ORIGINAL PAPER

Patterns of Psychiatric Illness in a Tertiary Care Centre of Arunachal Pradesh: An Observational Study

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ABSTRACT

Introduction: *Monitoring the pattern of psychiatric illness among inpatients is essential for understanding the burden and trends of disease, in addition to designing and developing focused preventive and interventional strategies. Given the significant regional variation in the prevalence of mental illness, the present study evaluated the profile of psychiatric illness among inpatients admitted to a tertiary care center situated in the North East of India.*

Methods: *Information from case records of consecutively admitted patients aged 18 years and above over the preceding three years, coded under the International Classification of Diseases, 10th edition (ICD-10), was reviewed. Details of socio-demographic parameters and psychiatric illness as well as substance use were extracted and represented by using descriptive statistics.*

Results: *There were 371 admissions over the above-mentioned time frame. Subjects had a mean age of 36.5±10.45 years and 80.05% of them were males. Substance use disorders (77.62%) were the most commonly noted among study participants, with the majority being diagnosed with opioid dependence (43.93%) and alcohol dependence (29.92%), followed by tobacco dependence (2.16%). Psychotic disorders (5.12%), anxiety disorders (6.19%) and mood disorders (1.88%) were noted in a much lower proportion than anticipated. More than half (n=248) of subjects were aged 18-34 years.*

Conclusions: *A disproportionate overrepresentation of substance use disorders among psychiatric inpatients in the North Eastern state of Arunachal Pradesh in India contrasts with the profile noted in other parts of the country. Notably affecting the younger age group, the findings of the present study highlight the need for the development of targeted preventive and interventional strategies to address the same. The study could help inform mental health policy initiatives and guide focused mental health care provision.*

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INTRODUCTION

Psychiatric illness is the second leading cause in terms of years lived with disability (YLDs) worldwide, which poses a very significant challenge to the healthcare system. Along with neurological disorders, it contributes to 10% of the global disease burden (1, 2). Anxiety disorders, depression, organic disorders, substance use and intentional self-harm are the most prevalent types of psychiatric disorders (3). Psychiatric illness interferes with the individual's decision-making ability and causes impairment in real-world functioning, putting the affected person at higher risk of substance abuse and risky sexual behaviour (4, 5). Adults suffering from psychiatric illness and comorbid opiate dependence were found to have a high prevalence of alcohol abuse (24%) and amphetamine abuse (10.6%) (6).

According to the US Centres for Disease Control and Prevention (CDC), mental health disorders such as schizophrenia, bipolar disorders and depression are prevalent in the American population (7). As *per* the Global Burden of Disease Study 1990-2017, the burden of mental disorders was around 14.3% (197.3 million) in the Indian population across the states, out of which depressive disorders (33.8%) were predominant, followed by anxiety disorders (19%), schizophrenia (9.8%) and bipolar disorders (6-9%). The crude prevalence of psychiatric disorders in Arunachal Pradesh was 32.5-34.4 and 30-31.9 *per* 1 000 persons for depression and anxiety disorders, respectively (8). Although the burden of psychiatric illness remains high globally, the governmental investment in mental illness remains abysmally low, with many countries spending less than 1% of their total healthcare budget (9).

Arunachal Pradesh is located in the North-Eastern part of India. A large proportion of the population belongs to diverse ethnic tribes that follow different traditions and cultures unique to their indigenous faith and belief system (10, 11). According to the Arunachal Pradesh disease burden, profile-1990 to 2016, depressive disorder, anxiety disorder and schizophrenia were among the top 15 causes of YLDs. Tobacco, alcohol and drug use were the constant risk factors for most deaths and disabilities from 1990 to 2016, which were found more among males (12). The above report indicated that psychiatric disorders were one of the leading causes of disability and mortality.

Given the limited knowledge of psychiatric illness warranting inpatient care, this retrospective study was designed to evaluate the pattern of psychiatric illness among inpatients admitted to a tertiary care teaching hospital in Arunachal Pradesh, India. ❑

METHODS

The present single centre retrospective observational study was conducted in the Department of Psychiatry at Tomo Riba Institute of Health and Medical Sciences (TRIHMS), Naharlagun, India, with TRIHMS being the only tertiary care referral hospital and Medical College with a 350 bed capacity in Arunachal Pradesh. Prior to data collection, institutional ethical committee permission was obtained (Ref. No. TRIHMS/ETHICS/01/2019-20/8).

