

Mortality among psychiatric inpatients in a tertiary care hospital

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ABSTRACT


Background: Mortality rate among psychiatric inpatients is one of the major concern areas which need further explorations. There is a scarcity of research studies related to this particular issue in India. **Objective:** The objective of the study was to assess the mortality rate and its correlates among mentally ill inpatients of a Mental Health Institute of Eastern India. **Materials and Methods:** The medical records of those psychiatric inpatients ($n = 151$) who died during their stay at the Mental Health Institute (COE), Sriram Chandra Bhanj Medical College in the past 20 years (April 1998–March 2018) constituted the study population. **Results:** A total of 151 patients died during their inpatient stay. Out of which, 134 patient case records were traced out. Sociodemographic information about 65 patients (48.50%) could not be obtained as they were rescued (homeless mentally ill patients). Majority of the patients were females (51.49%). Out of 69 inpatients, majority of patients (14.92%) belonged to the age group of 35–44 years, formal education of primary level (27.61%), Hindu religion (44.77%), were married (32.08%), from rural areas (32.08%), and unemployed (26.11%). Majority of patients (69.40%) stayed in indoor for <1 month. In 44% of cases, there was a history of comorbid medical conditions. Respiratory complications (51.49%) were the most common cause of inpatient death. Schizophrenia (22.38%) was the most common diagnosis. In 23.13% of cases, the duration of mental illness was 1–10 years. With progress of years, the death was more in the past 5 years due to more number of admissions of homeless mentally ill patients who have comorbid medical conditions. **Conclusion:** Due to the increased burden of homeless mentally ill patients, a separate ward should be made for them with special focus on appointment of voluntary social workers or other hospital attendants who can take care of their medical conditions just after the hospitalization due to the absence of caregivers.

KEY WORDS: Death; Mortality; Homeless Mentally Ill

INTRODUCTION

Epidemiological studies have consistently found out the excess mortality rates among the patients of chronic mental illness (i.e., schizophrenia, schizoaffective disorder, bipolar disorder, and depression) compared to the general population.^[1,2] Although higher mortality rates were observed

among hospitalized chronic mentally ill patients, very little focus has been placed on the exact cause of death in these hospitalized patients.^[3] There are around 400,000 wandering mentally ill persons in India^[4] occupying the beds of Mental Hospitals and Psychiatric Units of Medical Colleges, but mostly residing in the unhygienic environments, thereby increasing the burden of mortality among hospitalized chronic mentally ill patients. The increasing rates of mortality even after modern modalities of treatment are not due to the treatment approach, it is due to increasing burden of chronic homeless mentally ill in the psychiatric hospitals. Nine out of 10 have diagnosable and treatable mental disorders; four out of five have significant comorbid physical health problems.^[4,5] The overcrowding of mental hospitals in the long run is becoming the source of infectious disease giving

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rise to higher mortality than preceding years. Simultaneously, the chronic mentally ill patients have physical comorbidities after long years of disease which adds more burdens to the mortality rate.

Felker *et al.* (1996) found out that the standardized mortality ratios for both natural and unnatural causes of death among psychiatric patients were more than twice that of general population.^[6] Similarly, other studies also reveal higher mortality in mentally ill inpatients than the general population.^[7-9] In one of the Indian studies done in Southern part of India, the cause of death was due to cardiovascular (CV) complications followed by respiratory system disorder.^[10] Among natural causes of death, infectious diseases ranked the highest position followed by CV and respiratory causes.^[3,11]

This study was undertaken with the objective of assessing mortality and its correlates among psychiatric inpatients of a Mental Health Institute of Eastern India.

Objective of the Study

The objective of the study was to assess the mortality rate and its correlates among mentally ill inpatients of a Mental Health Institute of Eastern India.

