psychiatry

STUDY OF GENDER DIFFERENCES IN SOCIODEMOGRAPHIC CHARACTERISTICS IN SCHIZOPHRENIA

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ABSTRACT

Background: Studying finer aspects of gender differences in sociodemographic and clinical characteristics of schizophrenia patients can pave way for better understanding of etiology, preventive strategies, and personalized medicine whereas only few studies have been done to study the gender differences in schizophrenia in India specially in Northeast region. Objective: To examine gender related differences in sociodemographic characteristics of Schizophrenia patients. **Methods:** Cross sectional study in 70 Schizophrenia patients diagnosed as per ICD 10 criteria, excluding other psychiatric comorbidities (except substance use disorder) aged 18-60yrs attending psychiatry department, of a tertiary care medical college hospital in GMCH, Guwahati with Sociodemographic proforma & statistical software SPSS26 **Results:** Predominance of female patients, majority in age group 26-32 yrs., Hindu religion, rural domicile, upper lower socioeconomic background, secondary level education, unemployment for more than one month and statistically significant difference of male: female education & employment status **Conclusion:** Findings of our study mostly matched the findings of different earlier studies. However, statistically significant difference between male vs. female educational and employment status and predominance of rural background patients calls for further exploration.

KEYWORDS : Schizophrenia, gender-differences in sociodemographic factors in schizophrenia

Introduction: -
Schizophrenia is a dreaded mental illness with tremendous impact on the patients, families, society, and nations' economy at large. Much of the continued detriment due to this illness, even centuries after its initial discovery, can be attributed to the difficulty in precisely identifying its cause and course with amoebic manifestations and varied course taken by this mental illness.[1]

The distinctiveness and similarities in socio demographic factors as well as the clinical aspects of the dreaded disease Schizophrenia has been of immense interest to the researchers from a long time for the reason of finding and going underneath the cause of this enigmatic disease as well as to find the management strategies customized to the suitability of each gender based on the research findings and scientific knowledge base.

Globally the researchers have found several gender specific peculiarities, of which many have been consistent while others have given controversial results warranting further exploration and study to substantiate the facts.[2]

Not many studies regarding the details of such gender differences have been done in India specially in the Northeast region of the country. Hence more research is needed to expound the causative significance of Biopsychosocial factors as better understanding about it shall improve the overall care of those who suffer from this widely prevalent and serious mental illness.[3]

Objective of study: -The aim and objectives of this study was to determine the gender differences in sociodemographic variables of schizophrenia patients attending the Psychiatry department of the Gauhati medical college hospital, Guwahati.

Methodology: -The study was conducted as a Cross sectional study from May 2021 to April 2022 with a sample size of 70 Schizophrenia

patients aged between 18-60 years excluding Intellectual disability and other psychiatric comorbidities recruited amongst the patients attending the Psychiatry department, GMCH, Guwahati, Assam, India and diagnosed as per ICD 10 criteria for schizophrenia.[4]

The patients and the informants were interviewed, and information collected as per the pre decided proforma for sociodemographic profile incorporating latest version of Modified Kuppuswamy scale for socio-economic status updated for the Year 2021 and complete psychiatric assessment was conducted maintaining the privacy and confidentiality as per protocol.[2], [5]

The collected data was compiled, and statistical analysis conducted as per the scheduled procedure in the protocol. The study findings were analyzed by descriptive and inferential statistics. Descriptive statistics were analyzed in the form of mean, standard deviation, frequency, and percentage. Inference statistics were analyzed in the form of either chi-square or Fisher's exact test for categorical and independent t test for continuous variables. Distribution of each parameter of socio-demographic and clinical profile of the patients in the sample were demonstrated individually as well as with respect to gender. The characteristics of the qualitative variables were described by frequency distribution. The quantitative variables were defined by mean and standard deviation or sometimes by measures of central tendencies. Univariate analysis was used to examine the association between gender and the categorical variables using chi-square test. Independent t-test was performed to test the mean difference between the two genders for quantitative variables. The statistical analysis was performed using SPSS software version 26.

