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Socio-demographic and clinical profile of the indoor patients of National Institute of Mental Health (NIMH), Dhaka, Bangladesh

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Background: The National Institute of Mental Health (NIMH) is a 200-bed tertiary psychiatric hospital located in Sher-E-Bangla Nagar, Dhaka, Bangladesh. It has been maintaining a computer database to keep records of the indoor patients since 2020, based on which this study was carried out.

Objectives: To explore the proportion of patients with psychiatric disorders of inpatient departments of NIMH, with different clinical diagnosis according to ICD-10 4-digit code and the socio-demographic and other relevant profile of those patients.

Methods: : It was a retrospective medical record review conducted utilizing the computer database containing the data regarding clinical diagnosis and other relevant variables of the indoor patients of the NIMH, which were plotted there by the assigned office staff on a weekly basis, over the period from January 2021 to December 2021, from the records of the structured indoor patient data sheet, that was prepared by the teachers of NIMH. The data sheet was filled out daily before each patient's discharge by the duty doctors of the respective departments. Patients were diagnosed according to the ICD-10 4-digit code by the Professors, Associate Professors and Assistant Professors of the respective departments.

Results: In this study, the recorded data of 797 patients were analysed. Among them, (51.4%) of the patients were male and (48.6%) female. The patients' mean age (±SD) was 28.6±12.16 years. Thirty-five types of different clinical diagnoses were found. Schizophrenia (39%) and bipolar affective disorder (29.4%) were the most common diagnoses.

Conclusions: Findings of this study will act as an eye-opener for psychiatrists regarding a wide range of psychiatric diagnoses and future research.

Declaration of interest: None

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Keywords: ICD-10 4-digit code, Psychiatric disorders, NIMH, Indoor patient data sheet, computer database.

Introduction

Across the world, people need mental health services yet have limited access to it. The World Mental Health Report, subtitled "Transforming Mental Health for All," aims to do just that by providing information and inspiration to help individuals everywhere take better care of their mental wellness. New studies and best practices from all over the world are utilized to illustrate why and where change is most necessary, as well as provide concrete examples of how this might be accomplished. By identifying the underlying reasons that have an impact on mental health

and taking the necessary precautions, the field of mental health promotion and prevention aims to lessen the likelihood of negative outcomes and increase mental resilience and well-being. Efficient and effective strategies require cross-sectoral effort and may involve altering either individuals or institutional influences.[1]

NIMH[2] is a 200-bed, tertiary psychiatric hospital located in the capital city of Dhaka, at Sher-E-Bangla Nagar. It employs over 300 personnel to deliver outpatient, inpatient, and emergency medical services for patients with psychiatric disorders. Besides treating patients and teaching the next generation of leaders in psychiatry, it persistently keeps a focus on research activities and mental health policy formation.

It has been maintaining a computer database to keep records of the indoor patients since 2020. This study was carried out based on the recorded data of that database. The objectives of this study were to explore the proportion of the patients with psychiatric disorders with different clinical diagnoses, admitted at NIMH and the socio-demographic and other relevant clinical information of those patients.

Methods

It was a retrospective medical record review carried out based on the information from the computer database that was developed to record data regarding clinical diagnosis, socio-demographic and other relevant variables of the patients of all six inpatient departments of NIMH, where data were plotted by the assigned office staff on a weekly basis, over the period from January 2021 to December 2021, from the structured indoor patient data sheet. This data sheet was prepared by the teachers of NIMH, where data were recorded daily before each patient's discharge, by the duty doctors of the respective departments. To the best of our knowledge, most of the previous studies in our country regarding the pattern of psychiatric disorders showed 15-25 diagnoses, only. But the US uses its own variant of the ICD-10 called the Clinical Modification (ICD-10-CM),[3] which has almost 70,000 diagnosis codes. The DSM-5,[4] in contrast, only lists 297 disorders. ICD, developed by the World Health Organization (WHO), is currently in its 11th iteration and will be fully implemented in 2027. So, with the purpose to see wide range of clinical diagnoses according to the International Classification of Diseases (ICD)-10 4-digit code.[6] Patients were diagnosed by the Professors, Associate Professors, and Assistant Professors of the respective departments. Data were analyzed by using Statistical Package for Social Science

(SPSS) – version-16.

