiatric illness			Test statistic
	Yes	No	Total	
Married	19 (27.1%)	51 (72.9%)	70 (100%)	$\chi^2_{(1)} = 2.651$
Unmarried	24 (33.8%)	47 (66.2%)	71 (100%)	p = .266
Separated, Divorced, Widow/Widower	6 (50%)	6 (50%)	12 (100%)	

Family history of psychiatric illness

About one-third (32.0%) of the respondents had a family history of psychiatric illness (Table II). Among the male respondents, more than one fourth (27.5%) had family history of psychiatric illness while among the female respondents, the rate was 37.0%. The difference of the rate of family history of psychiatric illness between male and female was not statistically significant ($p = .209$) (Table III). Positive family history of psychiatric illness was found among 50% of the respondents who were separated, divorced, or lost their spouse due to death. The rate was lowest (27.1%) among married people with schizophrenia. The correlation between marital status and family history of psychiatric illness was not statistically significant ($p = .266$). (Table IV)

Discussion

In the current study, the mean age (29.86 ± 12.78) of the respondents was similar to findings of the study (30.63 ± 9.27) conducted on patients with schizophrenia in Bangabandhu

Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh.¹⁶ Male respondents (52.3%) was slightly higher than female which was similar to another study conducted in NIMH and Combined Military Hospital (CMH), Dhaka, Bangladesh.¹⁷ In the study conducted in BSMMU, the rate of male respondents was much higher (65%).¹⁶ About half (49.7%) of the respondents came from rural background which was in line with the findings of previously mentioned studies in Bangladesh.^{16,17}

Regarding religion, most of the respondents were expected to be Muslim as Bangladesh is a Muslim-dominant country with 88.4% Muslim people.¹⁸ More than three-fourth (77.7%) of the respondents could not complete SSC examination which also supports the previous findings. But the actual reason of the lower level of educational status was not ascertained. This might be because of the disorder or the socio-cultural condition of the respondents.

Around one-third (31.4%) of the respondents were unemployed. A much higher rate (72%) of

unemployment was reported by Ahammad JU et al. (2009) where the employment status was subdivided into only two categories – employed and unemployed.¹⁷

About half (46.4%) of the respondents were unmarried. More 7.9% remained single due to separation, divorce, or death of spouse. Half (50%) of the patients with schizophrenia in the study by Ahammad JU et al. (2009) were unmarried.¹⁷

The monthly family expenditure (17200±9571.513 BDT) in our study was lower than the family monthly income reported by Akhter H et al, though our findings regarding family type and mean number of family members were like the findings of that study.

In the current study, about one-third (32.0%) of the patients with schizophrenia spectrum and other psychotic disorders had a history of psychiatric illness among their relatives. First and second-degree relatives were considered as 'relatives' in our study. The schizophrenic patients or their accompanying informants reported about the relatives' psychiatric diagnosis confirmed by a psychiatrist, consultation with a psychiatrist or psychologist for psychiatric problems or problems unknown to the informants, or consultation with any other professional who referred them to mental health professional. Personal judgement or comment of the respondents or their accompanying informants about the relative's psychiatric condition was not considered as illness.

In the current study, the rate of relatives with psychiatric illness was more (37.0%) among females with schizophrenia spectrum and other psychotic disorders than the rate (27.5%) found among the male respondents with same disorder. Positive family history of psychiatric illness was found among half of the respondents who were separated, divorced or lost their spouse due to death. The correlation of family history of psychiatric illness with gender and marital status was not statistically significant. Our findings contradict with the findings of an Iranian study where positive family history was more associated with male sex.¹⁹

Researchers have shown that the family history of bipolar disorders, major depressive disorder and anxiety disorders are higher in individuals with schizophrenia than normal population.^{20,21,22} In Copenhagen and New York high-risk cohorts, children of mothers with schizophrenia were found to have an increased risk of a range of psychotic, affective, and personality disorders on top of schizophrenia.^{23,24} In the Helsinki High Risk Study, offspring of mothers with schizophrenia were found to have developed nonpsychotic mental disorders more than schizophrenia.²⁵ With such evidences, it could be hypothesized that the description of familial loading of individuals with schizophrenia should be broadened by including psychiatric disorders in general rather than a specific diagnosis.