Medical records of patients diagnosed with mental illness coded under International Classification of Diseases, the 10th edition (ICD-10), who were admitted between 1 August 2018 and 31 July 2021, have been obtained from the medical record department of TRIHMS.

Inclusion criteria

The present study included all cases for the age group of 18 and above who were admitted with the diagnosis of psychiatric illnesses coded under ICD-10 within the abovementioned time period.

These included cases admitted to the psychiatry department, those referred by other departments for psychiatric consultations and those admitted to the emergency department. All cases must have been assessed by a psychiatrist at least once during the admission period for inclusion in the study.

Exclusion criteria

Cases aged under 18 years were excluded from the study. Any case record which was found to have incomplete information on demographic and psychiatric illness details was excluded.

Data analysis

Data regarding complete medical history, socio-demographic parameters and psychiatric illness were extracted. The collected data were analyzed by using IBM SPSS version 28.0. The distribution of socio-demographic parameters and categorical variables was examined using descriptive statistics. Chi-square test was used to compare the variables, and correlation analysis between study variables was conducted using Pearson's correlation. P <0.05 was considered a statistically significant result. ❏

Demographic variable	Frequency	Percentage
Age (mean ±SD)	36.5 ±10.45	
Gender		
Male	297	80.05%
Female	74	19.95%
Marital status		
Single	181	48.78%
Married	190	51.21%
Education		
Uneducated	33	8.89%
Primary	25	6.73%
High school	97	26.14%
Higher secondary	150	40.43%
Graduate	66	17.78%
Locality		
Urban	292	78.70%
Rural	79	21.29%
Family		
Nuclear family	221	59.57%
Joint family	150	40.43%
Religion		
Indigenous faith	203	54.72%
Christian	122	32.88%
Hindu	36	9.70%
Muslim & others	10	2.70%

TABLE 1. Patients' demographic details (N=371)

RESULTS

After a detailed analysis, a total of 371 inpatient case files that fulfilled the inclusion criteria were considered for the present retrospective study. Patients had a mean age of 36.5±10.45 years (age range 18 to 80 years) and 80.05% of them were males. The majority of admitted cases were married (51.21%). Regarding the subjects' educational level, 40.43% of them had completed higher secondary school and 26.14% high school. Most patients were residing in urban areas (78.70%) with a nuclear family background (59.57%). Indigenous faith belief system was found to be more common in 54.72% of cases, followed by Christians (32.88%) and Hindus (9.70%) (Table 1).

Substance abuse disorders are the most frequently observed patterns of psychiatric illness (77.63%), followed by anxiety disorders (6.19%), psychotic disorders (5.12%), mood disorders (1.88%) and organic psychosis (0.54%). In terms of dual diagnosis, alcohol dependence and schizophrenia (3.77%) were most frequently observed, followed by tobacco dependence and schizophrenia (2.16%). The majority of those with substance abuse had opioid dependence (43.93%), followed by alcohol dependence (29.92%) (Figure 1).
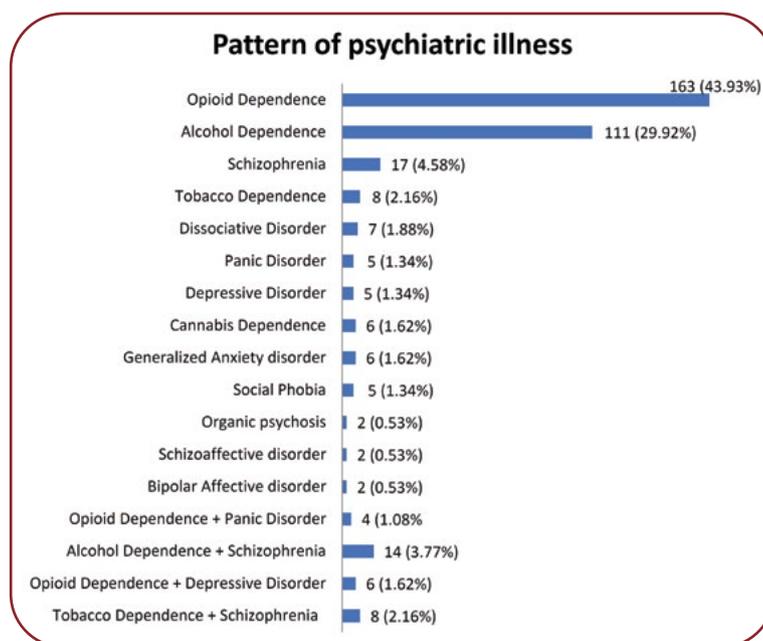

