A Cross-Sectional Study On Sociodermographic Profile and Clinical Characteristics Of Late Onset Schizophrenia

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ABSTRACT

The main objective of the study is to collect the sociodemographic profile and clinical characteristics of late onset schizophrenia patients attending the Psychiatry outpatient and inpatient departments and to analyze the current knowledge about the clinical characteristics and sociodemographic profile associated with late onset schizophrenia through standardized scales. This was a cross sectional study on socio demographic profile and clinical characteristics of Late Onset Schizophrenia (LOS), done at the Department of Psychiatry at Chengalpattu Medical College Tamilnadu, India. This study was done for a period of one year from January 2018 to December 2018. Hundred subjects were enrolled for the study. The study protocol was presented before the institutional ethical committee for approval and got approved. Individual informed consent was obtained from the participants. The confidentiality of the data collected was strictly ensured by electronic storage. In this study, 92% of the patients belonged to 50-59 years of age, with females accounting for 79% of cases, 82% of study population belonged to rural area and remaining 18% belonged to urban region, 78% of patients were from lower socioeconomic status, remaining 22% were from middle socioeconomic status, majority (75%) were illiterate, 61% of study participants were unemployed, 80% patients were married and only 11% of participants had family history of psychosis. While assessing the positive scale of PANSS score criteria for patients with LOS, conceptual disorganization (P2), excitement (P4) and grandiosity (P5) were absent in all the patients. Seventy percentage patients had moderately severe score on delusion (P1), 64% had moderately severe score on hallucinatory behavior (P3), 67% of patients had severe score on suspiciousness/persecution (P6), 37% of patients had minimal score on hostility (P7) and 42% of patients had absence of hostility. While assessing the negative scale of PANSS score criteria for patients with LOS, difficulty in abstract thinking (N5), lack of spontaneity and flow of conversation (N6) and stereotyped thinking (N7) were absent in all the patients. Only 24% of patients had minimal blunted affect (N1), 34% of patients had minimal emotional withdrawal (N2), 28% of patients had minimal poor rapport (N3) and 30% of patients had mild passive/apathetic social withdrawal (N4). While assessing the general psychopathology scale from G1-G16, mannerism and posturing (G5), motor retardation (G7), unusual thought content (G9), disorientation (G10), poor attention (G11), disturbance of volition (G13), poor impulse control (G14) and poor preoccupation (G15) were absent in all the patients. About 59% of patients had mild score on somatic concern (G1), 46% had moderate score on anxiety (G2), 24% of patients had mild score on guilty feelings (G3), 40% of patients had minimal score on tension (G4), 59 % had mild score on depression (G6), 32% had minimal score on uncooperativeness (G8), 26% of patients had minimal score on lack of judgement and insight (G12) and 26% of patients had minimal score on active social avoidance (G16).

INTRODUCTION

Late onset schizophrenia (LOS) is an entity that has been much researched in recent times. Emil kraeplin[1] (1856-1924) popularized the term dementia praecox which suggested early occurrence of dementia like illness in patients with schizophrenia but European psychiatrist have long recognized the late onset variety of schizophrenia. Recognized classificatory systems published by American Psychiatric Association and World Health Organization DSM and ICD did not make out any such condition in their previous editions viz. DSM-I and ICD-6, ICD-7, ICD-8. DSM-II (American Psychiatric Association, 1968) used the term involution paraphrenia but did not have any age of onset cut off for making the diagnosis of schizophrenia. DSM-II made it explicit that to make a diagnosis of schizophrenia the onset of symptoms must be before the age of 45 years., nevertheless, it had a separate category of paranoid disorders with no age specifications. For the first time DSM-III R described 'Late onset schizophrenia' with onset including prodrome after the age of 45 years. DSM-IVTR and ICD-10 editions of diagnostic systems do not make out any such category. These systems do not state any age of onset for the diagnosis of schizophrenia. Landmark article The International Late Onset Schizophrenia Group[2] by Howard published in American Journal of Psychiatry in year 2000 has put forward a consensus statement after conducting a MEDLINE literature search and summarizing the findings from two days of debate and discussion by the members of the group and proposed that the age cut-off limit be 40 years to distinguish Early onset schizophrenia (EOS) and Late onset schizophrenia (LOS). The group concluded consensus on the diagnosis, nomenclature, treatment guidelines and future research directions also in terms of epidemiology, symptom profile and pathophysiology. Late onset schizophrenia is an understudied subject especially in India. There are only few Indian studies on this topic and there has been an upsurge of research interest to study Late onset schizophrenia worldwide. Though substantial literature has since documented an evolving thought process regarding schizophrenia presenting in late onset, some important points of consideration have been brought to study.