Ethical Issues: Research proposal was approved (Memo NO. NIMH/2022/2765, Date:27.11.2022) by the Ethical Committee of NIMH for this study but the patients/ patient's caregivers/ guardians were not informed about the purpose of filling the data sheet.

Results

Recorded data from 797 patients were analyzed in this study. Data regarding socio-demographic variables were plotted in Table 1. Among the patients, 410 (51.4%) were male and 387 (48.6%) were female. The Mean age (±SD) of the patients were 28.6±12.1 years, and the majority 460 (57.7%) of them were found in the age group of 19–35 years, followed by 164 (20.6%) in the age group 0–18 years, 161 (20.2%) in the age group 36–60 years, and 12 (1.5%) in the age group >60 years. A significant proportion of the patients 279 (35.0%) were unemployed, followed by housewives 196 (24.5%), students 194 (24.3%), private services 28 (3.5%), and so on. In this study, the level of educational attainment was up to primary 208 (26.0%), secondary 324 (40.7%), higher secondary 120 (15.1%), graduation and above 79 (10.0%), and no education 66 (8.2%). Most of the patients 403 (50.6%) were from a rural background, followed by urban 285 (35.8%), semi-urban 85 (10.6%), slum 14 (1.7%), and unknown 10 (1.3%). Among the patients, 377 (47.3%) remain unmarried, 363 (45.5%) married, and 2 (0.3%), 12 (1.5%), and 40 (5%) of the patients were widowed, separated, or divorced, respectively. In addition, 3 (0.4%) of patients' marital status was unknown (Table 1).

In this study, thirty-five types of clinical diagnoses according to the ICD-10 4-digit code were found among 796 patients and 1 patient was found with no psychiatric disorder, which was presented at Table 2. The most frequent 312 (39%) diagnosis were schizophrenia, followed by manic episodes, bipolar affective disorder and current episode manic with psychotic features, unspecified mood disorder, in total 276 (34.6%), neurotic and stress related disorders in total 58 (7.3%), depressive episode and recurrent depressive disorder 23 (2.9%), and specific personality disorder 22 (2.8%). Among the neurotic and stress related disorders, the most frequent was dissociative conversion disorder 43 (5.4%), followed by obsessive- compulsive disorder (OCD) 8 (1.0%), phobias and other anxiety disorders 4 (0.6%), reaction to severe stress and adjustment disorder 3 (0.4%). Substance-related mental and behavioral disorders were 19 (2.4%). Among them, most frequent were cannabinoids 8 (1.0%), followed by multiple drug use

and other psychoactive substances 5 (0.6%), alcohol 2 (0.3%), other stimulants including caffeine 2 (0.3%), opioids 1 (0.1%) and hypnotics 1 (0.1%). Among other psychiatric disorders, 8 (1.1%) were mental retardation, 4 (0.5%) were pervasive developmental disorders, 4 (0.5%) were conduct disorders, 2 (0.3%) were hyperkinetic disorders, 1 (0.1%) disorder was of social functioning with onset specific to childhood and adolescence, 1 (0.1%) were delirium not induced by alcohol and other psychoactive substances, 1 (0.1%) were other mental disorders due to brain damage and dysfunction. Among the recorded patient's information regarding 14 patients was incomplete.

