

Relationship of socio-demographic factors with cognitive dysfunction in schizophrenia

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ABSTRACT

Background: The data related to the association of sociodemographic factors with cognitive dysfunction in schizophrenia in younger population are lacking. The aim of the study was to assess the association of sociodemographic factors with cognitive dysfunction in schizophrenia.

Methods: 200 schizophrenia cases were recruited for the study. Socio-economic status was assessed using modified Kuppasamy socio-economic status scale. Cognitive examination was assessed using Addenbrooke cognitive examination-III (ACE-III).

Results: Educational years ($t = 0.223$, $p = 0.021$) and Kuppasamy total socioeconomic score ($t = 0.258$, $p = 0.002$) predicted ACE score in schizophrenia cases. Among sociodemographic factors, gender (OR= 2.542, CI=1.426-4.531, $p=0.001$), education years (OR = 3.849, CI = 2.113-7.012, $p = <0.001$) employment status (OR=3.803, CI=1.719-8.413, $p=0.001$) and socioeconomic status (OR = 0.178, CI = 0.066-0.480, $p = < 0.001$) were associated with cognitive dysfunction in schizophrenia cases.

Conclusion: Educational years and lower socio economic status are associated with cognitive dysfunction in schizophrenia

Key words: Schizophrenia; cognitive impairment; sociodemographic factors.

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INTRODUCTION

Schizophrenia is a severe form of psychiatric disorder associated with poor quality of life [1]. Apart from clinical symptoms, social support, sociodemographic factors like employment, lifestyle and educational years were known influence quality of life in schizophrenia [2]. Socioeconomic factors are reported to play a role in the development of schizophrenia [3]. Previous studies have demonstrated that low socioeconomic status and lower educational level increases the risk of schizophrenia [4].

Cognitive functions are known to be affected in schizophrenia and it is considered as an important determinant in predicting functional outcome in schizophrenia [5]. Earlier researchers have demonstrated cognitive impairment in the first episode of schizophrenia and hypothesized that it can be causal factor for disability in schizophrenia [6-7]. Cognitive dysfunction diminishes employment opportunities and increases the individuals isolation and dependency on the family [8]. Financial instability act as inhibitory factor in having compliance to treatment which could end up in worsening cognitive function [9].

Earlier studies have established the relationship between cognitive dysfunction and sociodemographic factors in adult population across the world [10], but the data related to same are lacking in young schizophrenia patients from India. Hence the present study was designed to assess the association of sociodemographic factors with cognitive dysfunction in schizophrenia.

METHODOLOGY

It was a cross-sectional study carried out in a tertiary care hospital, India. Ethical approval was taken prior to the commencement of the study from institute ethics committee (IEC/2018/076). A written informed consent was taken from the participants and their legally accepted representative prior to their enrolment in the study. 200 consecutive schizophrenia cases in the age limit of 18-45 years were recruited from psychiatry ward and out-patient department. Diagnostic and Statistical Manual of Mental Disorder -5 (DSM-5) criteria was used to confirm the diagnosis of schizophrenia in the study participants [11]. Sociodemographic details were assessed using modified Kuppaswamy socio-economic status scale, 2019 [12]. Cognitive status was assessed using Addenbrooke Cognitive Examination -III scale [13]. The scale measures five elements of cognition which comprises of language, memory, fluency, attention and visio-spatial abilities. The scale ranges from 0-100.

Statistical Analysis

The statistical analysis was performed on IBM SPSS 20.0 tool. The continuous data such as duration of illness and age was expressed as median (range). Binary data was represented in terms of percentages. Linear regression analysis was used to assess the predictors of ACE III score using age, duration of illness, Kuppaswamy score and education as covariates. Binary logistic regression was performed to assess the factors increasing the risk of cognitive dysfunction. The value of $p < 0.05$ was considered to be significant.

RESULTS

The socio-demographic details of the schizophrenia cases are shown in **Table 1**. Around 48 % of the schizophrenia patients were unmarried and 10% were separated / divorced. About 82 % of participant belonged to lower socio economic status and 77% of them were unemployed. 15% of them had suicidal thoughts during the interview and 28% of them had suicide attempt in the past . 40% of the participants were drug naïve and rest 60% were drug free. Around 48 % of subjects had difficulties in performing day to day activity and disturbed sleep. The median years of education was 10 years. Around 5.5% were found to be illiterates, 63.5% were non-graduates and 31% were graduates.