MATERIALS AND METHODS

The medical records from the reception of Mental Health Institute (COE), Sriram Chandra Bhanj Medical College, Cuttack, Odisha, India, in the past 20 years (April 1998–March 2018) of those psychiatric inpatients ($n = 151$), who died during their inpatient stay at the institute, constitute the study population. Out of 151 psychiatric inpatient deaths, the researchers were able to scrutinize and trace out the case record files of 134 inpatients. Hence, the detail analysis was carried out on those 134 patients. The untraced files were submitted to the honorable court, Human Rights Commission, and Right to Information court at different times for legal purposes for which the files were not traceable. The sociodemographic data of those inpatients, year-wise inpatient death rates, comorbid medical conditions, duration of mental illness, psychiatric diagnosis given to those inpatients, and duration of indoor patient stay were extracted from the case files. The sociodemographic and clinical characteristics data were analyzed by frequency and percentages. Ethical clearance for the study was obtained from the Institutional Ethical Committee.

RESULTS

A total of 139,304 psychiatric inpatient admissions were there in the past 20 years (between April 1998 and March 2018) at Mental Health Institute (COE), Sriram Chandra Bhanj Medical College. Out of which 151 patients died during their inpatient

stay. Out of those 151 deaths, 134 patient case records were traced out and further analyzed. Sociodemographic details of those case records ($n = 134$) are depicted in Table 1. Out of 134 patients, sociodemographic information about 65 patients (48.50%) could not be obtained as they were homeless mentally ill patients, who were reported to the institute by non-governmental organizations (NGOs) and Chief District Medical Officer of different districts of Odisha. Those inpatients age ranged from 15 years to 68 years.

Table 1: Sociodemographic details of indoor (death) patients

Variables	Frequency ($n=134$)	Percentage
Gender		
Male	65	48.50
Female	69	51.49
Age group (in years)		
15–24	10	7.46
25–34	10	7.46
35–44	20	14.92
45–54	16	11.94
55–64	10	7.46
65–74	3	2.23
Data not available	65	48.50
Education		
Illiterate	7	5.22
Primary	37	27.61
High school	19	14.17
Higher secondary	6	4.47
Data not available	65	48.50
Religion		
Hindu	60	44.77
Muslim	9	6.71
Data not available	65	48.50
Marital status		
Married	43	32.08
Single	26	19.40
Data not available	65	48.50
Domicile		
Rural	43	32.08
Semi-urban	9	6.71
Urban	17	12.68
Data not available	65	48.50
Occupation		
Employed	34	25.37
Unemployed	35	26.11
Data not available	65	48.50
Family history of mental illness		
Yes	10	7.46
No	59	44.02
Data not available	65	48.50

Table 2: Year-wise distribution of inpatient admission and death rates

Year	Total number of inpatient admissions per year	Number of psychiatric inpatient deaths per year	OD rates per 1000 admissions	Crude mortality rate of India (ED) per 1000 admissions	Standardized mortality ratio (OD/ED* 100)
1998–1999	1179	3	2.5	9	27.8
1999–2000	1300	Nil	Nil	8.7	
2000–2001	1366	3	2.1	8.5	24.7
2001–2002	1402	2	1.4	8.4	16.7
2002–2003	1687	5	2.9	8.1	35.8
2003–2004	2084	5	2.3	8.0	28.8
2004–2005	1868	2	1	7.5	13.3
2005–2006	1743	4	2.2	7.6	28.9
2006–2007	1442	1	0.6	7.5	8
2007–2008	1449	2	1.3	7.4	17.6
2008–2009	1601	Nil	Nil	7.4	
2009–2010	1924	3	1.5	7.3	20.5
2010–2011	2280	04	1.7	7.2	23.6
2011–2012	2864	Nil	Nil	7.1	
2012–2013	2848	14	4.9	7.0	70
2013–2014	3071	11	3.5	7.0	50
2014–2015	3252	21	6.4	6.7	95.5
2015–2016	3441	22	6.3	6.5	96.9
2016–2017	2417	19	7.8	6.4	121.9
2017–2018	3616	30	8.2	7.3	112.3

OD: Observed death, ED: Expected death. Reference: NITI Aayog (<http://niti.gov.in>)

