

■ Volume 1 ■ Issue 1 ■ June 2018

# ARCHIVES *of NIMH*

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■ Volume 1 ■ Issue 1 ■ June 2018



Official Journal of  
National Institute of Mental Health  
Dhaka

# ARCHIVES *of NIMH*

An official Journal of National Institute of Mental Health, Dhaka

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■ Volume 1 ■ Issue 1 ■ June 2018

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## Editorial

### Universal health coverage: Mental Health in Bangladesh

Universal health coverage is a health care system that can provide health services to everyone everywhere at an affordable cost which is acceptable and recognized by all. Universal health coverage also includes mental health. According to WHO nobody can be healthy without being mentally healthy.

Mental disorders are one of the leading causes of disability worldwide. Psychiatric morbidity is being increasingly recognized among children and adolescents throughout the world including Bangladesh. Over the past decades, public health relevance of mental health conditions in this age group has been of growing concern. Globalization, changing values and expectations of life are leading to rapid changes in socio-cultural systems especially in low- and middle-income countries which is influencing the risk of development of mental disorders among people. Hence, currently, more people are reported to suffer from mental health problems than compared to the past.

According to a WHO supported national survey on mental health in Bangladesh 16.1% of the adult population and another WHO sponsored regional survey 18.4% of children in the country are suffering from mental illnesses.<sup>1,2</sup> In the same national survey the prevalence of depressive disorder and anxiety disorders were found to be 4.5% and 6.5% respectively.<sup>1</sup> Disease burden due to mental disorders has been estimated to be 11% by WHO.

Psychiatric disorders having onset in childhood can prevent a young person from reaching his or her full potential by impairing normal development. Moreover substance use is also a mental disorder which is on the rising trend. It is sometimes caused by mental disorders and it frequently leads to mental disorders. Co-morbidity of substance abuse with mental disorders is also very frequent. Suicide is a major public health problem and the link between mental disorders and suicide is well established.

Detection, prevention and treatment of mental disorders are important not only to relieve current distress but also to improve functioning of the suffering population. Management of mental disorders will contribute to the achievement of the goal of poverty alleviation of the government by keeping the country population healthy and productive.

In the background of high demand of mental health services, facilities and resources for services are very limited. Health delivery system in Bangladesh is internationally appreciated and extended up to grass root level of the country. 18000 community clinics, Union Sub-Centers and Upazilla Health Complexes are the components of Primary Health Care (PHC) system which is the main network of providing universal mental health coverage in Bangladesh. Creating psychiatric service facility at the district hospital (secondary level) and developing referral system are essential for providing mental health services to everyone. Taking available nongovernment mental health services into consideration is also required. Development and employment of trained and qualified manpower in mental health at the appropriate levels of health services is required to provide services to all. Increasing mental health part of annual health budget and including mental health in the proposed health insurance system of the country are also needed to implement universal mental health coverage in Bangladesh. National Institute of Mental Health, Dhaka is in a position to co-ordinate all mental health activities in the country and help government to implement universal health coverage by 2032.

### **References**

1. WHO-AIMS Report on Mental Health System in Bangladesh, 2007.
2. Rabbani MG, Alam MF, Ahmed HU et al. Prevalence of mental disorders, mental retardation, epilepsy and substance abuse in children, *Bang J Psychiatry*, 23(1); 2009.

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## Information for the contributors

### Guide to Authors

Archives of National Institute of Mental Health provides half yearly publication of articles in areas of mental health . The Journal invites submission of manuscripts that meet the criteria of significance and scientific excellence.

Papers published elsewhere (except in the form of an abstract or as part of a published lecture, review, or thesis) and currently under consideration by another journal cannot be submitted for publication.

The corresponding author is responsible for ensuring that the article's publication has been signed by other coauthors. It is also the authors' responsibility to ensure that the articles from a particular institution are submitted with the approval of the institution. An acknowledgment from the editorial office officially establishes the date of receipt. Further correspondence and proofs will be sent to the corresponding author(s) before publication unless otherwise indicated. It is a condition for submission of a paper that the authors permit editing of the paper for readability. All enquiries concerning the publication of accepted papers should be addressed to

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Electronic submission of manuscripts is strongly encouraged, provided that the text, tables, and figures are included in a single Microsoft Word file (preferably in Arial font). Submit manuscripts as e-mail attachment to the editorial office at: [archives.nimh@gmail.com](mailto:archives.nimh@gmail.com)

The cover letter should include the corresponding author's full address and telephone/fax numbers and should be in an e-mail message sent to the editor, with the file, whose name should begin with the first author's surname, as an attachment.

