Original Article

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Prevalence of Depression in Schizophrenic Remission Patients and its Impact on their QoL: A Cross-sectional Study

Psychiatry/Mental Health Section

T PALLAVI[1], SHABEEBA Z KAILASH[2], KAILASH SURESHKUMAR[3], M ARAVINDH[4]

ABSTRACT

Introduction: Schizophrenia is a major mental illness and a significant contributor to the global burden of disease. Around one-fifth of patients with Schizophrenia have significant depression during the phase of clinical remission.

Aim: To evaluate the prevalence of depression in patients with Schizophrenia, the Quality of Life (QoL) of patients with depression in Schizophrenia, and to study the relationship between the two.

Materials and Methods: This cross-sectional study was conducted at the Department of Psychiatry, Chettinad Hospital and Research Institute, Chennai, Tamil Nadu, India. One hundred patients aged 18 to 59 years diagnosed with Schizophrenia as per International Classification of Diseases (ICD-11), operationally in remission for a minimum of one month, were included. The Calgary Depression Scale for Schizophrenia (CDSS) and the World Health Organisation Quality of Life Brief version (WHOQoL-BREF) scale were used to measure the presence of depression and QoL in patients with Schizophrenia. Data were analysed with t-test, Chi-square tests, and Pearson correlation using Statistical Package for Social Sciences (SPSS) software version 21.0.

Results: The mean age of the study participants was 31.6±5.1 years. Of the total study population, 72% were male, 31% had a high school level education, 20% were unemployed, 64% were married, 46% were from a semi-urban background, and 45% belonged to a lower-middle socio-economic background. Twenty-two percent of patients with Schizophrenia in remission were found to have depression. A longer duration of untreated psychosis (mean=9.14±2.83 years) was significantly associated with the development of depression in patients with Schizophrenia. Patients with Schizophrenia and depression had significantly poorer QoL in all domains (physical, psychological, social, environmental; $p<0.001$).

Conclusion: This study helps us understand the importance of monitoring for depression in at-risk patients with Schizophrenia in remission. Doing so can pave the way for early intervention, thus improving their overall QoL.

Keywords: Calgary scale, Remission in schizophrenia, Untreated psychosis, Quality of life

INTRODUCTION

Schizophrenia is a major mental illness and a significant contributor to the global burden of disease [1]. The symptoms of Schizophrenia can vary from delusions, hallucinations, to cognitive impairment in various domains. It also affects the social functioning of the patient, leading to significant disability. Although it is complex to estimate the burden of this disease which has overlapping features and co-occurrence with other mental health conditions, studies have recorded a global prevalence of about 0.3% to 0.7% [2,3]. The presence of depression in Schizophrenia has been documented in a wide range between 6% and 75%, depending on socio-demographic conditions [3-7]. The wide variations in the estimation of depression rates across studies may have been influenced by differences in the definitions used for Schizophrenia and depression, the duration of observation, and the stage of the illness. Few studies have even proposed to consider depression as an inherent component of the illness itself [8-11].

Therefore, the presence of depression after the remission of Schizophrenia has been shown to result in lower QoL, lower satisfaction with life in general, daily living, health, and social life [12]. Although Schizophrenia is widely considered to have a progressive deteriorating course, episodes of remission or temporary healing have been observed [13]. The rate of remission varies from 16% to 78% based on various factors, including the episode of Schizophrenia [14]. Subsequently, remission is used as an indicator to mark the efficacy of the treatment given [15]. In general, during remission, Schizophrenia patients show improvement in all domains: positive and negative symptoms, cognitive symptoms, and Extrapyramidal Symptoms (EPS) [16]. In contrast, there is literature showing higher depression among those who have attained remission in Schizophrenia [16].