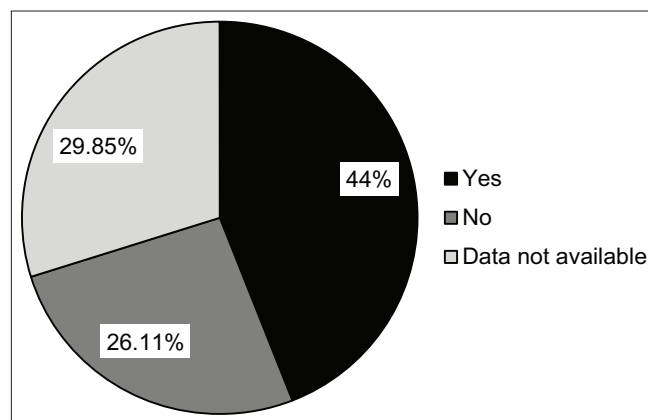
Table 2 shows year-wise distribution of indoor admission and death rates. It shows the yearly mortality rate per 1000 admissions. It is found out that the highest number of inpatient admission (3616) and highest number of inpatient death ($n = 30$, 0.82%) were in 2017–2018. A total number of 151 deaths occurred during the 20-year period, giving an annual rate of 7.55.

Table 3 shows duration of inpatient stay before death. Majority of patients (69.40%) stayed in indoor for less than one month. Whereas only 1.49% of patients stayed for less than 24 hours and 2 to 3 years in indoor.

Figure 1 describes the presence of comorbid medical conditions of those inpatients before death. In 44% of cases, there was a history of comorbid medical conditions along with psychiatric illness.

Figure 2 describes about the causes of inpatient death. Respiratory complications (51.49%) were the most common cause of inpatient death.

Figure 3 shows different psychiatric diagnoses which were given to patients during their inpatient stay. In majority of cases (48.50%) the diagnosis could not be possible, as they were homeless mentally ill patients. 22.38% of cases were diagnosed as schizophrenia, 8.20% of cases diagnosed as Mood Disorder, 6.71% as Other psychotic disorders, 4.47%

**Figure 1:** Comorbid medical conditions of indoor (death) patients ($n=134$)

as Substance use disorders and Catatonic stupor, 2.98% as Seizure disorder and 2.23% of cases as Mental retardation and Organic mental disorder.

Figure 4 describes the duration of psychiatric illness of inpatients before death. In majority of cases (48.50%), the duration of psychiatric illness of inpatients could not be obtained.

DISCUSSION

Statistics of mortality in mental hospitals in India and also in other countries is sparse, after reviewing literature from

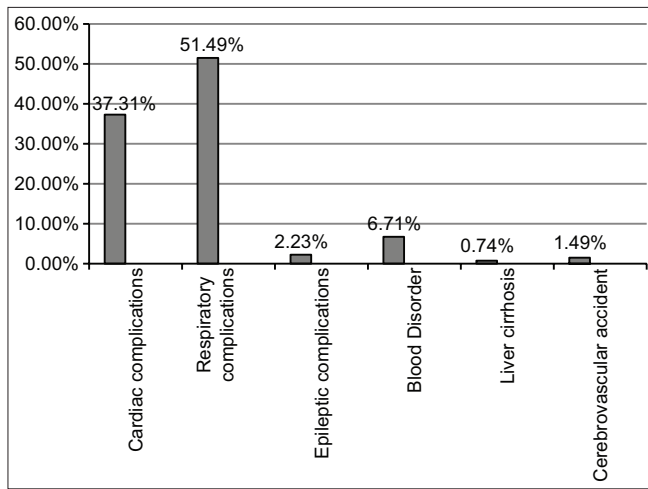


Figure 2: Causes of inpatient death (n=134)

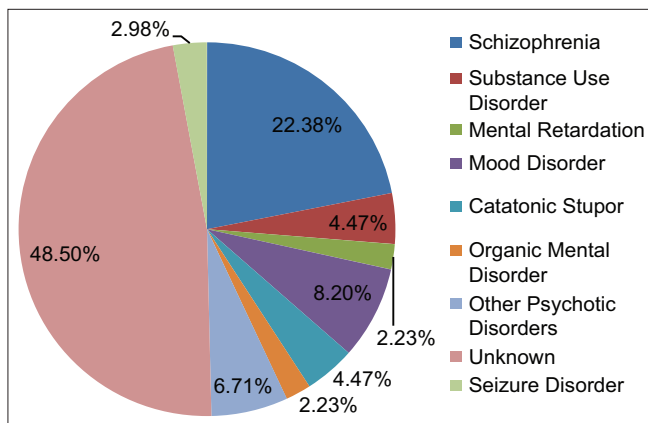


Figure 3: Types of psychiatric diagnosis given to inpatients (n=134)