- Whether there is adequate evidence to support categorizing cases with later onset as a distinct subtype of schizophrenia.
- Later-onset cases of schizophrenia-like symptoms represent a pathophysiological process completely separate from schizophrenia.

Review of Literature: Manfred Bleuler[3], son of E. Bleuler, described the term called chizophrenie other wise called as Late onset schizophrenia, he described it as a group of psychosis fulfilling the following criteria. *The psychosis must begin after 40th year of life. *Symptomatology does not differ fundamentally from that of schizophrenia in early life, there is neither an amnestic syndrome nor accompanying physical findings unequivocally indicating that symptoms could be due to brain disease. M. Bleuler had examined 130 late onset cases. According to M. Bleuler's results, 15% of all schizophrenic disorders begin between ages 40 and 60 and onset after age 60 is negligible. Felix Post[4] in the article persistent persecutory states of elderly, classified patients having paranoid symptoms, after the age of 50 years in three categories. paranoid hallucinosis, schizophreniform syndrome and schizophrenic syndrome. Thus it is clear that the origin of the concept of LOS is as old as schizophrenia itself. Cochrane Database System Review[5] by Arunpongpaisal *et al.* in 2003 studied to assess the effects of antipsychotic drugs for elderly people with LOS, in which all relevant randomized controlled trials that compared atypical antipsychotic drugs with other treatment for elderly among which 80% of people whom they studied should be over 65 years of age within five years diagnosis of schizophrenia stated that at least 0.1% of the world's elderly population have a diagnosis of schizophrenia starting in late life. Christens on and Blazer[6] based on their article of 'Epidemiology of persecutory ideation in an elderly population in the community in the year 1954 found the prevalence of paranoid ideation in general population aged >65 years at 4%. They have examined 997 elderly people living in the community, 40 (4%) were found to have generalized persecutory ideation. Sensory deficits and cognitive impairment were significant risk factors for the development of this symptom complex. Generalized persecutory ideation was also connected with impairments in physical health, social and economic resources and activities of daily living. While >50% of the aged individuals with this symptom perceived a requirement for psychiatric services, a much smaller percentage actually received help. In the initial Indian study on incidence of schizophrenia[7] Under a WHO joint study, the Chandigarh center monitored two geographically defined populations over a 2-year period. About 268 first-onset potentially schizophrenic cases were actively identified. Of these, 232 cases could be assessed in detail which included 209 schizophrenics as per specified ICD-9 or Catego criteria. Kay and Roth[8] in 1961 in the article environmental and hereditary factors in the schizophrenia of old age and their bearing on the general problem of causation of schizophrenia stated that the LOS patients had mostly bizarre persecutory ideations/delusions and hallucinations which tended to be worse at night. The first rank symptoms of Schneider present in one third of individuals with late paraphrenia but thought insertion and withdrawal were uncommon[9-12].

Pearlson[13] in a chart review study of late onset and early onset schizophrenia published in American journal of psychiatry establish family history of schizophrenia among LOS patients to be 17% compared to 32% in old EOS and 18% in young EOS patients. Pearlson *et al.* also reported that 60% of LOS patients have schizoid traits compared with 50% of elderly patients with EOS and 28% of young schizophrenia. An another study by Jeste[14] in their study clinical and neuropsychological characteristics of patient with late onset schizophrenia, 1995, published in American journal of psychiatry found that the family history of schizophrenia in first-degree relatives to be 12% and 13% in LOS and EOS respectively. A study by Herbert[15] showed that there is predominance of schizoid and paranoid personaltity traits and only some (9%) are socially normal.