Most of the previous studies on depression among individuals with Schizophrenia have often overlooked the condition during the phase of clinical remission [17-19]. As evidenced above, the limited literature available on depression during Schizophrenia has also shown contradictory findings. Additionally, there is limited knowledge about the QoL in these patients with Schizophrenia in the remission phase. Hence, to address this gap, the current study was conducted with aim to evaluate the prevalence of depression among individuals with Schizophrenia who are currently experiencing clinical remission, to assess the QoL of patients with depression during Schizophrenia remission, and to study the relationship between the two.

MATERIALS AND METHODS

A questionnaire-based cross-sectional study was conducted at the Department of Psychiatry, Chettinad Hospital and Research Institute in Chennai, Tamil Nadu, India, from January to December 2023. Institutional Ethics Committee approval was obtained (Ref no: IHEC-II/0219/22). Written informed consent was obtained from all study participants. All the patients aged 18-59 years, totalling 100 patients from January to December 2022, were considered for this study.

Inclusion criteria: Patients aged 18-59 years diagnosed with schizophrenia as per ICD-11, in remission for at least one month; patients satisfying ICD-11 criteria for depression, and patients willing to give consent [20] were included in the study.

Exclusion criteria: Patients with other psychiatric illnesses, substance use, mental retardation, and patients unwilling to give consent were excluded from the study.

Procedure

Data on socio-demographic and clinical details were collected using a semi-structured proforma. The Positive and Negative Syndrome Scale (PANSS) was used to ascertain the remission status of the patient [21]. Schizophrenia remission is defined as a score of ≤ 3 (mild or less) on all eight core items in the PANSS for ≥6 months [21]. The CDSS was used to determine the presence and severity of depression [22]. CDSS is a nine-item clinician-rated outcome measure, in which each item has a four-point anchored measure (0=absent; 1=mild; 2=moderate; 3=severe). A score of eight and above is considered an indicator of depression [22].

The Simpson-Angus Scale was applied to look for EPS. Each item on the Simpson-Angus scale is rated from 0-4, with 0 being normal and 4 being the most severe. There are a total of 10 items in the scale, amounting to a maximum score of 40. A total score of 0-2 is considered normal, and ≥3 is considered indicative of the presence of EPS [23]. In the present study, patients with 'minimal' EPS, scoring ≤2 out of 40, were included. Patients with a score of 3 and above were excluded, as severe EPS, if present, could mimic some symptoms of depression and confound the results [24].

The WHO-QoL brief scale was used to measure the QoL in patients with Schizophrenia [25]. Each individual item of the WHO-QoL Brief is scored from 1 to 5 on a response scale, stipulated as a five-point ordinal scale. The scores are then linearly transformed to a 0-100 scale, where a score of ≥60 indicates good QoL, and a score of <60 indicates poor QoL [25,26].

STATISTICAL ANALYSIS

The data were analysed using SPSS version 21. The Chi-square test was used to compare categorical variables, the independent t-test was used for continuous variables, and Pearson correlation was used to test for a linear relationship between the variables.

RESULTS

The average age of the study subjects was 31.6±5.1 years. Out of the 100 study subjects, the majority of them were male (n=72), with a high school level of education (n=31), working as semi-skilled labourers (n=20), married (n=64), from semi-urban areas (n=46), and belonging to the lower-middle socio-economic class (n=45) [Table/Fig-1].

Socio demographic details	Frequency (n=100)
Age (years) Mean±SD 31.6±5.1	
Gender	
Male	72
Female	28
Educational status	
Illiterate	2
Primary school	15
Middle school	29
High school	31
Post high school	15
Graduate	8
Occupation	
Professional	2
Semi-professional	9
Clerical	17
Skilled labourer	16
Semi-skilled labourer	20
Unskilled labourer	16
Unemployed	20
Marital status	
Married	64
Never married	14
Socially separated	21
Legally separated	1
Residence	
Urban	17
Semi urban	46
Rural	37
Socio-economic status	
Upper	3
Upper middle	11
Lower middle	45
Upper lower	23
Lower	18
Illness variables	
Past history of Schizophrenia	14
Past history of depression	10
Presence of minimal Extrapyramidal Symptoms (EPS)	14
Duration of untreated psychosis (in months) (mean±SD)	5.49±3.48
Total duration of Schizophrenia (in months) (mean±SD)	62.87±38.2
Duration of Schizophrenia remission (in months) (mean±SD)	14.98±7.71

[Table/Fig-1]: Distribution of socio-demographic factors and illness variables among study participants.