In the current study, we looked for only the presence of psychiatric illness among relatives - the diagnosis of the illnesses was out of the scope of the study due to several limitations including the absence of the relative having the psychiatric illness. We have followed the family history method which involved interviewing probands or other family informants to gather data pertaining to relatives' psychiatric status. Though it saved time and cost, lack of sensitivity (i.e., underestimating true rates) is a major drawback. Findings of our study should be interpreted cautiously as it is of cross-sectional design with convenient sampling. Being a hospital-based study prohibits the findings from being generalized for the community population.

Conclusion

Current study found that about one-third of individuals with schizophrenia had family history of psychiatric illness, which may encourage the search for the genetic variants or molecular bases for the disorder. Our study failed to find any significant correlation of family history of psychiatric illness with gender and marital status of the individual with schizophrenia. So, prevention, early detection, and treatment strategies for at-risk individuals with family history of psychiatric illness should be generated irrespective of gender and relationship status of the individual.

Acknowledgement:

Grateful to Professor Bidhan Ranjan Roy Podder, Director, NIMH; Farzana Rahman, Associate Professor of Community and Social Psychiatry, NIMH; Zinat De Laila, Assistant Professor of Psychiatry, NIMH; and Shahana Parveen, Assistant Professor of Psychiatry, NIMH, for their support and advice.

