

Social Functioning in First Degree Relatives of Patients with Schizophrenia and Mania with Psychotic Symptoms: A Comparative Study

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ABSTRACT

Non-affective psychosis refers to psychosis not related to emotions and mood. Affective psychosis is a psychological disorder where people experience a loss of contact with reality and experience where mood disturbances are the primary cause. The focus has been shifted to the first degree relatives of these populations to prevent the disorder at the earliest. So, the first degree relatives are known to be high-risk population with a genetic vulnerability. These two psychotic disorders (schizophrenia & mania with psychotic symptoms) show various impairments in the various field but these impairments are present to define these disorders, unaffected relatives of these two disorders for different areas like social, cognitive, neurocognitive and social functioning. Aim of this study to assess social functioning in first degree relatives of patients with schizophrenia and mania with psychotic symptoms. The sample consisted of 30 first degree relatives (FDR) of patients with schizophrenia and mania with psychotic symptoms and 15 normal healthy control. After the initial screening by the clinical assessments, based on their amenability for the interview, a tool for the assessment of socio-occupational functioning (SOFS) was applied on all three groups. The study found that first degree relatives of patients with schizophrenia group found to be lower in externalized attribution bias on a measure of social cognition compared to FDR of patients with mania with psychotic symptoms group and healthy controls. And the FDR of patients with schizophrenia and mania with psychotic symptoms groups were found higher in reaction time in trail making on a measure of neurocognition compared to healthy controls.

Keywords: *Affective and Non-affective psychosis, FDR, Social functioning*

Non-affective psychosis refers to psychosis not related to emotions and mood. Schizophrenia & delusional disorders are examples of non-affective psychosis as opposed to a bipolar disorder which is an affective psychosis as it has emotional and mood abnormalities. Affective psychosis is a psychological disorder where people experience a loss of contact with reality and experience where mood disturbances are the primary cause. Affect

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Received: April 15, 2019; Revision Received: May 27, 2019; Accepted: May 28, 2019

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in the psychological sense refers to a person's emotional state. Various aspects of these two disorders studied for rehabilitation in the society. Similarly, the focus has been shifted to the first degree relatives of these populations to prevent the disorder at the earliest. So, the first degree relatives are known to be high risk population with a genetic vulnerability.

Schizophrenia is a disorder with variable phenotypic expression and poorly understood, complex etiology, involving a major genetic contribution, as well as environmental factors interacting with the genetic susceptibility (Jablensky, 2010). Schizophrenia is a complex and severe mental disorder, it's affecting the participant's actions, perceptions, emotions, and cognitive functions (Andreasen, 1997; Gold, 2004). The lifetime prevalence of schizophrenia is approximately 1% and very often the illness persists for a lifetime, rendering patients' dependent on the public health system (Lewis, and Lieberman, 2000; Saha et. al, 2005). Although the onset of the disease is most common at the end of adolescence or the beginning of adulthood and the etiopathogenesis indicates that genetic predispositions and developmentally early hits, such as social stress, enhance the probability of developing schizophrenia (Rehn, and Rees, 2005). The transition into the illness is marked by pathological changes of the brain and such as regional specific losses in grey & white matter.

Bipolar disorder is a lifetime illness which follows a relapsing and remitting course, manic or depressive episodes' relapse in an unpredictable manner. Mania is characterized by a broad array of symptoms including grandiosity, mood lability, decreased need for sleep, and cognitive impairment (Leboyer, and Kupfer, 2010), individual or patient may also experience psychotic symptoms, impaired functioning, substance abuse, and anxiety disorders (Judd, et. al, 2005). During a manic episode, patients may not perceive that they need treatment, although consequences of poor judgment, hyperactivity, and lack of insight are severe enough to profoundly impair social and professional functioning or to require hospitalization. These two psychotic disorders show various impairments in the various field but these impairments are present to define these disorder, unaffected relatives of these two disorders for different areas like social, cognitive, neurocognitive and social functioning.

Social functioning:

Social functioning defines an individual's interactions with his/her environment and the ability to fulfill their role within such environments as work, social activities, and relationships with partners and family. In other words, social functioning defines the ability to establish and maintain relationships with friends and family as well as to undertake work and leisure activities and to cope with day-to-day activities (Bellack, et al, 1990). The term social functioning has been used to apply to self or other report of interpersonal behaviours, behaviour in community settings (e.g., skill ratings while shopping), skills of independent living (e.g., self-care skills, grooming, financial skills, etc.), ratings of social skill in laboratory settings (e.g., role-play tests), and ratings of social problem-solving skills.