Out of the 100 study subjects, 22 of them had depression, of which 8 had mild depression, 11 had moderate depression, and 3 of the patients had severe depression [Table/Fig-2].

Depression	Frequency (n=100)	Mean duration of depression (in months) (Mean±SD)
No depression	78	0
Mild depression	8	9.37±4.2
Moderate depression	11	8.5±6.8
Severe depression	3	12±7.2
Total	**100**	**9.31±5.8**

[Table/Fig-2]: Prevalence of depression and its severity in study population.

A significant negative correlation has been observed between depression and QoL - physical health (t=-7.37; p<0.001); psychological (t=-16.25; p<0.001); social (t=-14.3; p <0.001); environmental (t=-9.74; p<0.001); Overall (t=-20.57; p<0.001) [Table/Fig-3].

QoL domains	Depression Present n=22 Mean±SD	Depression Absent n=78 Mean±SD	t-value	p-value
QoL-Physical	6.36±1.13	10.75±2.7	-7.37	**<0.001****
QoL- psychological	5.5±0.96	13.4±2.2	-16.252	**<0.001****
QoL- social	6.18±1.65	13.3±2.1	-14.3	**<0.001****
QoL-environmental	5.13±0.56	10.4±2.5	-9.744	**<0.001****
QoL- overall	22.3±2.2	47.9±4.8	-20.574	**<0.001****

[Table/Fig-3]: Association between depression and QoL in study population.

The correlation between QoL and the Calgary Depression Rating Scale (CDRS), and the analysis has been illustrated using Pearson's correlation coefficient [Table/Fig-4].

The presence of depression currently was significantly associated with the duration of untreated psychosis (p<0.001). However, the

QoL domains	CDRS depression score	
	Correlation coefficient (r)	p-value
Physical	-0.528	**<0.001****
Psychological	-0.796	**<0.001****
Social	-0.753	**<0.001****
Environmental	-0.633	**<0.001****
Total	-0.838	**<0.001****

[Table/Fig-4]: Correlation between depression and QoL in study population.
**Correlation is significant at the 0.01 level

Socio-demographic factors		Depression present (n=22) (%)	Depression absent (n=78) (%)	Chi-square ($\chi 2$)	p-value
Age at presentation (years)		32±4.65	31.51±5.3	0.389	0.698
Gender	Male	16 (72.7%)	56 (71.8%)	0.007	0.931
	Female	6 (27.3%)	22 (28.2%)		
Education	Upto primary school	4 (18.2%)	13 (16.6%)	3.212	0.667
	Middle school	9 (40.9%)	20 (25.6%)		
	High school	5 (22.7%)	26 (33.3%)		
	Intermediate	3 (13.6%)	12 (15.45)		
	Graduate	1 (4.5%)	7 (9.0%)		
Occupation	Professional and semi professional	2 (9.09%)	9 (11.5%)	4.157	0.655
	Clerical	1 (4.5%)	16 (20.5%)		
	Skilled labourer	4 (18.1%)	12 (15.38%)		
	Semi-skilled labourer	5 (22.7%)	15 (19.2%)		
	Unskilled labourer	4 (18.1%)	12 (15.3%)		
	Unemployed	6 (27.27%)	14 (17.9%)		
Marital status	Married	17 (77.3%)	47 (60.3%)	2.966	0.397
	Never married	3 (13.6%)	11 (14.1%)		
	Separated	2 (9.1%)	20 (25.6%)		
Residence	Urban	3 (13.6%)	14 (17.9%)	0.306	0.858
	Semi urban	10 (45.45%)	36 (46.1%)		
	Rural	9 (40.9%)	28 (35.8%)		
Socio-economic status	Upper	0 (0.0%)	2 (2.6%)	#	#
	Upper middle	2 (9.1%)	10 (12.8%)	-	-
	Lower middle	10 (45.5%)	38 (48.7%)		
	Upper lower	5 (22.7%)	19 (24.4%)		
	Lower	5 (22.7%)	9 (11.5%)		
Illness variables					
Past history of Schizophrenia		0	14 (17.9%)	# -	# -
Past history of depression		0	10 (12.8%)	-	-
Past history of Extrapyramidal Symptoms (EPS)		0	14 (17.9%)	-0.172	0.864
Age of onset of Illness (years)		25.3±4.2	25±4.1	0.304	0.762
Duration of untreated psychosis (in months)		9.14±2.83	4.46±2.93	6.654	**<0.001****
Total duration of Schizophrenia (in months)		65.05±42.6	62.26±37.1	0.301	0.764
Duration of Schizophrenia remission (in months)		15.59±7.46	14.81±7.82	0.419	0.676