The level of bilateral significance was taken as 0.05 and the hypothesis "There are no differences in the sociodemographic characteristics of the male vs female gender patients of schizophrenia" was tested accordingly

Results & observations:
Table 1: Sociodemographic characteristics of the Schizophrenia patients

Sociodemographic characteristic of the sample, n=70								
Variables	Groups	Overall sample		Male		Female		p
		n	%	n	%	n	%	
Gender	Male	34	48.6					
	Female	36	51.4					
Age Group	18 - 25 Years	15	21.4	8	23.5	7	19.4	.130
	26 - 32 Years	18	25.7	13	38.2	5	13.9	(NS)
	33 - 39 Years	11	15.7	3	8.8	8	22.2	

	40 - 46 Years	17	24.3	6	17.6	11	30.6	
	47 - 53 Years	4	5.7	1	2.9	3	8.3	
	54 – 60 Years	5	7.1	3	8.8	2	5.6	
Mean age difference	18 - 25 Years	15	22.80	8	23.13	7	22.43	.593
	26 - 32 Years	18	28.89	13	29.08	5	28.40	.486
	33 - 39 years	11	35.82	3	36.33	8	35.62	.606
	40 - 46 Years	17	43.24	6	43.83	11	42.91	.351
	47 - 53 Years	4	51.25	1	52.00	3	51.00	.478
	54 - 60 Years	5	58.20	3	57.67	2	59.00	.632
	Overall	70	35.53	34	34.12	36	36.86	.291
Religion	Christian	1	1.4	1	2.9	0	0.0	.578 (NS)
	Hindu	59	84.3	28	82.4	31	86.1	
	Islam	10	14.3	5	14.7	5	13.9	
Domicile	Rural	43	61.4	21	61.8	22	61.1	.955 (NS)
	Urban	27	38.6	13	38.2	14	38.9	
SES	Upper	0	0.0	0	0.0	0	0.0	.367 (NS)
	Upper Middle	0	0.0	0	0.0	0	0.0	
	Lower middle	27	38.6	14	41.2	13	36.1	
	Upper lower	41	58.6	20	58.8	21	58.3	
	Lower	2	2.9	0	0.0	2	5.6	
Education	Illiterate	10	14.3	1	2.9	9	25.0	.003*
	Primary	13	18.6	11	32.4	2	5.6	
	Middle School	13	18.6	4	11.8	9	25.0	
	Secondary	16	22.9	11	32.4	5	13.9	
	Senior Secondary	9	12.9	5	14.7	4	11.1	
	Graduates	8	11.4	2	5.9	6	16.7	
	Postgraduates	1	1.4	0	0.0	1	2.8	
Occupation/ Employment	Student	1	1.4	0	0.0	1	2.8	.000*
	Never employed	12	17.1	5	14.7	7	19.4	
	Unemployed for more than one month	31	44.3	20	58.8	11	30.6	
	Unemployed for less than one month	2	2.9	2	5.9	0	0.0	
	Homemaker	14	20.0	0	0.0	14	38.9	
	Employed/functioning	2	2.9	0	0.0	2	5.6	
	Employed	8	11.4	7	20.6	1	2.8	
Marital Status	Single	36	51.4	21	61.8	15	41.7	.323 (NS)
	Married	30	42.9	12	35.3	18	50.0	
	Separated	3	4.3	1	2.9	2	5.6	
	Widowed	1	1.4	0	0.0	1	2.8	

The study included 70 participants with diagnosis of Schizophrenia as per the ICD -10 diagnostic criteria.

The distribution of the sample population showed that the percentage of female population was little higher i.e., 51.4% in comparison to the male patients which comprised of 48.6% out of the total study population of 70(n).

The mean age of the male patients (34.12 years) was less than the mean age of the female patients (36.86 years) in the overall sample. The general mean of the sample was found to be 35.53 years. Independent t-test was done to see the significance of mean difference between male and female population which came out to be not statistically significant (t = 1.063, p = .291>0.05). Hence age of the male and female patients did not differ substantially.

In the entire sample, majority 84.3% were Hindu population, 14.3% were Islam and only 1.4% were Christian. Among the female patients, 88.9% were Hindu and 11.1% were Islam. There were no Christian female patients. Among the men, there were 79.4% Hindu, 17.6% were Islam and 2.9% Christian. The calculated chi-square value was 1.768 which was statistically not significant (p =.578>.05) inferring that gender and religion were not related statistically.

