

## Psychiatric patients at general hospital emergency departments

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### Summary

A cross-sectional descriptive type of study on 357 patients was carried out in the emergency departments of Dhaka Medical College Hospital (DMCH) and Shahid Sohrwardy Medical College (SSMCH), Dhaka in 2011 to find out the incidence and socio-demographic characteristics of psychiatric morbidities among the patients attended there. The patients were interviewed using GHQ-28 and SCID-I, All GHQ-28 screen positive and 25% of screen negative respondents (total 158) were assessed by SCID-I. Among them 42 (11.76% of all 357 cases) respondents were found with some form of psychiatric illness. Diagnosis of psychiatric illness was significantly higher in those scored 4 or more in GHQ-28. More psychiatric cases were found among 18-25 years age group (50%), male gender (54.76%), urban population (69.05%), Muslims (85.71%), being single (54.76%), patients with secondary level of education (45.24%), housewives (26.19%), members of nuclear families (78.57%), and members of lower-income group. Among these 42 psychiatric cases, 22 were assessed by a psychiatrist who was blind about GHQ-28 score and SCID-I diagnosis. Out of these psychiatrically ill 42 cases, Major Depressive Disorder was in 9 (2.52% of the total study population of 357), Conversion Disorder was in 8 (2.24%) and Anxiety Disorder was in 7 (1.96%) respondents. There were two cases of Bipolar I Disorder and a single case of extrapyramidal side effects (EPSEs) with schizophrenia. Psychiatric illnesses are important issues at the emergency departments which require special attention.

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### Introduction

Psychiatric emergency is a composite of the clinical features, contributions made by the patients' personality, and also social and environmental factors. It is, therefore, totality of these factors which determines whether the particular clinical events are an emergency or not.<sup>1</sup> Still it is a common misconception that there are no real emergencies in psychiatry.<sup>2</sup> As bodily symptoms are the most common individual expression of social problems and emotional distress,<sup>3</sup> medical staffs often fail to recognize psychiatric disorder in patients presenting with somatic complaints,<sup>4, 5</sup> yet this is the most common way for psychiatric disorder to present.<sup>6</sup>

Considering the importance of collaboration between emergency physician and psychiatrist this study was designed to investigate the pattern of psychiatric disorders at emergency department. The knowledge of pattern of psychiatric emergency will in turn enable the emergency physician to understand and deal with such patients or referral then accordingly.

Epidemiology of psychiatric disorder in casualty departments was quantified as deliberate self-harm, substance related disorders, anxiety, depression, delirium, psychosis, somatoform disorders and factitious disorder.<sup>7</sup> 40% of these patients require hospitalization.<sup>8</sup> Though, research efforts in psychiatric emergencies concentrated mostly on intervention in various forms of self-harms.<sup>9</sup>

### Materials and methods

The cross sectional study was conducted from January 2011 to June 2011 among 357 patients of age between 18 and 65 year at Emergency Departments of Dhaka Medical College Hospital (DMCH) and Shahid Sohrwardy Medical College Hospital (SSMCH), Dhaka. Patients attended these Emergency Departments with obvious organic deficits, e.g. cerebrovascular diseases (CVD), road traffic accidents (RTA), street poisonings etc. has been excluded. Data were collected daily from April 12, 2011 to May 17, 2011, irrespective of holidays, alternatively each study place, and over around three to four hours at a time.

Data were collected either in the morning or at evening, at the convenience of the researcher. Five cases on every other day from SSMCH and fifteen cases on every other day from DMCH were taken. The limited number of cases to be studied each day was such determined for the convenience of the researcher. Moreover, more cases were collected from Emergency Department of DMCH than SSMCH due to former large turnover of patients, which ranged from 500 to 700 patients daily. Emergency department of SSMCH had a low patient turnover, might be due to several specialized hospitals in its vicinity. Total 90 (25.21%) patients were interviewed at SSMCH and 267 (74.79%) patients were interviewed at DMCH. Patients were collected and interviewed in the morning on the holidays, otherwise, on the most occasion, they were assessed in the afternoon. Systematic sampling technique was used.