Regarding treatment outcome, 395 (49.6%) were improved after receiving treatment from the hospital, 348 (43.7%) of patients were partially improved, 43 (5.4%) of patients showed no improvement after being admitted to the hospital, 5 (0.6%) of patients' conditions worsened, 1 (0.1%) was died, and 5 (0.6%) of patients' conditions remained unknown. (Table 3). In the current study, 452 (56.7%) of patients were discharged with advice, 289 (36.3%) of patients were released on request, and 33 (4.1%) of patients were released after posting a risk bond, 1 (0.1%) absconded from the hospital and 19 (2.4%) of inpatients were referred for proper management of other co-morbid physical conditions. Unfortunately, the reason for discharge for 3 (0.4%) of clients were unknown (Table 4). Regarding duration of hospital stay, 280 (35.2%) of the patients had been hospitalized for >1 to 2 weeks, 314 (39.4%) had been for >2 to 4 weeks, 177 (22.2%) had been for >4 to 8 weeks, 26 (3.2%) had been for >8 to 12 weeks. Median hospital stay was found 21 days (Table 5).

Table 1: Distribution of patients according to Socio-demographic variables (n=797)

Characteristic	Frequency (n)	Percentage (%)
Age group (in year)		
0-18	164	20.6
19-35	460	57.7
36-60	161	20.2
>60	12	1.5
Sex		
Male	410	51.4
Female	387	48.6

Characteristic	Frequency (n)	Percentage (%)
Education		
No education	66	8.2
Primary	208	26.0
Secondary	324	40.7
Higher secondary	120	15.1
Graduation and above	79	10.0
Occupation		
Unemployed	279	35
Businessman	15	1.9
Agricultural works	18	2.3
Private services	28	3.5
Govt. services	12	1.5
Housewife	196	24.5
Day labour	18	2.3
Student	194	24.3
Others	31	3.9
Unknown	6	0.8
Residence		
Slum	14	1.7
Urban	285	35.8
Rural	403	50.6
Semi-urban	85	10.6
Unknown	10	1.3
Marital status		
Unmarried	377	47.3
Married	363	45.5
Widow/Widower	2	0.3
Separated	12	1.5
Divorced	40	5
Unknown	3	0.4

Table 2: Distribution of patients according to major category of ICD-10 4 digit-code (n=797)

SL	ICD-10 Code	Diagnosis	Frequency (n)	Percentage (%)
1	F 05	Delirium, not induced by alcohol and other psychoactive substances	1	0.1%
2	F 06	Other mental disorders due to brain damage and dysfunction	1	0.1%
3	F 10	Mental and behavioural disorders due to use of Alcohol	2	0.3%
4	F 11	Mental and behavioural disorders due to use of opioids	1	0.1%
5	F 12	Mental and behavioural disorders due to use of cannabinoids	8	1.0%
6	F13	Mental and behavioural disorders due to use of hypnotics	1	0.1%
7	F15	Mental and behavioural disorders due to use of other stimulants including caffeine	2	0.3%
8	F19	Mental and behavioural disorders due to multiple drug use and other psychoactive substance	5	0.6%
9	F20	Schizophrenia	312	39%
10	F21	Schizotypal disorder	1	0.1%
11	F22	Persistent delusional disorder	8	1.0%
12	F23	Acute and transient psychotic disorders	33	4.1%
13	F25	Schizo-affective disorder	1	0.1%
14	F28	Other non-organic psychotic disorders	1	0.1%
15	F29	Unspecified non-organic psychosis	3	0.4%
16	F30	Manic episode	35	4.4%
17	F31	Bipolar affective disorder	6	0.8%
18	F 31.2	Bipolar affective disorder current episode manic with psychotic features	234	29.4%
19	F32	Depressive episode	16	2.0%
20	F33	Recurrent depressive disorder	7	0.9%
21	F39	Unspecified mood disorder	1	0.1%
22	F40	Phobic anxiety disorder	2	0.3%
23	F41	Other anxiety disorder	2	0.3%
24	F42	OCD	8	1.0%
25	F43	Reaction to severe stress and adjustment disorder	3	0.4%
26	F44	Dissociative conversion disorder	43	5.4%
27	F60	Specific personality disorder	22	2.8%
28	F66	Psychological and behavioural disorders associated with sexual development and orientation	1	0.1%
29	F70	Mild mental retardation	2	0.3%