FIGURE 1. Pattern of psychiatric illness among study cases

Disorder	Age group (years)			χ² -value	p-value
	18-34 (n=248)	35-50 (n=95)	≥51 (n=28)		
Organic psychosis (n=02) (delirium, dementia)	-	-	02 (100%)		
Substance use disorder (n=288) (alcohol, opioid, tobacco, cannabis dependence)	209 (72.57%)	64 (22.22%)	15 (5.21%)		
Psychotic disorder (n=19) (schizophrenia, schizoaffective disorder	9 (47.36%)	8 (42.11%)	2 (10.53%)		
Mood disorder (n=07) (bipolar affective disorder, depressive disorder)	2 (28.58%)	4 (57.14%)	1 (14.28%)	6.382	0.001
Anxiety disorder (n=23) (Generalised anxiety disorder, panic disorder, social phobia, dissociative disorder)	12 (52.17%)	8 (34.78%)	3 (13.04%)		
Cases with dual diagnosis (n=32)	16 (50%)	11 (34.37%)	5 (15.62%)		

TABLE 2. Pattern of psychiatric illness according to the age group

*p<0.05 was statistically significant

Disorder	Males (N=297)	Females (N=74)	χ²-value	p-value
Organic psychosis (delirium, dementia)	1 (0.34 %)	1 (1.35 %)		
Substance use disorder (alcohol, opioid, tobacco, cannabis dependence)	248 (83.50 %)	40 (54.05%)		
Psychotic disorder (Schizophrenia, schizoaffective disorder	10 (3.36%)	09 (12.16%)		
Mood disorder (bipolar affective disorder, depressive disorder)	04 (1.34%)	03 (4.05%)	10.374	0.001
Anxiety disorder (generalised anxiety disorder, panic disorder, social phobia, dissociative disorder)	11 (3.70%)	12 (16.21%)		
Cases with double diagnosis	23 (7.74%)	09 (12.16%)		

TABLE 3. Psychiatric illness pattern according to gender

The burden of psychiatric illness was higher among cases aged 18-34 years, followed by those aged 35-50 years (Table 2). The Pearson correlation coefficient analysis revealed a highly significant correlation between age groups *versus* psychiatric diagnostic groups (p<0.05). Regarding gender distribution, there were no significant associations with psychiatric diagnostic groups (p>0.05). Substance abuse was found to be higher among the younger age group (72.57%), followed by the middle age group (22.22%) and older age group (5.21%). Anxiety disorder was observed more frequently in the younger age group (52.17%), whereas mood disorder was higher among patients aged 35-50 years (57.14%). Comparison between the pattern of psychiatric illness and age group was found to be statistically significant (p=0.026) (Table 2).

Among the patterns of psychiatric illness, substance abuse (83.50%) was more common in males, followed by those with dual diagnosis

TABLE 4. Psychiatric illness pattern according to religion

Disorder	Indigenous faith (N=203)	Christian (N=122)	Hindu (N=36)	Muslim (N=10)	χ² - value	p- value
Organic psychosis	2 (0.98%)	-	-	-		
Substance use disorder	166 (81.77%)	93 (76.22%)	25 (69.44%)	4 (40%)		
Psychotic disorder	10 (4.92%)	6 (4.92%)	2 (5.55%)	1 (10%)		
Mood disorder	1 (0.49%)	5 (4.09%)	-	1 (10%)		
Anxiety disorder	12 (5.91%)	7 (5.73%)	3 (8.33%)	1 (10%)	8.095	0.0483
Cases with double diagnosis	12 (5.91%)	11 9.02%)	6 (16.66%)	3 (30%)		
Grad total	203 (100%)	122 (100%)	36 (100%)	10 (100%)		

(7.74%) and anxiety disorder (3.70), whereas in females, substance abuse (54.05%) and anxiety disorders (16.21%) were the most commonly encountered conditions (Table 3).