First case was chosen at random. Subsequent cases were taken every third attendee at the emergency departments. If any patient or his/her attendant did not consent to be included in the study, or did not comply with selection criteria, then the next patient was chosen. If any patient was unable to be interviewed in the emergency room, he/she was traced into indoor, and the process had been delayed until the patient was well enough.

An informed written consent (in Bengali) was taken from the patient or from the attendant if the patient was unable to give consent. Then a semi-structured questionnaire containing socio-demographic and other relevant information and Bangla version<sup>10</sup> of GHQ-28<sup>11, 12</sup> was applied to the consented patients. GHQ-28 is an 28-item inventory developed by Goldberg in 1979 and was translated in Bangla by Banoo & Rahman in 2001. The test-retest reliability was found to be 0.682 by Spearman's  $\rho$ , which was significant at 0.01 levels.<sup>10</sup> Bell et al (1990) also observed GHQ sensitivity 87.5% and specificity 78% in their study.<sup>13</sup>

All screen positive (GHQ-28 items scored 4 or more) and 25% of screen negative cases was interviewed again and was assessed clinically by using Structured Clinical Interview for DSM axis I (SCID-I)<sup>14</sup>. Axis I diagnosis was done according to Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision (DSM-IV-TR). On the next possible working day, in the office time. the patients were taken to National Institute of Mental Health (NIMH), Sher-e-Bangla Nagar, Dhaka to confirm the diagnosis by a psychiatrist.

On some days, to overcome the data loss, a psychiatrist accompanied the researcher to the emergency departments of the study places. After proper processing and handling, data were encoded. Analysis was done by Statistical Package for Social Sciences (SPSS) for windows version 11.5. After thorough cleaning and editing of data, frequency table, summary tables, and appropriate graphs were used for presentation of results using appropriate statistical techniques. The research was conducted in full accord with ethical principles.

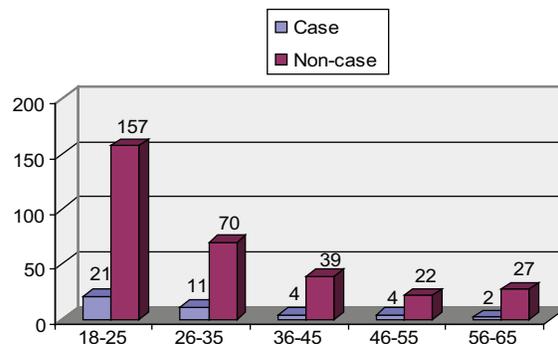
**Results**

Age range of the study population was from 18 to 65 years with the mean age of 31.17 years. It showed that maximum respondents, 178 (49.9%), were from age group 18-25 years. Around half of the cases, 21 (50.0%), and non-cases, 157 (49.84%), were also from this age group. Least respondents, 26 (7.3%), came from the age group 46-55 years.

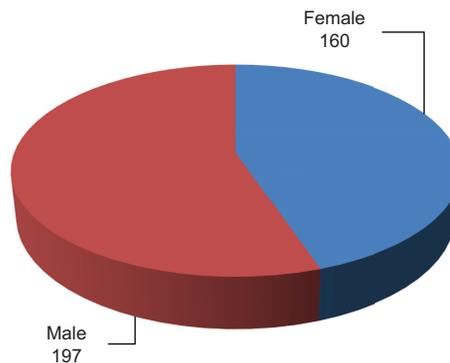
So, 257 (71.99%) subjects, or around three-fourth of the total, came from the younger age groups, i.e. from 18 to 35 years. Within the age group 18-25 years there were 21 cases out of 177, 11.86% of the group members and within the age group 26-35 years there were 11 cases out of 80 (13.75%) i.e. around three-quarters (76.19%) of cases were of  $\leq$ 35 years of age.