SL	ICD-10 Code	Diagnosis	Frequency (n)	Percentage (%)
30	F71	Moderate mental retardation	2	0.3%
31	F72	Severe mental retardation	4	0.5%
32	F84	Pervasive developmental disorder	4	0.5%
33	F90	Hyperkinetic disorders	2	0.3%
34	F91	Conduct disorders	4	0.5%
35	F94	Disorders of social functioning with onset specific to childhood and adolescence	1	0.1%
37	F20+F71	Schizophrenia+ Moderate mental retardation	1	0.1%
39	F23+F63	Acute and transient psychotic disorders + Habit and impulse disorder	1	0.1%
40	Forensic Case	No Psychiatric disorder	1	0.1%
	Data could not be obtained	Unknown	14	1.8%
	Total		79	100%

Table 3: Distribution of patients according to treatment outcome (n=797)

Outcome	Frequency (n)	Percentage (%)
Improved	395	49.6%
Partially improved	348	43.7%
Not improved	43	5.4%
Deteriorated	5	0.6%
Died	1	0.1%
Unknown	5	0.6%
Total	**797**	**100%**

Table 4: Distribution of patients according to mode of discharge (n=797)

Mode of discharge	Frequency (n)	Percentage (%)
Discharge with advice	452	56.7%
Discharge on request	289	36.3%
Discharge on risk bond	33	4.1%
Absconded	1	0.1%
Referred	19	2.4%
Unknown	3	0.4%
Total	797	100%

Table 5: Distribution of patients according to duration of hospital stay (n=797)

Duration of hospital stay (in weeks)	Frequency (n)	Percentage (%)
>1-2	280	35.2%
>2-4	314	39.4%
>4-8	177	22.2%
>8-12	26	3.2%
Median hospital stay		21 days
Total	797	100%

Discussion

Recorded data of 797 admitted patients to all 6 inpatient departments of NIMH were analysed in this study. Among them, (51.4%) were male and (48.6%) were female. This could be because the NIMH has a (60%) male to (40%) female bed distribution ratio, and treatment seeking behaviour and priority is still common in case of male in our society. This result is comparable with findings of other studies, where (60.53%) were male, (36.47%) were female[6] and (79.5%) were male, (20.5%) were male,[7] respectively. The majority (57.7%) of the patients were in the age group of 19-35 years. The predominance of this age group can be explained by the predominance of patients with schizophrenia and bipolar disorder. This finding is also consistent with another study, where majority (35.6%)

of the patients were in the age group 21-30 years followed by (23.3%) in the age group 31-40 years.[7]

In the current study, substantial proportion (35.0%) of the patients was unemployed. Unemployment has a bidirectional relationship with psychiatric disorders. Next to unemployment, housewives (24.5%) were most prevalent. Housewives are subjected to enormous stress as a result of child rearing practices, household chores, financial crises, and domestic violence. Third most prevalent were students (24.3%). Students experience study-related stress, and they are mostly young adults. This finding is almost similar with another study, where (26.0%) were unemployed, (23.3%) were students.[7]

This study found that level of educational attainment for majority of the patients were up to secondary (40.7%) followed by primary (26.0%), higher secondary (15.1%), graduation & above (9.9%), and no education (8.3%) (Table 1). This shows that our people are getting more educated day by day, and it will continue if the nation becomes aware of the need to remove the mental health and other barriers to education. This finding was in accordance with other study where (28%) completed SSC or more academic qualification.[8]

In the present study, most of the patients (50.6%) were from a rural background, followed by urban (35.8%), semi-urban (10.6%), slum (1.7%), and unknown (1.3%). This may be due to the fact that rural people are also gradually becoming aware of their mental health and mental health-related services day by day, and they are also aware of the services provided by the NIMH in Dhaka, Bangladesh. This finding is also comparable with another study, where (54.8%) were from rural background and (45.2%) from that of urban.[7]