Table 1: Sociodemographic details of schizophrenia cases

Parameters	Schizophrenia cases
Age (years)	35.0 (27.25-43.00)
Duration of illness (Years)	4.0 (1.0 -7.0)
Years of education	10 (8 -15)
Illiterates	11 (5.5%)
Non – graduates	127 (63.5%)
Graduates	62 (31%)
Gender (Male/female)	111/89
Kuppaswamy total social score	8 (6 – 9)
Marital status	Unmarried -97 (48%) Married -80 (40%) Separated- 21(10.5%) Divorced -2 (1%)
Religion	Hindus-180 (90%) Muslims - 6(3%) Christians -14(7%)

Habitat	Rural-89 (44.5%) Urban-111(55.5%)
Socio economic status	Lower -164 (82%) Upper- 36(18%)
Employment status	Unemployed-154 (77%) Employed - 46(23%)
Disease type	Paranoid- 145 (72.5%) Undifferentiated – 33 (16.5%) residual- 2 (1%) catatonic – 8 (4%) schizoaffective -12 (6%)
Suicidal thoughts	Absent- 170(85%) Present - 30 (15%)
Lifetime Suicide Attempts	zero-144 (72%) one- 47(23.5%) two- 4 (2%) three- 5(2.5%)
Ability to do day to day work	Able- 104(52%) Unable- 96(48%)
Disturbed sleep	Present -96 (48%) Absent- 104(52%)

Linear regression analysis was used to identify the predictors of ACE III score with age, duration of disease, education years and Kuppasamy total socioeconomic score as covariates. Only years of education ($\beta = 0.223$, $p = 0.021$) and Kuppasamy total socioeconomic score ($\beta = 0.258$, $p = 0.002$) predicted ACE score in schizophrenia cases.

Table 2 shows sociodemographic factors which increases risk of cognitive dysfunction in schizophrenia. Among sociodemographic factors, gender (OR= 2.542, CI=1.426-4.531, $p=0.001$), education years (OR = 3.849, CI = 2.113-7.012, $p = <0.001$) employment status (OR=3.803,CI=1.719-8.413, $p=0.001$) and socioeconomic status (OR = 0.178 CI = 0.066-0.480, $p = < 0.001$) were associated with increased risk of cognitive dysfunction in schizophrenia cases.

Table 2: Sociodemographic factors which increases risk of cognitive dysfunction in schizophrenia.

Variable	OR with 95% CI	P
Gender	2.54 (1.426 -4.531)	0.001
Age	0.760 (0.432 -1.335)	0.339
Employment	3.803 (1.719-8.413)	0.001
Education	3.849 (2.113-7.012)	0.0001
Location	1.659 (0.940 -2.929)	0.080
Ability to do day to day activity	0.301 (0.167-0.542)	0.0001
Socio economic status	0.178 (0.066-0.480)	0.0001
Duration of disease	1.060 (0.600 – 1.871)	0.841
Suicidal thought	0.781 (0.358-1.703)	0.533

DISCUSSION

In the present study we found that educational years and Kuppasamy total socioeconomic score act as predictors of ACE score in patients with schizophrenia spectrum disorder. Among various socioeconomic factors, unemployment in spite of higher education status and poor socioeconomic status increases the risk of cognitive dysfunction in these subjects.

Schizophrenia is characterized by deficits in various cognitive domains [14]. In the present study, 83% (n = 166) of the subjects had cognitive dysfunction (ACE III score < 82). Cognitive dysfunction was mild in 30% (n = 49) [ACE III score – 61-82] and severe in 70 % (n = 117) [ACE III score - < 61] in of schizophrenia patients.

Sociodemographic factors are known to be associated with the development of schizophrenia [3]. The treatment of schizophrenia is considered as financial burden on the family due to its excess annual cost [15]. A recent study has demonstrated that sociodemographic factors influence the quality of life in schizophrenia patients and concluded that quality of life was better in schizophrenia patients with employment and higher education status [16]. In the present study, only 31% of the schizophrenia patients were graduates, 77% were unemployed and 82% belong to low socioeconomic status. Also educational years (p = 0.021) and Kuppasamy total socioeconomic score (p = 0.002) were found to predict cognitive score in schizophrenia cases suggesting a negative relationship between education, employment, socioeconomic status of an individual with cognitive function in schizophrenia cases. These findings were in agreement to previous studies which reported reduction in the risk of schizophrenia with improvement in education and socioeconomic status [4].

In the present study, we observe that employment status is associated with increased risk of schizophrenia (OR=3.803, CI=1.719-8.413, p=0.001). Individuals with a full time employment are known to have better cognitive performance [17]. Provision of employment opportunities in order to uplift socioeconomic status was reported to be beneficial in improving cognitive function and reducing prevalence of stigmatism and social isolation faced in schizophrenia [18].

The inability to perform routine activities (eg: taking prescribed medication, being able to cook, go shopping, cleaning, travelling, taking care of personal hygiene) of daily life increase the burden and dependency on caregivers (19). The ability to perform daily activities independently itself has been recognised as one of the prime concern of treatment outcomes in schizophrenia (20). The inability to do work further potentiates unemployment. In our study, around 48% of the schizophrenia patients were unable to perform their routine activities. Also we found that participants with inability to do day to day work had higher chance of developing cognitive dysfunction (OR= 2.318, CI=1.193-4.504, p=0.013).

The main limitations of the study was small sample size and the study was conducted in single tertiary care hospital from south India.

CONCLUSION

Based on the findings of the study, we conclude that educational years and lower socio economic status are associated with cognitive dysfunction in schizophrenia. Providing employment under supported employment programme in order to uplift socio economic status of those having schizophrenia would result in enhancing cognitive function and better quality of life.

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