Range of ages of the study population was 18 to 60 years with a mean of 30.36 years for the cases, and 18 to 65 years with a mean of 31.28 years for the non-cases.

Above table shows the sex distribution of the study population. There were 197 (55.18%) male and 160 (44.82%) female respondents. Male : female ratio was 123 : 100. Cases were almost of similar proportion in the both sexes, 23 (54.76% of all cases) out of 197 males, and 19 (45.24% of all cases) out of 160 females, as well as among the no-case group, which was not significant in unpaired t-test. Mean age for male respondents were 31.28 years and for females 30.36 years.



**Figure 1: Distribution of psychiatric illness within age groups**



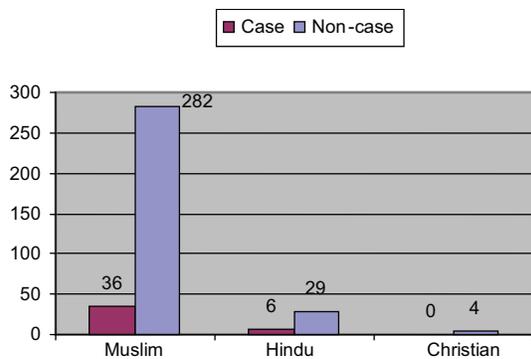
**Figure 2: Sex distribution of the study populations**

**Table 1: Distribution of habitat of the study population**

Area	Total(n=357)		Case (n=42)		Non-case (n=42)		P value
	N	%	n	%	N	%	
Rural	75	21.01	11	26.19	64	20.32	0.036 <sup>S</sup>
Urban	224	62.75	29	69.05	195	61.9	
Semi-urban	37	10.36	02	04.76	35	11.11	
Slum	21	5.88	00	00	21	06.67	

S = significant

Around two-third patients, 224 (62.75 %), reside in urban areas which was almost similarly reflected among the cases, 29 (69.05 %), and the non-cases (61.9%). No case was found among the study population from the slum areas. Cases from the semi-urban areas were also relatively lower, 2 (4.76 %).

**Figure 3: Distribution of psychiatric illness according to religion**

Most respondents were Muslim 318 (89.08 %), and also in both case, 36 (85.71 %), and non-case, 282 (89.52%), groups. Hindus were proportionally higher 06 (17.14 %) among cases. 4 (1.12%) Christian respondents, all were non-case, was found. There was no Buddhist respondent.

The above table shows the marital status of the study population. There were 214 (59.94 %) married and 131 (36.69 %) single respondents. Cases were more among single individuals, 23 (17.56 %) out of 131 persons; whereas only 7 % married respondents (15) had psychiatric illness. Psychiatric illness present in one-third of those who were either widowed, separated, or divorced, i.e. 4 (9.52% of all cases) respondents. The difference between case and non-case was not significant in unpaired t-test.

The above table shows the educational status of the study population. Most frequently found educational level was secondary (from class X-XII), with 140 (39.21%) respondents and 70.6% of them were either or below this level. Most cases, 19 (45.24 %) were also found within this group. There were 14 (3.92 %) illiterate respondents. There were also 9 (2.52%) respondents with highest, i.e. post-graduate, level of education.

Mean educational level was 8.32 years. Most, 68 (19%), respondents belonged to class X followed by 48 (13.4%) respondents from class V. 71.1% respondents had either class X or below level of education and 84.3% respondents had either or below class XII levels. The difference between case and non-case was not significant in unpaired t-test.

Above table shows the occupational status of the study population. 33 (9.24%) of them were unemployed and psychiatric illness were relatively more, 8 (19.05%), in them. Housewives numbered 113 (31.65 %) but only 11 (26.19%) of them were case. A small portion, 6 (1.68%), of respondents were retired, but none of them were case. Other occupations numbered 68, 19.05% of all respondents. They were represented in case (8) and non-case (60) with an equal proportion (19.0%). The difference between case and non-case was not significant in unpaired t-test.