[Table/Fig-5]: Distribution of socio-demographic and clinical variables in patients with and without depression in Schizophrenia.
**Correlation is significant at the 0.01 level.
#No statistical test was performed due to 0 subjects in cells

presence of depression was not associated with socio-demographic factors such as gender, marital status, occupation, etc., or other clinical factors [Table/Fig-5].

DISCUSSION

The average age of the study subjects was 31.6±5.1 years. This is consistent with a study by Fanta T et al., where the participants' mean age was 35.50 years old and they were 68.7% male [27]. The majority of the study participants in the current study were male, i.e., 72%. This is supported by a previous study on Schizophrenia spectrum disorders in India, which showed that the male gender exhibited a trend towards a higher prevalence [28]. Thirty-one percent of the total study population were educated up to the high school level. Twenty percent of the study participants were unemployed, and 20% belonged to the semi-skilled labourer category. This is supported by a study by Marwaha S and Johnson S, which showed that the rate of employment in patients with Schizophrenia was between 10-20% in Europe [29]. Sixty-four percent of the study participants were married, which was close to another study conducted in southern India, where 70% of the study participants were married [30]. Forty-six percent of the total study participants belonged to a semi-urban background, which can be attributed to the location of the study center. A greater number of participants belonged to the lower-middle socio-economic background, which was 45%. This is similar to another Indian study on Schizophrenia patients on oral anti-psychotics and long-acting anti-psychotics, where the majority of the patients on long-acting anti-psychotics belonged to the lower-middle class [31]. Fourteen (14%) patients of the total population had a history of Schizophrenia. Ten (10%) patients had a past history of depression, and 14 of the patients had minimal EPS. The mean duration of untreated psychosis was 5.49±3.48 months. This is supported by a previous study by Yu M et al., where the mean duration of untreated psychosis was six months [32]. The mean total duration of Schizophrenia in the total study population was 62.87±38.2 months. The mean duration of remission was 14.98±7.71 months.

It was found that, out of the total study population, 22 of the 100 subjects had depression, with eight of them falling into the category of mild depression, 11 of the study subjects had moderate depression, and three falling into the severe depression category. This is similar to the study by Fanta T et al., in which it was found that 18% of people had depression. Of the individuals who had depression overall, 47.78% had mild depression, 34.62% had moderate depression, 15.4% had moderately severe depression, and 2.2% had severe depression [27]. The prevalence of depression found in the present study was lower (22%) compared to what has been reported in the USA (50%), Europe (61%), and China (54.6%) [33]. The lower prevalence of depression in the current study could be due to lower levels of reporting, due to the stigma of having another mental illness after recovering from one.