In the entire sample, majority 61.4% of the patients came from rural area and other 38.6% from urban area. Among women, 61.1% were residing in rural and 38.9% were residing in urban area. Among men, 61.8% and 38.2% respectively were residing in rural and urban locality. To find the association between gender and domicile of the patients, chi-square test was done which was statistically not significant (p =.955>.05) inferring that gender and domicile/residence of the patients were not related statistically in the study population.

Majority patients in the study belonged to upper lower socioeconomic class (58.6%) whereas 38.6% belonged to lower middle class and only 2.9% belonged to lower class. No patients were from upper and upper middle class in the study sample. Among the female patients, 58.3%, 36.1%, and 5.6% belonged to upper lower, lower middle, and lower class respectively and among the males, 58.8% and 41.2% were from upper lower and lower middle class respectively. On chi-square test no significant difference was found (p=.367>.05) between men and women with respect to socio-economic status.

Educational level of most of the patients in sample i.e., 22.9% was till secondary level, 18.6% were in primary and other 18.6% were in middle school. 14.3% were illiterate, 12.9% were in senior secondary level, 11.4% were graduates and only 1.4% were postgraduates. Among the female patients, majority i.e., 25% were illiterate, 5.6% were in primary school, 25% in middle school, 13.9% were in secondary level, 11.1% were in senior secondary level, 16.7% were graduates and 2.8% were postgraduates. Among the men, majority 32.4% were educated up to primary or secondary level whereas 2.9%, 11.8%, 14.7%, 5.9% were illiterate, middle school, senior secondary school, and graduates, respectively. No male patient was post graduate in the study sample. The chi-square value which is 19.874 was highly significant at 5% level (p=.003<.05) which indicates statistically significant relation of education of the patients to their gender. The hypothesis of this study i.e., null hypothesis was hence rejected in this parameter.

Majority of the patients i.e., 44.3% were unemployed for more than one month whereas only 2.9% patients were unemployed for less than one month. 20% were homemakers. 17.1% were never employed, 14.3% were employed. 1.4% of the patients were students. Among the females 2.8% were students, there were no male student in the study. 19.4% of the female and 14.7% of the male were never employed. 30.6% women and 58.8% men were unemployed for more than one month and 5.9% men were unemployed for less than one month. 38.90% of the females were homemakers whereas there were no male homemakers. Finally, 8.3% of the female and 20.6% of the male

population were employed. Chi-square value which was 26.411 was highly significant at 5% level of significance (p=.001<.05) implying that occupation of the patients was significantly related to their gender. The hypothesis of the study i.e., null hypothesis was hence rejected in this parameter.

The distribution of the patients according to their marital status revealed that 51.4% were single, 42.9% were married, 4.3% were separated and 1.4% were widowed. Among the females 41.7% and among the males 61.8% were single. 50% of the female and 35.3% of the male patients were married. 5.6% females and 2.9% males were separated, and 2.8% female were widowed. The association of marital status and gender of the patients was not significantly related to each other (p=.323 >.05) as disclosed by chi-square test.

Discussion: - The present study was carried out to evaluate and compare the socio-demographic characteristics of the schizophrenia patients if there were any gender related differences in patients attending in psychiatry department of this tertiary care hospital in northeast India having a distinct socio-cultural milieu as no such study has been carried out in this part of the country till now to the best of our knowledge.

This study explored the relation of various demographic variables with the male and female gender and compared to establish the similarity or distinctness in our study population.

In the total sample size of 70 patients the female patients predominated in the study sample (51.4%) in comparison to males (48.6%) In the overall sample age range of 18-60 years, the maximum patients were in age group 26-32 years (25.7%) followed by 40-46 years age bracket (24.3%) whereas amongst the male patients, maximum patients were 38.2% in 26-32 years age group followed by 23.5% in 18-25yrs age group. Amongst the female patients maximum 30.6% were in 40-46 yrs. age group followed by 22.2% in 33-39yrs age group. Also, the relation between gender differences in various age groups of the patients did not turn out to be statistically significant (p=.13>.05). Hence, it can be inferred that variation in the predominance of males and females in different age group was not significant.