the different scientific journals. However, in our study, the records of the past 20 years hospital data were reviewed to know the mortality rate among indoor hospitalized mentally ill patients. Out of 151 inpatient deaths, the records of 17 inpatients were untraceable because the mental hospital where the study was conducted generally keeps data (case sheets) of patients (both indoor and outdoor) for at least the past 10 years. In addition to it, some case sheets were lost due to repeated shifting of case sheets to the honorable court in different legal issues. Therefore, data of remaining 134 inpatients were analyzed, of which sociodemographic data of 65 inpatients (49%) were not available, as they were homeless mentally ill, who were rescued by the police/NGOs/government officials and admitted in the hospital under the order of the magistrate without any key caregivers. Furthermore, they were staying in the mental hospital since years and years without any identifiable family. The data of remaining 69 inpatients (51%) out of 134 inpatients were available in detail. The death among the age of 35–44 years and 44–54 years was more than the other age groups. This may be because within the study population, the proportions of inpatients in these two groups were higher than the other age groups. From our study, it has been concluded that with progress of years, the death was more in the past 5 years due

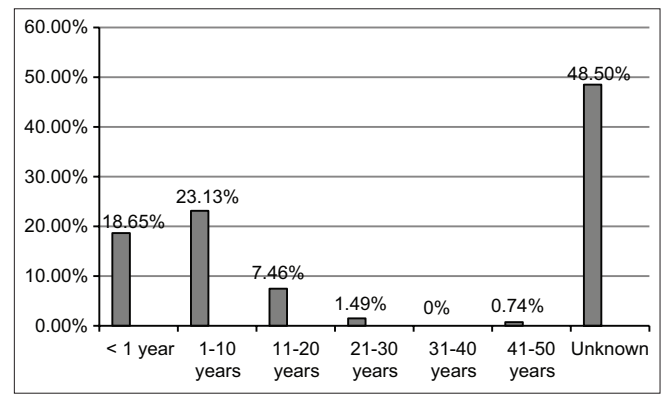


Figure 4: Duration of psychiatric illness of (death) inpatients

Table 3: Duration of inpatient stay before death

Duration of inpatient stay	Frequency	Percentage
<24 h	2	1.49
1 day-<1 month	93	69.40
1–3 months	10	7.46
3–6 months	7	5.22
6–9 months	8	5.97
9–12 months	4	2.98
1–2 years	8	5.97
2–3 years	2	1.49

to more admissions and admissions of homeless mentally ill patients. Furthermore, the inpatient death was high among the homeless mentally ill having comorbid medical conditions in addition to their psychiatric morbidities. The highest death was occurred in between the inpatient stay of 1 day and 1 month due to the physical comorbidities which were not taken care of by the caregivers. Furthermore, it was difficult to diagnose especially in homeless mentally ill due to the absence of caregivers within short period of time. The cause of death was mostly due to respiratory and cardiac complications due to comorbid conditions. Similarly, schizophrenia and other psychotic disorders were the most common diagnosis among the inpatient deaths because most of the schizophrenics had untreated comorbid medical conditions for long period of time which contributed to their death due to lack of caregiver support and instant diagnosis in the hospital. The inpatients having duration of psychiatric illness of 1–10 years have highest deaths due to comorbid medical conditions.

By analyzing the data of the past 20 years, the death rates were higher in the past 5 years (2013–2018). This was due to more number of admissions and more number of deaths among homeless mentally ill inpatients who were deprived of medical care by their caregivers giving rise to multiple physical/medical morbidities in addition to psychiatric morbidity with their long-standing illness as they were wandering mentally ill since months and years.^[12,13] The overall standardized mortality ratio (SMR) of 20 years of death is 0.396, which shows that the inpatient mortality is