Above table shows the dwelling places of the study population. Most, 203 (56.86 %), respondents lived in nuclear and the rest of them, 154 (43.14 %), in non-nuclear families. Similarly, most cases, 33 (78.57%), and non-cases, 170 (53.97%), lived in nuclear families, but proportionately more cases belonged to nuclear families. The difference between case and non-case was not significant in unpaired t-test.

More than half, 201 (56.3 %), respondents belonged to Taka 10001-20000 income group. Most cases, 24 (57.14 % of all cases), were also belonged to this income group. Average family income of the case group was Taka 17352.38 monthly, which was slightly higher than the average of the whole study population, Taka 16356.58 per month, and of the non-case group, Taka 16223.81 per month. The difference between case and non-case was not statistically significant in unpaired t-test.

Above table shows the clinical presentations of the study populations at the emergency departments of the medical college hospitals. Most common presentation was injury, 96 (26.89%), followed by abdominal pain, 55 (15.41%) respondents. But in case group, self-harm was the commonest, 8 (19.05%), presentation. It was followed by chest pain, 6 (14.29%), and paralysis 4 (9.52%). In non-case group, common clinical presentations were almost similar to the whole study population.

Most respondents (264 or 73.95%) scored below the cut point score 4. 38 (90.48%) cases scored above the cut point. Their average score was 6.67, which was well above population mean score of 2.5. The average score of non-cases were 1.96. The difference between cases and non-cases was highly significant in t-test. Correlation coefficient was 0.62 which was moderately significant.

Among respondents (42 or 11.76%) found with some form of psychiatric illness, and was considered as case, 36 (or 13.48% of 267) belonged to Dhaka Medical College Hospital, and 6 (or 6.67% of 90) belonged to Shahid Shrawardy Medical College Hospital. The rest of study population, 315 (88.24%), was considered as non-case.

Out of 42 participants who was found suffering from some form of psychiatric illness, i.e. case, Major Depressive Disorder presented in 09 (2.52% of study population), Conversion Disorder in 08 (2.24%), Anxiety Disorder in 07 (1.96%) and Pain Disorder in 05 (1.4%). Panic Disorder Without Agoraphobia and Somatoform Disorder each was in three respondents respectively. Two cases of Bipolar I Disorder (Most Recent Episode Manic) and Depressive Disorder were found. There was a single case for each Acute Stress Disorder, Adjustment Disorder, and extra-pyramidal side effects with Schizophrenia. Major psychiatric illness or psychosis (Bipolar I Disorder) was present in 3 patients which was 0.84% of the study population and 7.14% of all cases. All cases of major psychotic illness

**Table 2: Marital status of the study population**

Marital status	Total (n=357)		Case (n=42)		Non-case (n=315)		p value
	n	%	n	%	N	%	
Single	131	36.69	23	54.76	108	34.28	0.07 <sup>NS</sup>
Married	214	59.94	15	35.72	199	63.17	
Widow/Widower	06	01.68	02	04.76	04	01.27	
Separated	04	01.12	02	04.76	02	0.64	
Divorced	02	0.56	00	00	02	0.64	

NS = not significant

**Table 3: Educational background of the respondents**

Education	Total (n=357)		Case (n=42)		Non-case (n=315)		p value
	n	%	n	%	N	%	
Illiterate	14	03.92	02	04.76	12	03.81	0.25 <sup>NS</sup>
Primary	98	27.45	07	16.67	91	28.89	
Secondary	140	39.21	19	45.24	121	38.41	
Higher-secondary	48	13.45	06	14.28	42	13.33	
Graduate	48	13.45	07	16.67	41	13.02	
Post-graduate	09	02.52	01	02.38	08	02.54	
Mean ± SD (year)	8.32 ± 4.21		9.02 ± 4.29		8.22 ± 4.2		