First degree relatives in affective and non-affective psychosis:

Genetic or familial Vulnerability: Healthy first-degree relatives of schizophrenia patients may have impairments in cognition, indicating genetic and family predisposition to the illness (Sitskoorn, et al, 2004; Kuha, et al, 2007). Cognitive dysfunction has been suggested as a trait marker of schizophrenia. It is observed in the chronic, first episode and remitted patients with schizophrenia (Hofer et al, 2011). Also, cognitive deficits are observed before the onset of illness in subjects who are at genetic or clinical high risk for psychosis (J Giuliano, et al,

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2012). Social cognition is affected in people with schizophrenia as well with bipolar disorder, but whether this is the case for healthy relatives of these patients is less clear. The presence of social cognition impairments in relatives would suggest a potential genetic role of social cognition in schizophrenia as well in bipolar disorder. Social cognition includes affecting recognition, attributional style, mental state attribution, and social perception. It is well known that in schizophrenia; deficits in social cognition are seen at all stages of the illness and are relatively stable (Horan et al, 2011).

First Degree Relatives (FDRs) of Schizophrenia and Mania with Psychotic Symptoms:

A first-degree relative is a family member who shares about fifty percent of their genes with a particular individual in a family. First degree relatives include parents, siblings, and offspring. In other words, an individual's first-degree relative is a parent, sibling, or child. A first-degree relative shares about half of their genes with the person. Schizophrenia is a major psychiatric disorder with variable phenotypic expression and still, it is not thoroughly understood by mental health community; this disorder is marked by very complex etiology which involves myriad genetic contribution, as well as environmental factors interacting with the genetic susceptibility. Multiple genes and different combinations of their polymorphic variant provide the genetic background, with a proportion of the transmitted genotypes remaining clinically unexpressed (Jablensky, 2006). People with schizophrenia experience and develop a wide and diverse array of psychological difficulties reaching for beyond the sign and symptoms of the disease. People often experience very recalcitrant symptoms and longer presence of those symptoms lead to a significant reduction in all spheres of their personal, socio-occupational, and intellectual skills. They develop marked impairment in myriad cognitive and intellectual skills and abilities, affect and emotions, interpersonal and social skills, and so on (Horan et al, 2008; Meesters, et al, 2010; Figueira and Brissos 2011).

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Gkintoni et al (2017) assessed that cognitive deficits are consistent endophenotypes of schizophrenia and bipolar disorder and they compared adult unaffected first-degree relatives of schizophrenia and bipolar disorder patients on social functioning, quality of life, cognition and psychopathology. The unaffected first-degree relatives of schizophrenia patients group had higher depressive and somatization symptoms while the unaffected first-degree relatives of bipolar disorder patients group had higher anxiety and lower social functioning compared with the controls. Individuals with higher cognition were more likely to be classified as controls; those with higher social functioning, prolonged processing speed, and lower anxiety were more likely to be classified as unaffected first-degree relatives of schizophrenia patients. Hajnal et al (2014) revealed that impairment of social functioning and difficulties in social integration are frequently found in patients with schizophrenia, and may affect the quality of life, thus revealing that the underlying mechanisms of these differences appear to be of high importance. The impairment of social functioning has been reported in first-degree relatives of schizophrenia patients and individuals at ultra-high risk for psychosis. Two meta-analyses and 15 studies were reviewed, in which various theory of mind tests was performed involving first-degree relatives of patients with schizophrenia, with diverse findings, both positive and negative results have been found. Overall the social cognitive functions of first-degree relatives were found affected, which suggests the role of social cognition as an endophenotypic marker of schizophrenia.

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MATERIALS AND METHODS

This comparative study was approved by the Institutes Ethics Committee. Written informed consent was taken from all the participants before enrolling them for the study.

Design:

This was a comparative study examining the differences of social functioning in first degree relative of patients with schizophrenia and mania with psychotic symptoms, and in this study, purposive sampling was used to select the sample.

Participants:

Using purposive sampling, 45 right-handed male and female First-degree relatives [15 FDR of patients with first-episode schizophrenia, [15 FDR of patients with first-episode mania with psychotic symptoms from clinical population diagnosed recent onset as per ICD-10(DCR) criteria), and 15 healthy subjects] were selected. Healthy controls were screened with the General Health Questionnaire (GHQ)-12; only those with scores <3 were included (Goldberg & Williams, 1988). Additionally, all the participants required a minimum of 8 years of formal education, normal vision and hearing and sufficient mastery in Hindi to undergo the task and in the age group of 18–50 years. Exclusion criteria were a history of neurological illness, significant head injury, substance dependence (excluding nicotine and caffeine), other psychiatric disorders, disruptive behavior (suicidal or homicidal) that warranted immediate intervention.