MATERIALS AND METHODS

This is a cross sectional study on sociodemographic profile and clinical characteristics of Late Onset Schizophrenia, done at the Department of Psychiatry at Chengalpattu Medical College, Tamilnadu, India. This study was done for a period of one year from January 2018-December 2018. Out-patients and inpatients attending psychiatry OPD at Chengalpattu Medical College and Hospital formed the study population. The sample size of the study was 100.

Inclusion Criteria:
- All cooperative patients above the age of 40 of either sex fulfilling the diagnostic criteria of schizophrenia as per ICD-10 DCR.
- Patient should be willing to give informed consent.

Exclusion Criteria:
- Evidence of affective or organic mental disorder.
- Presence of comorbid substance dependence other than nicotine.
- Presence of sensory deficit interfering with assessment.
- Patients who were uncooperative and unwilling to give informed consent.

Out-patients and inpatients diagnosed with late onset schizophrenia during the study period were included. Informed consent was obtained from the relatives and patients. Diagnosis of psychiatric illness was confirmed using ICD-10 criteria.

Scales Used: Instruments Used:
- **Sociodemographic Profile:** Sociodemographic profile was obtained using a semi-structured proforma.
- **Mini Mental State Examination:** This was developed by Folstein MF in 1975. It is the most widely used standardized instrument for cognitive impairment in the world. It is a 30 point screening tool comprising of different cognitive domains.

- Orientation.
- Registration.
- Attention and Calculation.
- Recall.
- Language.
- Copying.

Positive and Negative Syndrome Scale (Panss): It is used for measuring symptom severity of patients with schizophrenia, published in 1987 by Stanley Kay, Lewis Opler and Abraham Fisbein. It is considered to be the gold standard for the assessment of psychotic behavioral disorder. It is a relatively brief interview, requiring 45-50 minutes to administer, interviewer must be trained to a standardized level of reliability. Each of the 30 items is accompanied by a specific definition as well as detailed anchoring criteria for all seven rating points. These seven points represent increasing levels of psychpathology, as follows: 1-Absent 2-minimal 3-mild 4-moderate 5-moderately severe 6-severe 7-extreme. In assigning ratings, one first considers whether an item is at all present, as judging by its definition. If the item is absent, it is scored 1, whereas if it is present one must determine its severity by reference to the particular criteria from the anchoring points. The highest applicable rating point is always assigned, even if the patient meets criteria for lower points as well. In judging the level of severity, the rater must utilize a holistic perspective in deciding which anchoring point best characterizes the patient's functioning and rate accordingly, whether or not all elements of the description are observed. The rating points of 2-7 correspond to incremental levels of symptom severity.

Positive Scale (P):
- **P1. Delusions:** Beliefs which are unfounded, unrealistic and idiosyncratic.
- **P2. Conceptual Disorganisation:** Disorganized process of thinking characterized by disruption of goal-directed sequencing, e.g. circumstantiality, loose associations, tangentiality, gross illogicality or thought block.
- **P3. Hallucinatory Behaviour:** Verbal report or behavior indicating perceptions which are not generated by external stimuli. These may occur in the auditory, visual, olfactory or somatic realms.
- **P4. Excitement:** Hyperactivity as reflected in accelerated motor behavior, heightened responsivity to stimuli, hyper vigilance or excessive mood lability.
- **P5. Grandiosity:** Exaggerated self-opinion and unrealistic convictions of superiority, including delusions of extraordinary abilities, wealth, knowledge, fame, power and moral righteousness.
- **P6. Suspiciousness/Persecution:** Unrealistic or exaggerated ideas of persecution, as reflected in guardedness and distrustful attitude, suspicious

hyper vigilance or frank delusions that others mean harm.

- **P7. Hostility:** Verbal and nonverbal expressions of anger and resentment, including sarcasm, passive-aggressive behavior, verbal abuse and assaultiveness.