The mean age of the male patients (34.12 years) was less than the mean age of the female patients (36.86 years) in the overall sample. The general mean of the sample was found to be 35.53 years. Independent t-test done to see the significance of mean difference between male and female population was not statistically significant. Hence it is inferred that the age of male and female patients in sample population did not differ significantly.

In a study conducted by Koujalgi S Patil S (2013) in Belgaon, India, 31% patients were reported to be from age group 33-37 years followed by 17% in 23-27 years age group which contrasts with our study findings.

In this study, majority of patients i.e.,84.3% belonged to Hindu population, 14.3% were Islamic and only 1.4% were Christian. Amongst the female patients, 88.9% were Hindu and 11.1% were Islam. There were no Christian female patients. Amongst the men, majority (79.4%) were Hindu, 17.6% were Islam and only 2.9% Christian.

The current study findings are in consonance with the religious composition of the population of India as per the latest census [6]. The observed difference was statistically not significant (p =.578>.05) inferring that gender and religion in schizophrenia patients have no significant corelation.

In our study sample, *majority 61.4% of the patients came from rural area and remaining 38.6% from urban area.* Amongst women, 61.1% were residing in rural and 38.9% were residing in urban area. Among men, 61.8% and 38.2% respectively were residing in rural and urban locality. The association between gender and domicile of the patients was found statistically insignificant (p =.955>.05) indicating that there was no corelation between gender and domicile of the schizophrenia patients. These findings contrast with the other studies which have reported higher incidence of the illness in the urban population related to urban upbringing.[7]

[8][9]However, this may be explained by the fact that our study was

conducted in an urban tertiary care referral hospital which caters to the mental healthcare needs of the large surrounding catchment area comprising mostly of the rural population which lacks mental healthcare facilities in the vicinity and may be overrepresented in the sample.

Majority patients in our study belonged to *upper lower class (58.6%)* whereas 38.6% belonged to lower middle class and only 2.9% belonged to lower class. No patients were from upper and upper middle class in the study sample.

Among the female patients, 58.3%, 36.1%, and 5.6% belonged to upper lower, lower middle, and lower class respectively. *Among the male patients*, 58.8% and 41.2% were from upper lower and lower middle class respectively.

No statistically significant difference was found (p=.367>.05) between male and female patients with schizophrenia with respect to socio-economic status.

Our study findings having majority of the patients from the lower socioeconomic strata (upper lower and lower middle) are in concordance with the findings from other studies where poverty and low socioeconomic status of the parents has been found highly corelated to the development of schizophrenia both as a cause and result of the illness.[56]–[59][14]

Majority of the patients i.e., 22.9% in our study were educated till secondary level, followed by 18.6% each till primary and middle school level. 14.3% of patients were illiterate whereas 12.9% were educated up to senior secondary level. The percentage of study sample with graduate level education was 11.4% and postgraduates were only 1.4%. Among the female patients, majority i.e., 25% were either illiterate or educated up to middle school level. Among the men, majority 32.4% were educated up to primary or secondary level whereas no male patient was post graduate in the study sample. The chi-square value which is 19.874 was highly significant at 5% level (p=.003<.05). It therefore indicates that education of the patients has statistically significant corelation with their gender.

Luo Y Pang L Zhao Y et al (2020) in their study in China also found a strong corelation between the educational level of the patients and concluded that additional years of education was associated with lower risk of schizophrenia, and the association was found to be stronger in females than in males. [15]

These findings match with our study findings and suggest that improving education level by increasing opportunities can have an impact on reducing the gender disparities in mental health and overall burden of schizophrenia.[15]

Majority of the patients in our study i.e., 44.3% were unemployed for more than one month indicating the high functional impairment due to the illness whereas only 2.9% patients were unemployed for less than one month which could be due to low probability of premorbid employability in this group which would have become further functionally impaired after the illness onset. 20% patients (all females) were homemakers whereas 17.1% were never employed in their lifetime. 11.4% of patients were meaningfully employed and 2.9% were employed and functioning. 1.4% of the patients were students. Among the females 2.8% were students, there were no male student in the study. 19.4% of the female and 14.7% of the male were never employed. 30.6% women and 58.8% men were unemployed for more than one month and 5.9% men were unemployed for less than one month. 38.90% of the females were homemakers whereas there were no male homemakers. 5.6% women were employed/functioning. Finally, 2.8% of the female and 20.6% of the male population were employed. Chi-square value which is 26.411 was highly significant at 5% level of significance (p=.000<.05) *implying that employment status of the patients was significantly related to their gender and the hypothesis of our study i.e., null hypothesis is hence rejected in this parameter.*