The pattern of psychiatric illness burden was more common among people with the indigenous faith belief system than other religions. Among different faith and religions, substance abuse was found to be more common among people following the indigenous faith (89.81%), followed by Christians (76.22%) and Hindus (69.44%) (Table 4). ❑

DISCUSSION

Mental wellbeing is an essential component of maintaining the quality of life of an individual. Mental illnesses are substantial contributors to morbidity and mortality worldwide (13). The pattern of psychiatric illness reflects the disease burden in a community. Importantly, the profile of psychiatric illness may have distinct variations, which is crucial to designing preventive strategies. The present study was designed to evaluate the pattern of psychiatric illness warranting inpatient cares at a tertiary care teaching hospital in Arunachal Pradesh.

Mudgal V et al and Dhungana S et al reported high psychiatric admissions between 20-40 years of age (66.27% and 52.3%, respectively), with male preponderance (56.4% and 50.3%, respectively) (14, 15). The study by Singh et al had also reported a greater number of admissions among male patients (70%), of which the majority were aged 31-40 years (41.7%) (16). Keertish et al also reported a higher prevalence of psychiatric illness in males presenting to a tertiary care hospital over a two-year period (58%) (17). A similar comparable pattern of admissions was observed in our study, with 66.84% of patients belonging to the age group of 18-34 year and 80.05% of all admitted persons being males.

Savindika CN et al showed a significant association of socio-demographic variables such as age, sex and religion with psychiatric disorders (18). Regarding the educational status, patients with a primary level of education had a higher rate of psychiatric admission (14); however, the current study found higher rates among those with high school and higher secondary education. According to a meta-analysis of urban-rural differences performed by Peen J et al, the prevalence rates were significantly higher in urban areas than rural ones (19). Similar results were found in our study. In terms of religion and psychiatric illness, higher rates of psychiatric disorders were reported among cases belonging to the Hindu religion (58.86%) as compared to Muslims (28.86%) and Christians (12.26%) (18). An earlier study, conducted in Arunachal Pradesh by Chaturvedi et al, found a high prevalence of opiate use among indigenous males (16.9%) and Buddhists (19.2%) (20). The present study observed higher psychiatric admissions for those belonging to the indigenous faith (54.71%), followed by Christians (32.88%) and Hindus (9.70%). Subodh et al reported a high prevalence (58%) of dual diagnosis among patients attending a tertiary care center; the most commonly encountered included affective disorder (12.3%), followed by anxiety (11.2%) and psychotic disorder (5%) (21). However, in our study, dual diagnosis accounted for only 8.62% of all cases, with schizophrenia/psychotic disorder being more common (5.93%) as compared to depression (1.62%) and panic disorder (1.08%).

Regarding the psychiatric illness pattern, depressive disorders were the most commonly reported, followed by substance abuse, schizophrenia and psychotic disorders (14). A

systematic review and meta-analysis by Charlson F et al estimated that the prevalence of mental disorders (depression, anxiety, post-traumatic stress disorder, bipolar disorder and schizo phrenia) was 22.1% (95% UI (22) 18.8–25.7). Others reported an incidence of all psychotic disorders of 26.6 per 100 000 person-years (95% CI 22.0–31.7) (22, 23). A retrospective study found that schizophrenia/persistent delusional disorders (25.5%) represented the most common pattern of psychiatric illness, followed by acute and transient psychotic disorders (14.4%), bipolar disorders (11.6%), depression (12.7%), substance use (5.3%) and anxiety disorders (2.4%) (15). A United Arab Emirates-based three-year retrospective study by Abdel Aziz K et al on 961 inpatients reported that psychotic disorders (31.3%) were the most common pattern of psychiatric illness, followed by bipolar disorders, substance use disorders (12.6%), major depressive disorders (9.4%) and anxiety disorders (3.2%) (24). Thompson A et al found that depression and anxiety disorders (29.6%) were the most common admission patterns of psychiatric illness, followed by schizophrenia and related psychosis (26%) in England (25).