Patients with mental illness have a right to marry and live a life with dignity. But, it's a social process where certain abilities are required for marriage to be a successful one. In the current study, almost half of the patients (47.3%) were found unmarried. On the other hand, (45.5%) of the patients were married. This finding contradicts the findings of another study, where (46.4%) were married and (32.8%) were unmarried.[8]

In our study, Table 2 presents the clinical diagnoses of the patients according to an ICD-10 4-digit code. Findings showed, the most frequent (39.0%) were patients with schizophrenia, followed by that of manic episode, bipolar affective disorder and bipolar affective disorder current episode manic with psychotic features, unspecified mood

disorder in total (34.6%). Here, schizophrenia was highest at number, which indicates that schizophrenia is such a disease where proper management is not always possible at home and it demands hospital admission. So, attention should be paid to ensure an adequate number of beds for these groups of patients. This finding was consistent with other studies, where majority (32.7%) cases were Schizophrenia followed by (27.4%) bipolar mood disorder in one study[7] and (40.8%) schizophrenia and other psychotic disorders followed by (36.8%) mood disorder in another study,[8] respectively.

Depressive episodes and recurrent depressive disorder were found to be (2.9%) in this study (Table 2), which reflects that a substantial portion of the patients with depressive disorders requires hospital admission for proper treatment. According to the findings of our National Mental Health Survey 2018-210[9], the prevalence of depressive disorders was (6%),[9] which is double the finding of our study. This is due to the fact that current study is based on hospital records of the indoor patients of NIMH only.

Regarding the neurotic and stress related disorders (7.3%), this study found that the most frequent (5.4%) was dissociative conversion disorder, followed by obsessive-compulsive disorder (OCD) (1.0%), phobias and other anxiety disorders (0.6%), reaction to severe stress and adjustment disorder (0.4%). It indicates that, neurotic and stress related disorders are not less common. Findings of this study were in accordance with another study where anxiety disorders were (5.6%) dissociative disorders were (0.8%) and adjustment disorders were (0.8%).[8]

The prevalence of substance use is on rising trend in Bangladesh. Among the recorded patients, (2.4%) were due to substance use and related disorders. Among them, mental and behavioral disorders due to cannabinoids (1.0%) were most common followed by multiple drug use and other psychoactive substances (0.6%), alcohol (0.3%), other stimulants including caffeine (0.3%), hypnotics (0.1%) and opioids (0.1%) (Table 2). These findings were nearly similar to other research finding, where most frequently used substances were cannabinoids (42.7%), followed by alcohol (27.5%), amphetamine (15.2%), opioids (5.3%), sleeping pills (3.4%).[10] The existing discrepancies between these two studies might be due to the fact that our study is based on hospital records of one hospital only and the other study is a multi-centric community-based study. Our study was comparable to another study where findings revealed that among the drug-addicts, highest (95.2%) were addicted to

cannabinoids, followed by (61.9%) yaba, (50.0%) heroin, (47.6%) alcohol, (42.3%) phensedyl, (7.1%) cocaine and opium (2.3%).[11]

Among other psychiatric disorders, most frequent were personality disorders (PD) (2.8%). According to our national survey prevalence of PD is (0.1%).[9] This might be due to personality disorders are under-diagnosed and under-addressed in the community. Patients and/or their guardians usually seek help and take admission when their functional impairment is significantly high and to prevent devastating consequences of their illness.

Findings of this study showed (1.1%) patients were with mental retardation, (0.5%) pervasive developmental disorders, (0.5%) conduct disorders, (0.3%) hyperkinetic disorders, (0.1%) disorders of social functioning with onset specific to childhood and adolescence. In another outdoor based study conducted in Child Guidance Clinic of NIMH, Dhaka, Bangladesh, results showed hyperkinetic disorders were highest prevalent (27.09%), followed by mental retardation (18%), Pervasive developmental disorders (13.50%), conduct disorder (12.06%).[12] Our study findings were dissimilar to that study findings.