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Five types of manuscripts may be submitted:

*Editorials:* It will be preferably written usually covering a single topic of contemporary interest.

*Original Articles:* These should be given in sufficient detail for others to verify the work. The length of a full paper should be minimum required to describe and interpret the work clearly.

*Short Communications:* A Short Communication is suitable for recording the results of complete small investigations or giving details of new models or hypotheses, innovative methods, techniques, images in clinical practice, letter to editors or short reports. The style of main sections need not conform to that of original article. Short communications are 2 to 4 printed pages in length.

*Review Articles:* Submissions of reviews and perspectives covering topics of current interest are welcome and encouraged. Review articles should be concise and no longer than 4 to 6 printed pages. It should be focused and must be up to date. Reviews are also peer-reviewed.

*Case Reports:* This should cover uncommon and/or interesting cases with appropriate confirmation process.

## Review process

All manuscripts will be initially screened by editors and sent to selective reviewer. The journal will return reviewers' comments to authors within 2 weeks. The Archives of NIMH editorial board will try to publish the manuscript as early as possible fulfilling all the rigorous standard journal needs.

## Preparing a manuscript for submission in Archives of NIMH

The following information provides guidance in preparing manuscripts for this journal.

Conditions for submission of manuscript:

- All manuscripts are subject to peer-review.
- Manuscripts are received with the explicit understanding that they are not under simultaneous consideration by any other publication.
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- Any manuscript that includes table, illustration or photograph that have been published earlier should accompany a letter of permission for re-publication from the author(s) of the publication and editor/publisher of the Journal where it was published earlier.
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## **Preparation of manuscript**

**Criteria:** Information provided in the manuscript are important and likely to be of interest to an international readership.

## **Preparation**

1. Manuscript should be written in English and typed on one side of A4 (290 x 210 cm) size white paper.
2. Margin should be 5 cm for the header and 2.5 cm for the remainder.
3. Style should be that of modified Vancouver.
4. Each of the following section should begin on separate page:

- Title page
- Summary/abstract
- Text
- Acknowledgement
- References
- Tables and legends

Pages should be numbered consecutively at the upper right hand corner of each page beginning with the title page.

## **General principles**

- The text of observational and experimental articles is usually (but not necessarily) divided into the following sections: Introduction, Methods, Results, and Discussion.
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- Electronic formats have created opportunities for adding details or whole sections, layering information, crosslinking or extracting portions of articles, and the like only in the electronic version.
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## **Title page**

The title page should have the following information:

1. Article title. Concise titles are easier to read than long, convoluted ones. Titles that are too short may, however, lack important information, such as study design (which is particularly important in identifying type of trials).
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3. The name of the department(s) and institution(s) to which the work should be attributed.
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8. The number of figures and tables.

## **Conflict-of-interest notification page**

To prevent potential conflicts of interest from being overlooked or misplaced, this information needs to be part of the manuscript. The ICMJE has developed a uniform disclosure form for use by ICMJE member journals ([http://www.icmje.org/coi\\_disclosure.pdf](http://www.icmje.org/coi_disclosure.pdf)) and JNIMH has accepted that.

## **Abstract**

- Structured abstracts are essential for original research and systematic reviews. Structured abstract means introduction, methods, results and conclusion in abstract.
- Should be limited to 250 words.
- The abstract should provide the introduction of the study and blinded state and should state the study's purpose, basic procedures (selection of study subjects or laboratory animals, observational and analytical methods), main findings (giving specific effect sizes and their observational and analytical methods), main findings (giving specific effect sizes and their statistical significance, if possible and principal conclusions.
- Because abstracts are the only substantive portion of the article indexed in many electronic databases, and the only portion many readers read, authors need to be careful that they accurately reflect the content of the article.