NS = not significant

**Table 4: Occupational distribution of the study population**

Occupation	Total (n=357)		Case (n=42)		Non-case (n=315)		p value
	n	%	n	%	N	%	
Unemployed	33	09.24	08	19.05	25	07.94	0.18 <sup>NS</sup>
Service holder	52	14.57	07	16.67	45	14.28	
Agricultural work	27	07.56	03	07.14	24	07.62	
Businessman	45	12.61	04	09.52	41	13.02	
Day labour	13	03.64	01	02.38	12	03.81	
Housewife	113	31.65	11	26.19	102	32.38	
Retired	06	01.68	00	00	06	01.9	
Others	68	19.05	08	19.05	60	19.05	

NS = not significant

**Table 5: Family pattern of the study population**

Family type	Total (n=357)		Case (n=42)		Non-case (n=315)		p value
	n	%	n	%	N	%	
Nuclear	203	56.86	33	78.57	170	53.97	0.002 <sup>S</sup>
Non-nuclear	154	43.14	9	21.43	145	46.03	

S = significant

**Table 6: Distribution of respondents according to income groups**

Family income per month (in Taka)	Total (n=357)		Case (n=42)		Non-case (n=315)		p value
	n	%	n	%	N	%	
1000 – 10,000	73	20.45	08	19.05	65	20.64	0.391 <sup>NS</sup>
10,001 – 20,000	201	56.3	24	57.14	173	54.92	
20,001 – 30,000	77	21.57	09	21.43	73	23.17	
Above 30,000	06	01.68	01	02.38	04	01.27	
Mean ± SD	16356.58 ± 7991.74		17352.38 ± 13023.27		16223.81 ± 7079.16		
Range	1000-90,000		1800-90,000		1000-40,000		

NS = not significant

**Table 7: Clinical presentations of subjects at emergency departments**

Clinical presentations	Total (n=357)		Case (n=42)		Non-case (n=315)	
	n	%	n	%	N	%
Injury	96	26.89	02	4.76	94	29.84
Abdominal pain	55	15.41	03	7.14	52	16.51
FTP	20	05.6	01	2.38	19	06.03
Chest pain	18	05.04	06	14.29	12	03.81
Paralysis	18	05.04	04	9.52	14	04.45
Self-harm	17	04.77	08	19.05	9	02.86
APH	12	03.36	00	00	12	03.81
Fever	12	03.36	00	00	12	03.81
Foreign body in body spaces	10	02.8	00	00	10	03.17
AWD	08	02.24	00	00	08	02.54
Joint pain	08	02.24	00	00	08	02.54
Others	83	23.25	18	42.86	65	20.63

**Table 8: GHQ-28 scores of the study population**

GHQ-28 scores	Total (n=357)		Case (n=42)		Non-case (n=315)		p value
	n	%	n	%	N	%	
<4	264	73.95	4	9.52	260	82.54	0.000 <sup>S</sup>
e"4	93	26.05	38	90.48	55	17.46	
Mean ± SD	2.5 ± 2.45		6.67 ± 3.24		1.96 ± 1.69		
Range	00-15		00-15		00-08		

S = significant

**Table 9: Types of psychiatric illness among the study population**

Types	Number of patients	Percentage
Major Depressive Disorder	9	02.52 %
Conversion Disorder	8	02.24 %
Anxiety Disorder	7	01.96 %
Pain Disorder	5	01.4 %
Panic Disorder Without Agoraphobia	3	0.84 %
Somatoform Disorder	3	0.84 %
Bipolar I Disorder, Most Recent Episode Manic	2	0.56 %
Depressive Disorder	2	0.56 %
Acute Stress Disorder	1	0.28 %
Adjustment Disorder	1	0.28 %
EPSEs with Schizophrenia	1	0.28 %
Total	42	11.76%

were found in the sample patients at the emergency department of Dhaka Medical College Hospital.