Negative Scale (N):

- **N1. Blunted Affect:** Diminished emotional responsiveness as characterized by a reduction in facial expression, modulation of feelings and communicative gestures.
- **N2. Emotional Withdrawal:** Lack of interest in, involvement with and affective commitment to life's events.
- **N3. Poor Rapport:** Lack of interpersonal empathy, openness in conversation and sense of closeness, interest or involvement with the interviewer. This is evidenced by interpersonal distancing and reduced verbal and nonverbal communication.
- **N4. Passive/Apathetic Social Withdrawal:** Diminished interest and initiative in social interactions due to passivity, apathy, anergy or avolition. This leads to reduced interpersonal involvements and neglect of activities of daily living.
- **N5. Difficulty in Abstract Thinking:** Impairment in the use of the abstract-symbolic mode of thinking, as evidenced by difficulty in classification, forming generalizations and proceeding beyond concrete or egocentric thinking in problem-solving tasks.
- **N6. Lack of Spontaneity and Flow of Conversation:** Reduction in the normal flow of communication associated with apathy, avolition, defensiveness or cognitive deficit. This is manifested by diminished fluidity and productivity of the verbal interactional process.
- **N7. Stereotyped Thinking:** Decreased fluidity, spontaneity and flexibility of thinking, as evidenced in rigid, repetitive or barren thought content.

General Psychopathology Scale (G):

- **G1. Somatic Concern:** Physical complaints or beliefs about bodily illness or malfunctions. This may range from a vague sense of ill being to clear-cut delusions of catastrophic physical disease.
- **G2. Anxiety:** Subjective experience of nervousness, worry, apprehension or restlessness, ranging from excessive concern about the present or future to feelings of panic.
- **G3. Guilt Feelings:** Sense of remorse or self-blame for real or imagined misdeeds in the past.
- **G4. Tension:** Overt physical manifestations of fear, anxiety and agitation, such as stiffness, tremor, profuse sweating and restlessness. Basis for rating-Verbal report attesting to anxiety and thereupon the severity of physical manifestations of tension observed during the interview.

- **G5. Mannerisms and Posturing:** Unnatural movements or posture as characterized be an awkward, stilted, disorganized, or bizarre appearance.
- **G6. Depression:** Feelings of sadness, discouragement, helplessness and pessimism.
- **G7. Motor Retardation:** Reduction in motor activity as reflected in slowing or lessening or movements and speech, diminished responsiveness of stimuli and reduced body tone.
- **G8. Uncooperativeness:** Active refusal to comply with the will of significant others, including the interviewer, hospital staff or family, which may be associated with distrust, defensiveness, stubbornness, negativism, rejection of authority, hostility or belligerence.
- **G9. Unusual Thought Content:** Thinking characterized by strange, fantastic or bizarre ideas, ranging from those which are remote or atypical to those which are distorted, illogical and patently absurd. Basis for rating-Thought content expressed during the course of interview.
- **G10. Disorientation:** Lack of awareness of one's relationship to the milieu, including persons, place and time, which may be due to confusion or withdrawal.
- **G11. Poor Attention:** Failure in focused alertness manifested by poor concentration, distractibility from internal and external stimuli and difficulty in harnessing, sustaining or shifting focus to new stimuli.
- **G12. Lack of Judgement and Insight:** Impaired awareness or understanding of one's own psychiatric condition and life situation. This is evidenced by failure to recognize past or present psychiatric illness or symptoms, denial of need for psychiatric hospitalization or treatment, decisions characterized by poor anticipation or consequences and unrealistic short-term and long-range planning.
- **G13. Disturbance of Volition:** Disturbance in the willful initiation, sustenance and control of one's thoughts, behavior, movements and speech.
- **G14. Poor Impulse Control:** Disordered regulation and control of action on inner urges, resulting in sudden, unmodulated, arbitrary or misdirected discharge of tension and emotions without concern about consequences.
- **G15. Preoccupation:** Absorption with internally generated thoughts and feelings and with autistic experiences to the detriment of reality orientation and adaptive behavior.
- **G16. Active Social Avoidance:** Diminished social involvement associated with unwarranted fear, hostility, or distrust.

Institutional ethics committee approval was obtained prior to undertaking this research work, we also obtained written informed consent from all our study participants and their family members.