References

1. Lehman AF, Lieberman JA, Dixon LB, et al. "Practice guideline for the treatment of patients with schizophrenia", 2nd ed. American Psychiatric Association. 2010. Available at: https://psychiatryonline.org/pb/assets/raw/sitewide/practice_guidelines/guidelines/schizophrenia.pdf.
2. Saha S, Chant D, Welham J, McGrath J. A systematic review of the prevalence of schizophrenia. *PLoS Med.* 2005;2:e141.
3. Davis J, Eyre H, Jacka FN, Dodd S, Dean O, McEwen S, et al. A review of vulnerability and risks for schizophrenia: Beyond the two hit hypothesis. *Neurosci Biobehav Rev.* 2016;65:185–194. doi: 10.1016/j.neubiorev.2016.03.017.
4. Murray RM, Bhavsar V, Tripoli G, Howes O. 30 Years on: How the neurodevelopmental hypothesis of schizophrenia morphed into the developmental risk factor model of psychosis. *Schizophr Bull.* 2017;43:1190–1196. doi: 10.1093/schbul/sbx121.
5. McClellan J, Stock S. American Academy of Child and Adolescent Psychiatry (AACAP) Committee on Quality Issues (CQI): Practice parameter for the assessment and treatment of children and adolescents with schizophrenia. *J Am Acad Child Adolesc Psychiatr.* 2013;52:976–990. doi: 10.1016/j.jaac.2013.02.008.
6. Hollis C, Palaniyappan L. Schizophrenia and psychosis. In: Rutter's Child and Adolescent Psychiatry. Thapar A, Pine DS, Leckman JF, Scott S, Snowling MJ and Taylor E (eds). 6th edn. NJ:John Wiley & Sons Ltd. 2015, pp774-794.
7. Mortensen PB, Pedersen MG, Pedersen CB. Psychiatric family history and schizophrenia risk in Denmark: which mental disorders are relevant? *Psychol Med.* 2010;40(2):201-210.
8. Bleuler E, Jung C. Komplexe und Krankheitsursachen bei Dementia Praecox. *Zentralblatt für Nervenheilkunde und Psychiatrie.* 1908;31:220–227.
9. Rüdin E. Zur Vererbung und Neuentstehung der Dementia Praecox. Berlin: Springer. 1916.
10. Kahn E. Studien über Vererbung und Entstehung geistiger Störungen. IV. Schizoid und Schizophren im Erbgang. Berlin: Springer-Verlag. 1923.
11. Lo LE, Kaur R, Meiser B, Green Mj. Risk of schizophrenia in relatives of individuals affected by schizophrenia: A meta-analysis. *Psychiatry Res.* 2020;286:112852.
12. Kakela J, Nordstrom T, Haapea M, Jaaskelainen E, Miettunen J. Association between family history of mental disorders and outcome in psychotic disorders. *Psychiatry Res.* 2018;270:616–621.
13. Kakela J, Marttila R, Keskinen E, Veijola J, Isohanni M, Koivumaa-Honkanen H, et al. Association between family history of psychiatric disorders and longterm outcome in schizophrenia - The Northern Finland Birth Cohort 1966 study. *Psychiatry Res.* 2017;249:16-22.
14. Matzova Z, Skodacek I, Suba J, Bohmer F. Comparison of history of adolescents with substance-induced psychosis, early onset schizophrenia and substance use disorders. *Bratisl Lek Listy.* 2014;115(12):771-775.
15. World Health Organization. National mental health survey of Bangladesh, 2018-19: Provisional fact sheet. https://www.who.int/docs/default-source/searo/bangladesh/pdf-reports/cat-2/nimh-fact-sheet-5-11-19.pdf?sfvrsn=3e62d4b0_2
16. Akter H, Mali B, Arafat SMY. Socio-Demographic Analysis of Non-Compliance among Patients with Schizophrenia: A Cross-Sectional Observation in a Tertiary Teaching Hospital of Bangladesh. *Malaysian J Psychiatry.* 2019 Jun; 28(1):39-47.
17. Ahammad JU, Rahman MH, Islam MA, Rahman MS, Rabbani MG. Demographic features and common presentations of schizophrenia. *JAFMC Bangladesh.* 2009 Jun;5(1):29-33.
18. Bangladesh Bureau of Statistics. Report on Bangladesh sample vital statistics 2018. Dhaka (BD): Bangladesh Bureau of Statistics (BBS) Statistics and Informatics Division, Ministry of Planning; 2019.
19. Mowla A, Bahrami S. Study Family History of Psychiatry Disorders in Schizophrenia Patients. *J Neurology Res.* 2020;10(6):231-234.
20. Lichtenstein P, Yip BH, Bjork C, Pawitan Y, Cannon TD, Sullivan PF, Hultman CM. Common genetic determinants of schizophrenia and bipolar disorder in Swedish families: a population-based study. *Lancet.* 2009;373(9659):234- 239.
21. Prasad KM, Sanders R, Sweeney J, Montrose D, Diwadkar V, Dworakowski D, et al. Neurological abnormalities among offspring of persons with

- schizophrenia: relation to premorbid psychopathology. *Schizophr Res.* 2009;108(1-3):163-169.
22. Ross RG, Compagnon N. Diagnosis and treatment of psychiatric disorders in children with a schizophrenic parent. *Schizophr Res.* 2001;50(1-2):121-129.
23. Parnas J, Cannon TD, Jacobsen B, Schulsinger H, Schulsinger F, Mednick SA. Lifetime DSM-III-R diagnostic outcomes in the offspring of schizophrenic mothers: results from the Copenhagen High-Risk Study. *Arch Gen Psychiatry.* 1993;50(9):707-714.
24. Erlenmeyer-Kimling L, Adamo UH, Rock D, Roberts SA, Bassett AS, Squires-Wheeler E, et al. The New York High-Risk Project: prevalence and comorbidity of axis I disorders in offspring of schizophrenic parents at 25-year follow-up. *Arch Gen Psychiatry.* 1997;54(12):1096-1102.
25. Niemi LT, Suvisaari JM, Haukka JK, Wrede G, Lonnqvist JK. Cumulative incidence of mental disorders among offspring of mothers with psychotic disorder: results from the Helsinki High-Risk Study. *Br J Psychiatry.* 2004;185:11-17.