### Discussion

The present cross-sectional descriptive type of study on 357 respondents were carried out in the emergency departments of Dhaka Medical College Hospital and Shahid Sohrwardy Medical College Hospital during the period of January 2011 to July 2011 to find out the incidence of psychiatric illness among the participants. The age limits of the patients were from eighteen to sixty five years. Two hundred sixty seven (74.79 %) patients were taken from Dhaka Medical College Hospital (DMCH) and the rest ninety (25.21 %) patients were taken from Shahid Sohrwardy Medical College Hospital (SSMCH). More patients were taken from DMCH as its emergency department handles around 500 to 700 patients everyday, i.e. in 24 hours. On the other hand, SSMCH is surrounded by some public hospitals. So, the emergency department of SSMCH is relatively less frequently visited by the patients.

Exclusion criteria for the study population were any obvious organic deficits, e.g. cerebrovascular diseases (CVD), road traffic accidents (RTA), street poisonings etc. These patients are often found without proper attendant or in unconscious state for a long period, which may make interview difficult.

The age limit of the present study was eighteen to sixty five years. The main reason for excluding the patients below this range was that children has a different pattern of psychiatric illness, and for excluding above this range was to exclude the cases with normal age related cognitive decline and other old age psychiatric illness.

The patients were, first, screened with General Health Questionnaire-28 (GHQ-28), and then all screen positive and one-fourth of screen negative participants were interviewed

with Structured Clinical Interview for Diagnosis for DSMIV axis I disorders (SCID-1), clinician version. Socio-demographic characteristics were also compared between respondents with psychiatric illness. The diagnosis was confirmed with DSMIV TR criteria and with the help of a senior psychiatrist. The male female ratio of the study sample was 123:100 (p value >0.05).

Regarding age, the highest number of patients was from the age range of eighteen to twenty years range, and mean age was 31.17 years. Age distribution shows that the respondents of case grouped belonged to age groups 18-25 years. Age did not differ significantly which agreed with the same findings of others<sup>4,15,16,17,18,19,20,21</sup>. This could be due to the fact that people of this group are more productive and have more potentiality to seek care. However, this proposition needs further exploration through a more extensive study. Thus, the over-representation of this particular age group in this study does not seem to be a selection bias.

The mean level of education was 8.32 years. Around ninety percent of patients were employed. Among the sample 60% were married, 37% were single, 0.56% was divorced, 1.12% was separated and 1.68% was widowed. Around 63% respondents lived in urban areas and 57% were from nuclear families. Nearly 90% study population was Muslim. Around 56.3 % respondents belonged to Taka 10001-20000 per month per family income group, i.e. from lower economy group.

The mean GHQ-28 score of the sample population was 2.5 (SD=2.45). The range of the score was 00 to 15. The cutoff point was fixed at 4 in GHQ-28 scores. Around 74% patients have scored below this level. Using the standard threshold score of 4/5, Bell et al (1990) found 27.5% patient sample scored 5 or more in an Accident & Emergency Department<sup>13</sup>. The finding of present study is slightly lower than the previously study. This

difference may be due to several reasons like cultural, educational and sampling factors.

Out of 357 respondents, 42 (11.76 %) were found with some form of psychiatric illness and, the rest, 315 (88.24 %) persons were presented with only physical illness. Major Depressive Disorder presented in 09 (2.52% of study population), Conversion Disorder in 08 (2.24%), Anxiety Disorder in 07 (1.96%) and Pain Disorder in 05 (1.4%) patients. Khan et al (2010) identified 2.3% patients as psychiatric patient among consecutive 10,000 patients who attended the Emergency and Accident Department of Jinnah Postgraduate Medical Centre, Karachi, Pakistan. It was also found that 29.3% had mood disorders (F30-F39) and 25% had neurotic, stress and somatoform disorders (F40-F48) among these patients<sup>15</sup>. Ang et al (1995) found anxiety disorders (25.6%), depression (19.4%) and schizophrenia (17.6%) in a sample of 500 consecutive Accident and Emergency psychiatric referrals from a general hospital of Singapore<sup>16</sup>. Salkovskis et al (1990) observed 36.5% patients with psychiatric illness in A&E department sample of 140 patients<sup>4</sup>. Perruche et al (2011) found 47% patients with symptoms of anxiety and 23% patients with symptoms of depression among 420 patients from 14 emergency departments of France and Belgium<sup>17</sup>.