Statistical Analysis: The data was entered in MS Excel and analyzed using SPSS 16.0. The descriptive statistics Frequency and Percentages were calculated for categorical variables.

RESULTS AND DISCUSSIONS

Table 1: Age Distribution

Age	Frequency
40-49	4
50-59	92
60	4
Total	100

In our study, as shown in (table no.1), 92% of the patients belonged to 50-59 years of age.

Table 2: Gender Distribution

Gender	Frequency
Male	21
Female	79
Total	100

(Table no.2) shows that 79% of study participants were female and the rest were male.

Table 3: Place of Origin

Place	Frequency
Urban	18
Rural	82
Total	100

In our study, 82% of study population belongs to rural area and remaining 18% from urban area as shown in (table no.3).

Table 4: Socioeconomic Status

Socioeconomic Status	Frequency
Lower	78
Middle	22
Total	100

(Table no.4) shows that majority (78%) of patients were from lower socioeconomic status, remaining 22% were from middle socioeconomic status depicts the same.

Table 5: Educational Status

Education	Frequency
Illiterate	75
Primary	19
Secondary	6
Total	100

(Table no.5) depicts the educational status of patients, 75% were illiterate and 19% of patients had primary level education and 6% patients were educated up to secondary level.

Table 6: Employment Status

Occupation	Frequency
Unemployed	61
Semiskilled	37
Skilled	2
Total	100

(Table no.6) represents employment status of patients of this study. Sixty one percentage of study participants were unemployed, 37% were semi-skilled and 2% people fall under skilled category.

Table 7: Marital Status

Marital Status	Frequency
Single	20
Married	80

(Table no.7) shows that 20% of patients were single and the rest of the patients were married.

Table 8: Family History of Psychosis

Family history of psychosis	Frequency
Present	11
Absent	89

(Table no.8) shows that only 11 % of participants had family history of psychosis.

Table 9: Positive Domains

	P1	P2	P3	P4	P5	P6	P7
Absent		100		100	100		42
Minimal						2	37
Mild			36			6	16
Moderate	29		64				1
Moderately severe	70					25	4
Severe	1					67	

(Table no 9) shows the positive scale of PANSS score criteria of patients with LOS.

- P1 represents delusion, of which 29% of patients belongs to moderate score, 70% had moderately severe delusion. Only 1 % of patients had severe delusions.
- P2 represents conceptual disorganization. This is absent in all 100 patients.
- P3 for hallucinatory behavior, of which 36% of participants had mild score and 64% had moderately severe score on hallucinatory behavior.
- P4 represents excitement. This is absent in all 100 patients.
- P5 represents grandiosity. This is absent in all 100 patients.
- P6 represents suspiciousness/persecution, of which 2% patients falls under minimal category, 6% patients falls under mild category, 25% of patients falls under moderately severe score and 67% of patients falls under severe score.
- P7 represents hostility, of which 1% showed moderate hostility, 4% patients showed moderately severe, 16% patients showed mild, 37% patients showed minimal and a majority (42%) had absence of hostility.

Table 10: Negative Domains

	N1	N2	N3	N4	N5	N6	N7
Absent	64	54	69	41	100	100	100
Minimal	24	34	28	26			
Mild	10	12	3	30			
Moderate	2			1			

(Table no.10) Shows the PANSS-Negative Domains:

- N1 represents blunted effect, of which 2% of patients had moderate, 10% of patients had mild blunted affect, 24 % of patients had minimal blunted affect and 64% patients had nil scores blunted effect.
- N2 represents emotional withdrawal, of which 12% of patients had mild emotional withdrawal, 34% patients had minimal and withdrawal was absent in 54% of study population.
- N3 represents poor rapport, of which 3% of patients had mild poor rapport, 28% of patients had minimal poor rapport and poor rapport was absent in 69% of patients.
- N4 represents passive/apathetic social withdrawal, of which 1% was moderate, 30% of patients were mild, 26% of patients had minimal score and passive/apathetic social withdrawal was absent in 41% of patients.
- N5, N6 and N7 represents difficulty in abstract thinking, lack of spontaneity and flow of conversation and stereotyped thinking which is absent in all the 100% of patients.