Rest of the patients were found (0.1%) with delirium not induced by Alcohol and other psychoactive substances, (0.1%) other mental disorders due to brain damage and dysfunction. (Table 2).

One patient out of 797 admitted patients was found to have no psychiatric disorder (Table 2); because this case had been referred to determine mental fitness for legal purpose.

Regarding treatment outcome, majority (49.6%) of the patients were improved and (43.7%) of patients were partially improved after receiving treatment from the hospital. So, it is evident that mental illness can be cured with treatment. On the contrary, (5.4%) of the patients had no improvement after being admitted to the hospital, (0.6%) of patients' conditions worsened following treatment. Further evaluation is necessary in this context. Only one (0.1%) had died which represents that death rate due to mental illness is very low (Table 3).

In terms of discharge, (56.7%) of patients were discharged with advice, (36.3%) of patients were released on request. This finding is consistent with another study findings, where (44.8%) respondents discharged home after completing treatment, (48%) discharged (DOR and DORB) without completing the treatment.[8] Moreover in the current study, (4.1%) of patients were released after posting a risk bond, (2.4%) were referred, data regarding (0.4%) were unknown and (0.1%) absconded from the hospital (Table 4). Further evaluation is required regarding these issues of concern. Our security staff should be more aware and cautious so that no patient could be absconded. In our study, median hospital stay was found 21 days (Table 5), which is consistent with other study that was carried out at an inpatient department of NIMH, where median hospital stay was found 19 days.[8] This finding reflects that NIMH is a short stay hospital.

To date, there is no such established comparable data regarding inpatients of Pabna Mental Hospital or Psychiatry departments of other hospitals in Bangladesh, we collected a short statistic of Pabna Mental Hospital, Bangladesh, where 1531 patients were admitted and 1541 patients were discharged in 2021. So, turnover rate of NIMH was found higher than that of Pabna Mental Hospital in 2021.

Implications

1. Applying ICD-10 4 digits in diagnosis we found 35 types of mental disorders; which is a wide variation in diagnosis. This will act as an eye opener for graduate and undergraduate doctors regarding the diagnoses of mental disorders.

2. Moreover, this computed data will ensure instant and secure access of data regarding clinical profile of the inpatients.

3. Coordination and collaboration with various government and private organizations will be easier.

4. It will help in data tracking and future research activities

Limitations

We searched for but could not obtain and compare our study findings with that of inpatient department of tertiary level psychiatric hospitals or medical colleges as there is no established/published data available regarding this, to knowledge. Bipolar disorder has a variable course characterized by recurrent episodes of depression and/or mania, and the major depressive disorders also have variable courses. Unipolar depression and bipolar depression could not be estimated separately in this study due to scarcity of data. Among the recorded patient's information regarding 14 patients was incomplete.

Recommendations

All medical colleges and tertiary level hospitals should maintain software to keep and maintain records of their patients. Data should be correctly filled up, recorded and checked with caution by the respective departments in that software.

Depression is a leading cause of disability around the world and contributes greatly to the global burden of diseases. Bipolar depression and major depressive disorder are quite different with differing treatment algorithms and prognosis, it is extremely important to make the differentiation between these two during data record. Special emphasis should be given to reduce suicide rates and global burden of diseases by early identification and effective management of depression, neurotic and stress related disorders by the all graduate, postgraduate doctors, medical students and other health care professionals of Bangladesh. Promotion of child and adolescent mental health and prevention of developmental disorders can be done by providing genetic counseling, managing obstetrical complications properly, creating awareness regarding high-risk pregnancies and policies and legislation, caregiver support, school-based programs, respectively.

Conclusion

Findings of this study will act as eye-opener for the psychiatrists regarding wide variation in patterns of psychiatric diagnoses. It will also help the policy makers for future planning and policy making in the field of mental health.

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