Tools used:

Following tools were used in the study. Consent form used to regard the consent for the participation in the current research. *The socio-demographic and clinical data sheet* was designed to collect all details regarding age, sex, education, occupation, marital status, religion, caste, domicile, family income, duration of illness of the patient, etc. Additional information about the patient will be taken with the help of the institute's case record file of the patient. *The General Health Questionnaire (GHQ 12)* was introduced by Goldberg and Williams in 1988. It is a screening device for identifying minor psychiatric disorders in the general population and within the community or non-psychiatric clinical settings such as primary care or general medical out-patients. The self-administered questionnaire focuses on two major areas: a) The inability to carry out normal functions b) The appearance of new and distressing phenomena. *The Social Occupational Functioning Scale (SOFS)* (Saraswat, Subbakrishna, and Gangadhar, 2006) was used to assess in the domains of self-care and activities of daily living, communications and interpersonal relations, instrumental living skills and work.

Procedure:

First degree relatives of patients with schizophrenia and mania with psychotic symptoms have been identified for the study. Written informed consent was taken from all the first degree relatives of patients with schizophrenia and mania with psychotic symptoms. Only in those fulfilling the inclusion criteria were selected for the study. Socio-demographic data were taken from selected participants. Assessment on these first degree relatives was done. Participants from all groups were assessed on tasks of social functioning, (Social and Occupational Functioning Scale (SOFS). Control group (Group 3) who were selected from the normal population and were fulfilling inclusion criteria, and those given written informed

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consent. General Health Questionnaire –12 was applied on normal participants and only those participants were taken who scored less than 3.

Statistical Analysis:

Appropriate statistical methods were used for analyzing the data. The result obtained was analyzed by using the computer software program, Statistical Package for Social Sciences-version 22.0 for Windows. With different parametric measures being used. Description of sample characteristics with descriptive statistics percentage, means, and standard deviation. Group differences for sample characteristics and experimental variables were examined with one-way ANOVA and Chi-square test wherever applicable. Correlation between the variables- Pearson correlation was used.

RESULTS

Socio demographic variables –

Table – 1.1: Comparison of Socio-Demographic Variables (Continuous) Between First Degree Relatives of Patients with Schizophrenia and Mania with Psychotic Symptoms & Healthy Control Groups (N=45)

Variable Group	FDR of Schizophrenia (n=15) Mean \pm SD	FDR of Mania with psychotic symptoms (n=15) Mean \pm SD	Healthy Controls (n=15) Mean \pm SD	F (df = 42)	p
Age (in years)	38.40 \pm 3.54	36.13 \pm 7.80	34.60 \pm 3.43	1.927	0.158
Family Income (in rupees)	10000.00 \pm 3316.62	9333.33 \pm 3062.83	12233.33 \pm 4450.78	2.778	0.074
Education (in years)	11.33 \pm 2.19	10.27 \pm 1.66	12.27 \pm 2.76	2.959	0.063

FDR = First Degree Relatives,

Table 1.1 shows a comparison of age, family income and education (continuous variables) across three groups – first degree relatives of patients with schizophrenia and mania with psychotic symptoms, and healthy controls using one-way ANOVA. The three groups were comparable in these variables. There was no significant difference found between the three groups. In FDR of the schizophrenia group, the mean age was 38.40 years (SD = 3.54) and mania with psychotic symptoms group the mean age was 36.13 years (SD = 7.80). In the healthy control group, the mean age was 34.60 years (SD = 3.43). Mean family income for schizophrenia group was 10000.00 (SD = 3316.62) and for FDR of mania with psychotic symptoms, it was 9333.33 (SD = 3062.83). For healthy controls group, it was 12233.33 (SD = 4450.78).