Table 11: General Psychopathology

	G1	G2	G3	G4	G5	G6	January 29, 2025G7	G8
Absent	3	9	54	46	100	3	100	66
Minimal	38	9	20	40		38		32
Mild	59	35	24	13		59		2
Moderate		46	2	1				
Moderately Severe		1						

	G9	G10	G11	G12	G13	G14	G15	G16
	100	100	100	61	100	100	100	68
				26				26
				9				6
				4				

(Table no.11) shows general psychopathology scale from G1 to G16.

- **G1 (Somatic Concern):** Had 59% of patients with mild score, 38% of patients with minimal score.
- **G2 (Anxiety):** Showed that 46%of patients fell under moderate score.
- **G3 (Guilty Feelings):** Almost half of the patients had nil score, rest of the study population fell under minimal to mild category.
- **G4 (Tension):** 46% showed absent tension while 40% showed minimal tension.
- **G5 (Mannerism and Posturing):** Nil scores on all the patients.
- **G6 (Depression):** Only 3% of patients scored nil scores and 38% of patient showed minimal and 59% of patients had mild depressive symptoms.
- **G7 (Motor Retardation):** Nil score on all the patients.

- **G8 (Uncooperativeness):** Only 32% of patients showed mild uncooperativeness.
- **G9, G10, G11 (Unusual Thought Content, Disorientation and Poor Attention):** Nil score on all the patients.
- **G12 (Lack of Judgement and Insight):** 26% of patients fell under minimal score, 9% of patients were under mild and 4% of patients were under moderate score.
- **G13, G14, G15 (Disturbance of Volition, Poor Impulse Control and Preoccupation):** Nil score on all the patients.
- **G16 (Active Social Avoidance):** 26% of patients scored minimal category, 6% of patients were under mild, rest of the study population were absent.

The current study was conducted with the aim of studying clinical characteristics of late onset schizophrenia. This was considered significant, with a decrease in death rate and an increase life expectancy, the geriatric population is steadily increasing worldwide and in India also. Before going for more sophisticated research, we first need to describe the clinical profile of Indian patients having schizophrenia of late onset type. In our study, the cut off age for Late-onset Schizophrenia group was taken as 40 years as per the consensus statement of the International Late-onset Schizophrenia group[2]. In earlier studies, many authors used 45-50 years as the cut off age[9,16]. However, after the neuropathological findings most studies have taken the same age cut off value as the current study. The rating scales and instruments used in this study were all internationally validated and widely used in schizophrenia research around the globe. The Mini Mental State Examination[17] to screen patients with any evidence of cognitive disorders and was used in this study to exclude any case with organic psychosis. Positive and negative syndrome scale (PANSS) was used to assess the clinical characteristics of schizophrenia. This scale has been used internationally for rating the psychopathology of late onset schizophrenia and can also be used to monitor treatment response, prognosis and outcome. The mean age of onset in this study was 51.47 years. This was similar to that described earlier by Brodaty[18] reporting mean age of onset of 54 and 61 years. The age of onset of illness was 49.97 years for males and 52.54 years for females, indicating women have onset later than men.

Harish[19] reported mean age of illness for males and females as 51.5 and 53.21 years respectively. The current study found that 80% of cases were women. Female preponderance is consistent in almost all previous studies. Jayaswal[20], studying the age of onset of schizophrenia, found that out of 24 cases that had onset after age 40, 62.5% were female patients and out of 11 patients having onset after the age of 45