considerably lesser than crude mortality rate of India. Our findings of the study are corroborated with a study conducted by Shinde *et al.*^[10] However, other studies conducted by Lim *et al.*^[12] and Amaddeo *et al.*^[7] contradicted our study findings that mortality in inpatient to be more than that of the general population mortality. Decreased mortality rate can be attributed to the hospital policy, which insists that a family member should stay with the patient during inpatient stay which ultimately helps the treating mental health professionals to enable as well as empower family members in providing appropriate care to the patients both during the inpatient stay and also when the patient is back to the community after discharge from the hospital. The death among the inpatients after hospitalization was occurred between the periods of 1 day and 1 month. The death among the inpatients after hospitalization was occurred between the periods of 1 day to 1 month as all those inpatients were admitted with comorbid medical conditions and were in the peak of their physical morbidities than mental morbidities, which were not taken care of by their caregivers.^[14] The death which occurred in a week after admission was admitted from the emergency department (casualty) and the time interval to diagnose the physical morbidities was very less in the absence of their caregivers. Hence, in the future, the psychiatric social workers should replace the place of caregiver when a homeless mentally ill is admitted in mental hospital from the emergency department so that immediate diagnosis of medical comorbidities can be done and death can be reduced by the immediate interventions. The rate of inpatients (44%) who were admitted with comorbidities such as heart diseases, respiratory diseases, and cerebrovascular diseases had higher death rates due to medical complications. Among the cause of death, the leading one was respiratory complications (52%) followed cardiac complications (37.1%) which is almost similar to death rates in other studies.^[12,13] The mentally ill inpatients having comorbid medical conditions require immediate medical attention by the physicians due to patients having cardiac diseases and respiratory diseases are very prone to mortality, if not treated at proper time. In some cases, mentally ill inpatients require intensive care unit (ICU) care, which were not available to these mentally ill inpatients due to overloading of patients in ICU in government hospitals. The other reasons for inpatient death were epilepsy, liver cirrhosis, and CV accidents which can be explained due to their severity of comorbid medical conditions. Out of 134 inpatients, 49% of inpatients were not properly diagnosed due to non-availability of caregivers at the time of hospital admission in the emergency department and subsequently to inpatient department of psychiatry. In addition, the time span to diagnose the medical illness was also very less (<1 week), which contributed additionally for their death in short span of time. Among the diagnosed cases, majority were diagnosed as schizophrenia (22%), followed by mood disorders (8%), other psychotic disorders (6.71%), and substance use disorders (4.47%). This diagnostic breakup among the inpatient death was similar to the earlier studies.^[12]

Many cases were diagnosed to have medical illness before death, similar to other study findings.^[12] In majority of cases (49%), the diagnosis was not done. In majority of cases (49%), the diagnosis could not be possible as most of the patients were homeless mentally ill, who were rescued by police/NGOs/Govt. officials. In these cases, because the patients were psychotic at the time of admission, hence diagnosis was not given in the research point of view. However, they were treated according to the symptoms. The deaths among the diagnosed cases were higher among the inpatients with duration of illness of 1–10 years, which can only be explained due to their comorbid medical complications. Similarly, the death with psychiatric diagnosis of the duration of <1 year can only be explained due to additional comorbid medical conditions which are mostly due to respiratory or cardiac complications.^[10,12]

In view of scarcity of research studies on mortality of mentally ill patients, this is one of the valuable studies on mortality of mentally ill patients. As the number of deaths in chronic homeless mentally ill is higher than other patients as well as higher number of death occurs in short period of time after reaching tertiary care hospital, indicating that medical conditions of these patients were not properly taken care of leading to death, it is pertinent to do special rehabilitative measures for these patients with proper professional care, thereby reducing their physical and mental health morbidity. The study sample was collected from tertiary care hospital; hence, community sample was not taken into account, thereby not reflecting the overall population. In spite of utmost care to take the sociodemographic data of chronic homeless mentally ill, the detailed medical history was not available from hospital authority, police, and NGOs.

CONCLUSION

Due to the increased burden of homeless mentally ill patients, a separate ward should be made for them with special focus on appointment of voluntary social workers or other hospital attendants who can take care of their medical conditions just after the hospitalization due to the absence of caregivers. Similarly, after they are mentally stable to avoid overcrowding and unhygienic conditions in the hospital ward, they should be rehabilitated in separate rehabilitation mental health sectors than tertiary care hospitals.

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