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Table -1.2: Comparison of Socio-Demographic Variables (Discrete) Between First Degree Relatives of Patients with Schizophrenia and Mania with Psychotic Symptoms & Healthy Control Groups (N=45)

Variables		FDR of Schizophrenia n (n %) (n=15)	FDR of Mania with psychotic symptoms n (n %) (n=15)	Healthy Controls n (n %) (n=15)	χ^2 /Fisher's exact	df	p
Marital Status	Unmarried	0 (0.0%)	2 (13.3%)	1 (6.7%)	4.049 ^f	1	0.762
	Married	15 (100.00 %)	13 (86.7 %)	14(93.3 %)			
Religion	Hindu	13 (86.7%)	14(93.3%)	14(93.3%)	0.549 ^f	1	1.00
	Others	2 (13.3%)	1(6.7%)	1(6.7%)			
Occupation	Employed	3 (20.0%)	4 (26.7%)	7 (46.7%)	6.754 ^f	2	0.132
	Unemployed	12 (80.0%)	9 (60.0%)	8 (53.3%)			
	Other/Business	0 (0.0%)	2 (13.3%)	0 (0.0%)			
Habitat	Rural	6 (40.0%)	9 (60.0%)	5 (33.3%)	2.340 ^f	1	0.416
	Urban	9 (60.0%)	6 (40.0%)	10(66.7%)			

FDR = First Degree Relatives, f = Fisher's exact test.

Table 1.2 gives comparative information about socio-demographic characteristics (discrete variables) of experimental and healthy control groups. Discrete variables consisted of marital status, religion, occupation, and habitat. Pearson chi-square or Fisher's exact test was used. No significant difference was seen in marital status. It was lower in FDR of mania with psychotic symptoms i.e. 13 (86.7%). In first degree relatives of patients with schizophrenia group, the number of employed people was i.e. 3 (20.0%), in FDR of mania with psychotic symptoms group the number of employed people was same i.e. 4 (26.7%). It was 7 (46.7%) in the healthy controls group. The finding suggests that there was no statistically significant difference among the three groups.

Experimental Variables:

Table – 2.1: Comparison of social-occupational functioning in first degree relatives of patients with schizophrenia and mania with psychotic symptoms and healthy control groups (N=45)

Variable	FDR of Schizophrenia (n=15) Mean \pm SD	FDR of Mania with psychotic symptoms (n=15) Mean \pm SD	Healthy Controls (n=15) Mean \pm SD	F (df = 42)	p
SOFS	14.73 \pm 1.03	14.73 \pm 0.96	14.00 \pm 0.00	4.053	0.024

FDR = First Degree Relatives, SOFS = Social and occupational functioning scale

Table 2.1, shows a comparison of social-occupational functioning between three groups. First degree relatives of patients with schizophrenia group were found to be higher with the mean 14.73 (SD = 1.03) compared to patients with mania with psychotic symptoms and healthy controls group with the mean of 14.73 (SD = 0.96) and 14 (SD= 0.00). While

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ANOVA showed significant difference among the three groups, post hoc analysis showed that the difference was not found to be statistically significant between the groups.

Table – 3.1: Correlation between Socio-Demographic Variables and Experimental Variables in First Degree Relatives of Patients with Schizophrenia groups:

Variables	Education	SOFS
Age	-0.552*	0.148
Education		-0.557*
Family Income	0.491	0.042

*P < .05, SOFS = Social and occupational functioning scale,

Table – 3.2, Shows correlation between socio-demographic variables and experimental variables in first degree relatives of schizophrenia. Pearson correlation was used. It was found that there is a significant negative correlation between age and education, and a significant negative correlation between education and Social and occupational functioning.

DISCUSSIONS

Sample characteristics and socio-demographic characteristics: (Table 1.1 and 1.2)

The present study was conducted on 15 first degree relatives (FDR) of a patient with schizophrenia, 15 first degree relatives of a patient with mania with psychotic symptoms and 15 normal controls with age mean of 18 to 50 years. In the study mean score of age was 38.40 ± 3.54 of FDR of patients with schizophrenia, 36.13 ± 7.80 of FDR of patients with mania with psychotic symptoms and 34.60 ± 3.43 of normal controls. Results show that there is no significant difference between the groups.

In the present study, three groups were compared on various sociodemographic and clinical variables like sex, marital status, religion, socioeconomic status, habitat, education, occupation, past history, and family history. There was no significant difference found in all these variables. Result reveals that first degree relatives (FDR) of patients with schizophrenia 15 (100.0%) were married, FDR of patients with mania with psychotic symptoms 13 (86.7 %) were married and 2 (13.3%) were unmarried and in the normal controls 14 (93.3 %) were married and 1 (6.7%) individual was unmarried. In first degree relatives of patients with schizophrenia group, the number of employed people was i.e. 3 (20.0%), in FDR of patients with mania with psychotic symptoms group the number of employed people was 4 (26.7%). In healthy control, it was 7 (46.7%). The finding suggests that there was no statistically significant difference among the three groups. Further, the result is showing that 40% FDR of patients with mania schizophrenia are from rural background whereas in FDR of patients with mania group it is 60 % but in healthy control, it is 33.3%. This was also not statistically significant. Being a Government Tertiary Hospital majority of patients attend the services belong to families hailing from rural habitat, so the finding of the study. A similar finding was observed by Srinivasan and Thara (1997) that 80% of patients with schizophrenia come from rural background. In the present study mean of family income of first degree relatives of schizophrenia was 10000.00 (SD = 3316.62) and for FDR of mania with psychotic symptoms, it was 9333.33 (SD = 3062.83). For the healthy controls group, it was 12233.33 (SD = 4450.78). There was no significant difference found between the three groups. The reason for not having any significant difference on sociodemographic variables could be