years, 10 were female patients. Such female preponderance has also been reported by other studies. The consensus statement reported that the over representation of females in LOS group was not explained by the sex differences in care seeking and societal role expectation. This was attributed to decreased estrogen levels after menopause by Seeman[21] In a comprehensive review of age of onset of schizophrenia, Seeman[21] found incidence of schizophrenia to be equal for both sexes before puberty, an increased male to female ratio at adolescence and early adulthood and a reversed sex ratio at menopause and thereafter. Seventy five percent of patients were illiterate, which is consistent with the Census of India, 2001. Practically all the cases, men or women, held on to their jobs or home-maker's role efficiently till the onset of illness. A study by Jayaswal[20] also reported a satisfactory occupational achievement in all patients of LOS. This study found out that 80% of the patients maintained satisfactory marital relationships and even after the onset of illness no changes were seen in the form of divorce or separation. This has been ascribed to a better premorbid functioning. Howard[22] study says that only 11 patients out of 100 had a family history of schizophrenia. Clemant[23] on his work have also found lower or normal rates of schizophrenia in relatives of late onset schizophrenia. It can be reasonably assumed that there is lesser life time risk in relatives of LOS, unlike relatives of EOS who have higher risk.

Psychopathology: None of our patients had any evidence of cognitive impairment as we had excluded any probable LOS scoring less than 24 on MMSE. A study by Hafner[24] in 1991 had found that LOS groups had significantly low scores than normal or increased ventricular size on neuroimaging. However, another study by Howard[22] in 1997 refuted the belief that emergence of schizophrenic spectrum disorders in LOS reflects neurodegenerative processes like dementia. Our study found out a universal occurrence of delusion, that also caused severe dysfunction. Symptoms of suspiciousness or persecution were reported by majority of the patients in our study .This finding is in keeping with previous studies by Howard[22] and Clemante[23]. Hallucinatory behavior was found in majority of subjects, mild hallucinatory behavior was found in around 36% patients and moderate hallucinatory behavior was experienced by around 64 patients. Similar findings were also reported by Harish[19] Phenomena like disorganized process of thinking characterized by disruption of goal directed sequencing like circumstantiality, loosening of associations, tangetiality, thought blocking, thought insertion, thought withdrawal and thought broadcasting and made phenomenon were not seen in any of our subjects. Negative symptoms are less often found in patients of LOS. In our study sample, negative syndrome domains namely, blunt affect, emotional withdrawal, poor rapport, social withdrawal domains were present in only 50% of subjects, was only of mild to moderate severity. Jeste[14] had also reported low occurrence of negative symptoms. Negative symptoms do not improve much with conventional neuroleptics but with atypical neuroleptics the response was satisfactory. This fact is to be kept in mind while treating patients with LOS. Majority of the subjects scored mimimal to mild scores on somatic concern, 59% of patients had mild score and 38% of patients had minimal score. Every patient in our study group had minimal to mild score on anxiety. Fifty percent of the study population had guilt feelings and more than 90% of the study population had complaints of mild depressive symptoms. Thirty two percent of patients showed mild uncooperativenes on general psychopathology domain and 40 % of study population scored high on lack of judgement and insight. None of our study subjects had significant scores on mannerism and posturing, motor retardation, unusual thought content, disorientation, poor attention disturbance of volition, poor impulse control and preoccupation. In this study, 60% of patients were treatment naïve during the time of assessment. This is an important finding from a tertiary care centre, though reasons for this are not very clear. Probably there was difficulty in diagnosing these patients in earlier treatment facilities. This fact highlights the importance of being aware and sensitive about the possibility of schizophrenia developing in elderly age group.

CONCLUSION

This study provides further weight age to the existence of the category LOS. This work provides description of clinical profile of patients with this condition from India, which can guide the case selection in other future studies on other aspects such as genetics, etiology, neurobiology and neuropathology. From this study it is concluded that schizophrenia can manifest for the first time after the age of 40 years. Female preponderance was consistent finding in all the previous studies which is also seen in this study. All patients had good premorbid functioning and marriage was continuing at the time of illness and no divorce or separation took place after the onset. Onset was insidious with average duration three years and continuous course. Family history of schizophrenia and other psychotic or other affective disorders were not seen predominantly in this study. Suspiciousness and hearing of voices were the most common presenting complaint and delusions majority of patients. Formal

thought disorders, bizarre delusions and behavior and inappropriate affect were not seen in this group of LOS patients. There was minimal negative symptoms like anhedonia were present. Catatonic features were absent. Late onset schizophrenia is an understudied subject especially in India. Further systematic research into its epidemiology, phenomenology, genetics and other biological and psychological issues and course outcomes are required for a better understanding for this condition in India.

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