Luo Y, Pang L, Zheng X (2020) in their study in China reported that employed individuals had lower prevalence of schizophrenia compared to unemployed groups in both males and females and our study findings agree with it.[15]

Christian Hakulinen, John J. McGrath et al (2019) in their nationwide

cohort study conducted in Denmark reported that Schizophrenia diagnosis between ages 15 and 25 ($n = 9448$) was associated with higher odds of not being employed (at the age of 30: OR 39.4, 95% CI 36.5–42.6) and our study findings are in alignment with theirs.[16]

The distribution of the patients according to their marital status revealed that *most of the patients (51.4%) were single, 42.9% were married,* 4.3% were separated and 1.4% were widowed. Among the females 41.7% and among the males 61.8% were single indicating high likelihood of being single in male patients in comparison to female patients. 50% of the female and 35.3% of the male patients were married indicating high likelihood of getting married in female patients. 5.6% females and 2.9% males were separated indicating a greater chance of getting separated after marriage indicating poor social acceptance and marginalisation of the female patients by their families. The corelation of marital status and gender of the patients was not statistically significant ($p=.323 > .05$) as per the chi-square test.

Janhavi Ajit Vaingankar et al. (2020) in their research paper regarding general population-based survey in Singapore concluded that being married was positively associated with perceived social support in people with and without mental disorders and concluded that being married had potential to influence positively the lower perceived social support in mentally ill patients.[17]

Agerbo E Byrne M Eaton W et al. (2004) in their study concluded that, the odds ratios of being unmarried or not being fully employed for patients with schizophrenia were significantly increased even 25 years after admission especially for men and for individuals who had more admissions.[10]

Vikas Deshmukh, Aparna Bhagat et al (2016) noted in their research study that a greater number of male patients had stable marriages although not statistically significant and that earlier age of onset of illness was a significant factor that led to poor marital outcome.[18]

Our current study findings support the abovesaid views and indicate more likelihood of being single in male patients with schizophrenia more likelihood of being married female patients.

Strengths: -This is the first study done to explore the gender differences in sociodemographic characteristics of schizophrenia patients in this Institution and in whole Northeast India to the best of our knowledge.

The study investigated the socio-demographic data of the patients of schizophrenia with special emphasis on gender differences to unravel these differences and indicate future needs of research to explore those aspects more closely to pave way for identifying sex specific etiological factors and management strategies for schizophrenia and move a step towards precision medicine.

This study also highlighted the strong corelation of schizophrenia with educational level and employment status which were statistically significant for their male vs female differences.

It has evaluated several sociodemographic parameters influencing the major mental illness-schizophrenia in a single study comparing these parameters between males and females to unearth the differences in a single study.

Limitations: -Due to ongoing COVID -19 pandemic and specially the flare up of the second wave concurring with our study period the health seeking behaviour and inconvenience for the public due to unforeseen difficulties and unique circumstances of restricted mobility of the patients during the lockdown for pandemic control led to poor flow of the patients in the hospital which may have skewed the sample characteristics.

Small sample size in our study may have limitations in generalising the findings to the catchment population and the results may not be generalized.

Conclusion: -Our study explored the gender differences in various sociodemographic parameters of a major mental illness i.e. Schizophrenia in a socio-culturally unique part of the country i.e.: northeast India and found that several parameters in the study like predominance in lower socio-economic strata, indication of lowered gender disparity with increasing education and employment status match the findings of different studies done in various other parts of the world.

Our study found more predominance of the patients from the rural background in contrast to findings of other similar studies which needs to be seen in the light of concurrent COVID-19 pandemic.

However certain key findings like statistically significant difference between the educational and the employment status of the male and female participants in our study calls for further exploration on these aspects.

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