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attributed to the careful selection of sample or in other words, it can be said that samples were well matched for the present study. However, some well-matched studies also observed no differences between relatives and controls (Surguladze, et al, 2010; Erol et al, 2010).

Social Occupational Functioning in First Degree Relatives: (Table – 2.1) –

The present study shows no statistically significant difference in social functioning between first-degree relatives (FDR) of patients with schizophrenia and mania with psychotic symptoms, and when compared with healthy normal controls. In this study first degree relatives of patients with schizophrenia, group was found to be higher with the mean 14.73 (SD = 1.03) compared to mania with psychotic symptoms and healthy control group with the mean of 14.00. The previous study of Gkintoni, finding revealed mixed findings related to social functioning in first degree relatives of both group. The unaffected first-degree relatives of schizophrenia patients group had higher social functioning while the unaffected first-degree relatives of bipolar disorder patients group had lower social functioning compared with the controls. Persons with superior cognition were more likely to be classified as controls; those with higher social functioning, prolonged processing speed, and lower anxiety were more likely to be classified as unaffected first-degree relatives of schizophrenia patients.

Correlation between Socio-Demographic Variable and Experimental Variables in First Degree Relatives of Patients with Mania with Psychotic Symptoms and FDR of patients with schizophrenia Groups: (Table: 3.1) –

The present study also shows the relationship between social functioning with sociodemographic and clinical variables in first degree relatives (FDR) of patients with mania with psychotic symptoms and FDR of patients with schizophrenia. This is in addition to, and independent of, the contributions of language and age. Negative correlation between social and occupational functioning (SOFS) and education in FDR of schizophrenia ($p < .05$) was also found from the study. This study shows few significant relations between variables of social functioning across three groups. This study shows that unaffected first-degree relatives (FDR) of patients with schizophrenia patients and FDR of patients with mania with psychotic symptoms display patterns of social functioning, which are different from healthy control subjects. It is not clear whether differences in performance between their relatives represent different degrees of functional compromise, such that general deficits affect specific aspects of social functioning in these groups. The present results underscore the need to carefully consider how general abilities affect social functioning in FDRs of patients with schizophrenia and mania with psychotic symptoms and normal healthy controls.

CONCLUSION

The present study is an attempt to a better understanding of socio-occupational functioning in first degree relatives (FDR) of patients with schizophrenia and mania with psychotic symptoms. The socio-demographic variables were matched, and this study reveals that the first-degree relatives of people with schizophrenia show moderate difficulties in some domains of social and occupational functioning, and the overall results are thus consistent with the hypothesis of an endophenotypic role of social and occupational functioning impairments in FDRs of patients with schizophrenia and mania with psychotic symptoms.

LIMITATIONS

In the present study have some limitations. The sample size was modest and small, which made it difficult to generalize the results. There was a gender difference, more male

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participants could have been included. There was a difference in occupational status in first degree relatives and normal controls. Most of the participants were from low socio-economic status and rural habitat, where the normal control from urban and middle socioeconomic status.

IMPLICATIONS OF THE STUDY

In this study, attempts were made to understand socio-occupational functioning in first degree relatives of patients with schizophrenia, FDR of mania with psychotic symptoms and normal controls. As a result, this study can help clinicians to understand deterioration in the situation of first degree relatives of patients with mental illness and can help to formulate an effective treatment plan and preventive measures which can help to improve socio-occupational functioning and quality of life.

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Acknowledgments

The authors profoundly appreciate all the people who have successfully contributed in ensuring this paper in place. Their contributions are acknowledged however their names cannot be mentioned.

Conflict of Interest

The authors carefully declare this paper to bear not a conflict of interests

How to cite this article: Kumar. V, Das. B & Lahiri. D (2019). Social Functioning in First Degree Relatives of Patients with Schizophrenia and Mania with Psychotic Symptoms: A Comparative Study. *International Journal of Indian Psychology*, 7(2), 497-506. DIP:18.01.060/20190702, DOI:10.25215/0702.060