## **Introduction**

- Provide a context or background for the study (that is, the nature of the problem and its significance). It should be very specific, identify the specific knowledge in the aspect, reasoning and what the study aim to answer.
- State the specific purpose or research objective of, or hypothesis tested by, the study or observation; the research objective is often more sharply focused when stated as a question.
- Both the primary and secondary objectives should be clear.
- Provide only directly pertinent primary references, and do not include data or conclusions from the work being reported.

## **Methods**

The Methods section should be written in such way that another researcher can replicate the study.

## **Selection and description of participants**

Describe your selection of the observational or experimental participants (patients or laboratory animals, including controls) clearly, including eligibility and exclusion criteria and a description of the source population. Because the relevance of such variables as age and sex to the object of research is not always clear, authors should explain their use when they are included in a study report- for example, authors should explain why only participants of certain ages were included or why women were excluded. The guiding principle should be clarity about how and why a study was done in a particular way. When authors use such variables as race or ethnicity, they should define how they measured these variables and justify their relevance.

## **Technical information**

Identify the methods, apparatus (give the manufacturer's name and address in parentheses), and procedures sufficient detail to allow others to reproduce the results. Give references to established methods, including statistical methods (see below); provide references and brief descriptions for methods that have been published but are not well-known; describe new or substantially modified methods, give the reasons for using them, and evaluate their limitations. Identify precisely all drugs and chemicals used, including generic name(s), dose(s) of administration. • Authors submitting review article should include a section describing the methods used for locating, selecting, extracting, and synthesizing data. These methods should also be summarized in the abstract.

## **Statistics**

- Describe statistical methods with enough detail to enable a knowledgeable reader with access to the original data to verify the reported results.
- Avoid relying solely on statistical hypothesis testing, such as P values, which fail to convey important information about effect size. References for the design of the study and statistical methods should be given.
- Define statistical terms, abbreviations, and most symbols.
- Specify the computer software used.

## **Results**

- Present results in logical sequence in the text, tables, and illustrations, giving the main or most important findings first. Please keep the result in the sequence of specific objective selected earlier.
- Do not repeat all the data in the tables or illustrations in the text; emphasize or summarize only the most important observations. Extra or supplementary materials and technical detail can be placed in an appendix where they will be accessible but will not interrupt the flow of the text; or they can be published solely in the electronic version of the journal.
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- Restrict tables and figures to those needed to explain the argument of the paper and to assess supporting data. Use graphs as an alternative to tables with many entries; do not duplicate data in graphs and tables.

- Avoid nontechnical uses of technical terms in statistics, such as “random” (which implies a randomizing device), “normal,” “significant,” “correlations,” and “sample” where scientifically appropriate analyses of the data by such variables as age and sex should be included.

## **Discussion**

- Emphasize the new and important aspects of the study.
- Do not repeat in detail data or other information given in the Introduction or the Results section.
- For experimental studies, it is useful to begin the discussion by briefly summarizing the main findings, then explore possible mechanisms or explanations for these findings, compare and contrast the results with other relevant studies, state the limitations of the study, and explore the implications of the findings for future research and for clinical practice.
- Link the conclusions with the goals of the study but avoid unqualified statements and conclusions not adequately supported by the data.

## **References**

### **General considerations related to references**

- Although references to review articles can be an efficient way to guide readers to a body of literature, review articles do not always reflect original work accurately. Readers should therefore be provided with direct references to original research sources whenever possible.
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### **Reference style and format**

- References should be numbered consecutively in the order in which they are first mentioned in the text.
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## **Vancouver style**

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- Tables capture information concisely and display it efficiently.
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- Figure should be either professionally drawn and photographed, or submitted as photographic quality digital prints.
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- Photographs of potentially identifiable people must be accompanied by written permission to use the photograph. Figures should be numbered consecutively according to the order in which they have been cited in the text.
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- For illustrations in color, Archives of National Institute of Mental Health accept colored illustration but when it seems essential. This Journal publish illustrations in color only if the author pays the additional cost.
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- When symbols, arrows, numbers, or letters are used to identify parts of the illustrations, identify and explain each one clearly in the legend.