No case of substance abuse was found. This may be due to limited time allocated to each patient during interview which was not sufficient to develop patients' confidence to disclose substance abuse information.

DSM-IV axis II disorders could not be made as patients were interviewed with only SCID-I.

As patients were seen, examined, and treated as quick as possible in the emergency department and other wards, following patients in emergency room and in the relevant wards of specialized departments resulted in missing of sampled population. It also sometimes became difficult to diagnose psychiatric cases accurately at a busy emergency room.

At Dhaka Medical College Hospital's emergency department 156 patients did not consent. Out of them 37 patients presented with deliberate self-harm and another 78 patients visited the emergency room with various complaints but apparently resulted from family disharmony. The other patients of this group could not be followed up. Many of these patients suspected the interviewer as NGO professional, police *source*, medical representative, or person with some vested interest. It is not uncommon to find touts and agents of private diagnostic centres in any emergency department of a public hospital in Bangladesh.

Another 49 patients postponed their consent at some point of the interview, as sometimes it required couple of days to assess. Yet another 83 patients consented initially but could not be traced later for interviewing. Two patients died before completing the interview.

At Sohrawardy Medical College Hospital 58 patients did not consent. Nine of them had self-harm and another 36 patients apparently had family disharmony. Yet another 10 patients revoked their consent, and did not reason for their act. Though consented initially, again another three patients could not be traced interview.

#### **All of these patients were not included in the study.**

Nineteen patients from Dhaka Medical College Hospital and one patient from Sohrawardy Medical College Hospital, all were diagnosed with a DSM-IV axis I disorder by using SCID-I, failed to attend appointments with a psychiatrist to confirm their diagnoses.

Limitation of present study is that it did not represent the actual scenario of co-occurring mental illness in Bangladesh, because the study was conducted at tertiary level hospitals in the capital Dhaka city only, and exclusively, at the emergency departments. Respondents were diagnosed with only SCID-I. So, axis II diagnosis was missed. Information collection and application of scales were done simultaneously in the most times, which might be monotonous and tiresome for some patients. So there were possibilities of random answers, and subsequent biases. In those cases, where the patients were assessed days after admission, and awaited for his/her physical condition to be improved enough, the patient might have changed their attitude towards the interviewer. So, there were possibilities of different scores in the scales used.

Some patients found pen and paper test, like GHQ-28, quiet difficult to perform due to their inadequate academic background. So some scores of GHQ may bear random answers as they were helped to be filled up by the interviewer. Application of GHQ-28 and SCID-I, and diagnosis of psychiatric illness were done in multiple settings and by the same interviewer. So there might be a chance of biasness.

Due to time constrains, and lack of funding and manpower to collect and process data, only samples from two public tertiary-care hospitals of Dhaka were taken.

Cross-sectional design of this study is yet another limitation since some associations presented lack temporality. Prospective studies are necessary to study the associations between contributing factors and prevalence of psychiatric illness. Limited numbers of research works and literatures could be made available.

#### **Conclusion**

Psychiatric illnesses are an important issue in the emergency department of any hospital. Most of the patients suffering from psychiatric illness present in emergency departments were young and males. Common diagnoses noted were Depressive Disorders, Conversion Disorders and Anxiety Disorders. Routine

psychiatric assessment may be introduced to all patients attending an emergency department. Presentation of number of psychiatric patients at emergency departments demands to establish a separate psychiatry emergency unit in all general hospitals of the country.

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