The average age of presentation for patients with depression was 32±4.6 years. Out of the 22 depressed subjects with Schizophrenia, 16 were male, amounting to 72.7%. On the other hand, in a previous meta-analysis, it was found that males are 63% less likely to develop depression than females [34]. This could be due to the limited sample size of the study. Regarding education, the majority of the study participants with depression had an education level up to middle school level, which accounted for 40.9% of the subjects with depression in Schizophrenia. Six out of the 22 depressed subjects were found to be unemployed, which was 27.2% of the depressed subjects with Schizophrenia. Comparing this to a previous study where, according to self-reported mental illness, it was found that 78.6% of the study subjects were not employed. This large difference in the employment rate could be because the remission status of the patient was not specified [35]. Seventeen patients from the depressed group were married, which was 77.3%

of the depressed subjects with Schizophrenia. This is similar to another study done on Schizophrenia patients, where 70% of the patients were married [30]. A total of 45.45% of the depressed patients with Schizophrenia belonged to a semi-urban background. A 45.5% of the patients with depression in Schizophrenia belonged to the lower-middle socio-economic background. The study also found a statistically significant correlation between the duration of untreated psychosis and the presence of depression during remission. This finding is supported by a previous study which concludes that patients with Schizophrenia who have a longer duration of untreated psychosis tend to have a poorer outcome during remission, as compared to those with a short duration of untreated psychosis before the first hospitalisation [36].

When comparing the various domains of the QoL scale with the presence or absence of depression, a significant negative association was observed. In other words, it was noted that the presence of depression was associated with poor QoL. In a previous study, similar findings have been found wherein patients with Schizophrenia had higher scores of depression and reduced QoL compared to the general population [35].

On studying the correlation between the QoL scale domain scores and the depression rating scores, a statistically significant correlation was found between QoL and depression in all the domains. Fanta T et al., found that patients' likelihood of being depressed was 3.13 times higher in patients with low QoL than in those with better QoL [27]. This suggests that the co-existence of Schizophrenia and depression has a complementary effect on the patient's QoL. A study by Karow A et al., denotes a strong correlation between depressive symptoms and poor QoL in individuals with Schizophrenia [35]. The results of the current study show that the duration of the illness and the duration of untreated psychosis have a significant impact on the prognosis of Schizophrenia patients. The study shows a significant negative correlation between the domains of the WHO-QoL scale, namely physical, psychological, social health, and environmental health, and the CDRS, indicating that the presence of depression during the remission phase of Schizophrenia has a dampening effect on the overall QoL. This finding is supported by a study by Naumann VJ et al., which found that QoL scores were strongly correlated with the severity of depression [37].

Limitation(s)

The study does have a few limitations. The study design was cross-sectional, and a convenient sampling technique was used, which might affect the generalisability of the study. The lack of blinding also serves as a factor for selection bias.

CONCLUSION(S)

Based on the evidence presented above, it can be inferred that during the remission phase of Schizophrenia, patients tend to develop depression. The prevalence of depression in these patients is one-fifth of all remitted Schizophrenia patients. The study also indicates that the longer the duration of untreated psychosis, the higher the likelihood of depression occurring during remission. The presence of depression also significantly affects their QoL. Therefore, it is of utmost importance to monitor for depression in Schizophrenia patients in remission. Diagnosing and providing timely intervention to these patients should be a top priority.

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PARTICULARS OF CONTRIBUTORS:
1. Junior Resident, Department of Psychiatry, Chettinad Hospital and Research Institute, Chettinad Academy of Research and Education, Chennai, Tamil Nadu, India.
2. Associate Professor, Department of Psychiatry, Chettinad Hospital and Research Institute, Chettinad Academy of Research and Education, Chennai, Tamil Nadu, India.
3. Professor, Department of Psychiatry, Chettinad Hospital and Research Institute, Chettinad Academy of Research and Education, Chennai, Tamil Nadu, India.
4. Assistant Professor, Department of Psychiatry, Chettinad Hospital and Research Institute, Chettinad Academy of Research and Education, Chennai, Tamil Nadu, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Shabeeba Z Kailash,
Associate Professor, Department of Psychiatry, Chettinad Hospital and Research Institute, Chettinad Academy of Research and Education, Kelambakkam-603103, Tamil Nadu, India.
E-mail: dr_shabee@yahoo.co.in

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