A systematic review and meta-analysis by Castillejos MC et al found a higher incidence of non-affective psychosis [IR pooled=22.53 (16.51-28.54)] than affective psychosis [IR pooled = 7.12 (5.03-9.22)] and higher rates in men than women [IRR pooled = 1.54 (1.37–1.72)] (26). According to Sidana A et al, withdrawals due to psychoactive substance abuse and non-compliance to treatment were the preponderant causes for psychiatric admissions, whereas Mukku SSR et al found that mood disorders were a common diagnosis in emergency psychiatric admissions (27, 28). According to a retrospective study of inpatients in psychiatric wards (n=3795) over a six-month period, 14.3% (543) of participants had a co-morbid diagnosis of substance use disorder (29). In a long-term outcome study (four and half years) of inpatients with burn injury, substance abuse was reported in 8% of alcohol users, 10% of cocaine users and 27% of cannabis users. Among them, 18% had tested positive for two substances at the time of admission (30). Among patients admitted with schizophrenic illness, there were higher rates of cannabis and alcohol use disorders (39.6% and 20.5%, respectively), while the use of other sub-stances, including opioid (<0.6%) had a lower prevalence (31).

Contrary to the above findings, substance use disorders were the most common pattern of psychiatric admissions in our study. Admissions for psychotic disorders, mood disorders and anxiety disorders were noted in a much lower proportion than anticipated. The influence of social customs, traditional practices and the strategic geographical location of Arunachal Pradesh could be some of the reasons for the higher incidence of substance use disorders in the current study. Alcohol is socially accepted and widely used in local tribal festivals and traditional rituals in the North-Eastern states of India, including Arunachal Pradesh. There is a customary brewing of homemade alcohol associated with local festivals and religious practices among the tribal population of the region, which gives rise to an early exposure to alcohol (32). Hence, early exposure in childhood could be a strong predictor of alcohol dependence in adulthood, which could be another contributor to the higher incidence of alcohol dependence in the current study (33, 34).

At a regional level, the highest prevalence of psychiatric illnesses had been reported in Manipur, one of the "seven sister states of North-Eastern India as per the National Mental Health Survey 2015-2016 conducted by NIMHANS (35). Drug abuse has been implicated as one of the significant contributors to mental health issues in the North-Eastern region of India, apart from poverty, insurgency, political violence and superstitious beliefs and lack of infrastructure and trained professionals (32). According to the Magnitude of substance use in India 2019 report, the male and female ratio for alcohol dependence was 17:1. A high prevalence of alcohol dependence (7.2%) was reported in Arunachal Pradesh compared to the national average of 2.7%. Opioid dependence was also reported to be higher in Arunachal Pradesh (2.65%) than the national average of 0.26%. Higher rates were also reported in several adjacent regional states, including Mizoram, Nagaland, Manipur and Sikkim (36). A previous study of household survey in Arunachal Pradesh showed a higher prevalence of opioid use among males (10.26%) as compared to females (2.1%) (20).

Our finding also showed higher rates of substance dependence (77.63%) among inpatient

admissions, the majority being opiate (43.93%) and alcohol dependence (29.92%). Gender distribution for substance dependence showed a very high prevalence in males (83.50%) and females (54.05%), which was statistically significant (p=0.001). Opioid dependence was the most common inpatient admission in our study. An important factor could be the easy availability of the substance, as illegal opium cultivation has been known in some parts of the state (36). Another important factor for the high incidence could be the easier access to opium through the porous international border shared by Arunachal Pradesh and adjacent North-Eastern states with Myanmar in the East, with the latter being considered one of the three countries of the Golden Triangle involved in opium production and trading (37).

Limitations and recommendations

The current research was a hospital-based study and had therefore limitations in extrapolating the findings as representative of the community. Being a record-based study, detailed information on the socio-economic status, family history of mental illness, medical comorbidity and treatment details could not be obtained. The retrospective study design without a comparison group is another limitation. We suggest that further community-based research should incorporate clinical profile, pathways to care, attitudes of patients and families towards psychiatric illness, treatment burden and morbidity and mortality in psychiatric illness. ❑

CONCLUSION

The current study found a high proportion of young people availing inpatient care for substance dependence, which was an alarming finding regarding the extent and pattern of the problem at large. Therefore, there is an urgent need for de-addiction centers with holistic care, mental health professionals, counseling services and long-term plans to rehabilitate those suffering from substance use disorders. More awareness programs on mental health issues need to be emphasized as the proportion of people availing inpatient care for other mental illnesses remains lower than that of those with substance abuse. In addition, awareness has to be implemented at an organizational level to mitigate the menace of substance abuse. ❑

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