### **Units of measurement**

- Measurements of length, height, weight, and volume should be reported in metric units (meter, kilogram, or liter) or their decimal multiples.
- Authors should report laboratory information in both local and International System of Units (SI).
- Drug concentrations may be reported in either SI or mass units, but the alternative should be provided in parentheses where appropriate.

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- Avoid abbreviations in the title of the manuscript.
- The spelled-out abbreviation followed by the abbreviation in parenthesis should be used on first mention unless the abbreviation is a standard unit of measurement.

## **Sending the manuscript to the journal**

- If a paper version of the manuscript is submitted, send the required number of copies of the manuscript and figures; they are all needed for peer review and editing, and the editorial office staff cannot be expected to make the required copies.
- Manuscripts must be accompanied by a cover letter, conflicts of interest form, authorship and declaration, proforma of which is available in the Journal website.

Editing and peer review: All submitted manuscripts are subject to scrutiny by the Executive Editor or any member of the Editorial Board. Manuscripts containing materials without sufficient scientific value and of a priority issue, or not fulfilling the requirement for publication may be rejected or it may be sent back to the author(s) for resubmission with necessary modifications to suit one of the submission categories. Manuscripts fulfilling the requirements and found suitable for consideration will be sent for peer review. Submissions, found suitable for publication by the reviewer, may need revision modifications before being finally accepted. Editorial Board finally decides upon the publish. Proof of accepted manuscript may be sent to the authors. No addition to the manuscript at this stage will be accepted. All accepted manuscripts are edited according to the Journal's style.

## **Submission preparation checklist:**

Submissions may be returned to authors that do not adhere to these guidelines.

## **General outline for article presentation and format**

- Double spacing
- Font size should be 12 in Arial
- Margins 5 cm from above and 2.5 cm from rest sides
- Title page contains all the desired information
- Headings in title case (not ALL CAPITALS, not underlined)
- References cited in superscript in the text without brackets after with/without comma (,) or full stop (.)
- References according to the journal's instructions – abide by the rules of Vancouver system.

## **Tables and figures**

- No repetition of data in tables/graphs and in text
- Actual numbers from which graphs drawn, provided
- Figures necessary and of good quality (color)
- Table and figure numbers in Arabic letters (not Roman)
- Labels pasted on back of the photographs (no names written)
- Figure legends provided (not more than 40 words)
- Patients' privacy maintained (if not, written permission enclosed)
- Credit note for borrowed figures/tables provided
- Each table/figure in separate page

## **Manuscript format for research article**

### **• Title**

- Complete title of your article
- Complete author information
- Mention conflict of interest if any



**• Abstract**

- Do not use subheadings in the abstract
- Give full title of the manuscript in the Abstract page
- Not more than 200 words for case reports and 250 words for original articles
- Structured abstract (Including introduction, methods, results and discussion, conclusion) provided for an original article and (introduction, results and discussion, conclusion) for case reports

**• Introduction**

- Word limit 300 - 500 words
- Pertinent information only

**• Material and methods**

- Study design
- Duration and place of study
- Ethical approval
- Patient consent
- Statistical analysis and software used

**• Result**

- Clearly present the data
- Avoid data redundancy
- Use table information at the end of the sentence before full stop between the small bracket

**• Discussion**

- Avoid unnecessary explanation of someone else work unless it is very relevant to the study
- Provide and discuss with the literatures to support the study
- Mention about limitation of the study

**• Conclusion**

- Give your conclusion
- Any recommendation

**• Acknowledgement**

- Acknowledge any person or institute who have helped for the study

**• Reference**

- Abide by the Vancouver style
- Use reference at the end of the sentence after the full stop with superscript

**• Legends**

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## Substance abusers attending government treatment facilities in Bangladesh

Ahsan Uddin Ahmed<sup>1</sup>, Mohammad Muntasir Maruf<sup>2</sup>, Md Harunur Rashid<sup>3</sup>, Arman Ibne Haq<sup>4</sup>, Jotirmoy Roy<sup>5</sup>

### Summary

Substance abuse has become a major public health concern in Bangladesh. The present study was designed to assess the pattern of substance abuse and factors related to it among the patients attending government facilities. This was a descriptive cross sectional study conducted during November, 2013 to April, 2014 among patients with substance use disorder. A total of 175 patients with substance use disorder (SUD) were selected using convenient sampling technique from both the inpatient and outpatient departments of Central Drug Addiction Treatment Center (CTC), Dhaka and National Institute of Mental Health (NIMH), Dhaka. Data were collected through face-to-face interview using a semi-structured questionnaire designed by the researcher containing socio-demographic and other variables. The mean age of the respondents was 29.53(±8.10) years. More than one third of the respondents (37.1%) were included in the age group of 21-30 years. More than half (54.3%) of the respondents used amphetamine (Yaba) as their main substance of abuse which was followed by cannabis (15.4%) and pethedine (9.1%). Most of the respondents (58.3%) started to use substance when they were in between 16 to 20 years of age. Majority of the abusers (72.0%) took substance through smoking. Relapse rate (86.3%) was found high. This study provides information about recent pattern of different types of substance use among the abusers receiving services from government facilities. Amphetamine was found the main substance of abuse. An alarming proportion of respondents started to use substance before or at the age of 20.

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## Introduction

Available information and experience indicate that substance use disorders have become a major public health problem. Availability of drugs, peer pressure, curiosity of exploration and frustration are among the important causes of substance dependence in Bangladesh. Substance dependence is causing educational dropout, unemployment, financial crisis and many other social disadvantages. Frequent use of drugs causes family disharmony and marital discord as well. These people with substance dependence became an extra burden to the family and society.<sup>1</sup>

In Bangladesh, a study showed that 2.88% of patients attending general practice were suffering from substance use disorders.<sup>2</sup> Study conducted in outpatient department of National Institute of Mental Health (NIMH), Dhaka revealed that 7.66% of patients were suffering from substance related disorder.<sup>3</sup> National survey on mental health revealed that 0.63% of the adult population (18 years and above) in Bangladesh had been suffering from substance use disorder.<sup>4</sup>

A comparative study about substance dependence among SAARC countries showed that 99.9% of abusers in Dhaka were male, 80.5% within 20-34 years of age, 35.7% unemployed, 58.5% with education between class six and class twelve, 41.3% taking heroin as the primary drug of abuse and 43.7% smoker.<sup>5</sup>

In a study done in a private clinic of Bangladesh, most (90.5%) of the respondents were male, mean age of the respondents was 28.8 ( $\pm$  8.0) years, majority (91.4%) were poly-substance users. Smoking or inhalation was the route used by most (90.5%) respondents. Among the substances other than nicotine, majority (79%) used opiates group, followed by cannabinoids group (55.2%) and alcohol (41%). Curiosity, peer pressure and to have enjoyment or fun were identified as the common reasons for initiating substance use.<sup>6</sup>

Another study in Dhaka city showed that 29.6% of the patients were suffering from substance related disorder.<sup>7</sup> A study conducted in Dhaka Medical College Hospital (DMCH) and NIMH, Bangladesh, among patients with major depressive disorder, 31.6% of the respondents had lifetime history of substance abuse, while 18.4% of them had current history of substance abuse (last 30 days). Benzodiazepine was found to be the most commonly abused substance followed by alcohol.<sup>8</sup>

There is need for regular research on substance abusers in order to assess the pattern of abuse, any change in type of substances abused, variation in the availability of these substances and alteration in profile of the substance abusers, so as to enable the formulation of management strategies. With this view, the present study was designed to assess the pattern of substance use in the respondents who attended government facilities for treatment.

## Materials and Methods

This was a descriptive cross sectional study, sampling technique was convenient sampling technique, and was done from November, 2013 to April, 2014. The study was conducted in National Institute of Mental Health (NIMH), Sher-e-Bangla-nagar, Dhaka and Central drug addiction Treatment center (CTC), Tejgaon, Dhaka. NIMH, Dhaka, is a specialized hospital for psychiatry. CTC is specialized only for treatment of patients with SUD having both inpatient and outpatient department. A total of 175 substance use disorder patients were included conveniently in the study; among them 120 respondents were from Central drug addiction treatment center (CTC), Tejgaon, Dhaka, 55 from National Institute of Mental Health (NIMH), Sher-e-Bangla

Nagar, Dhaka. Patients were diagnosed as substance use disorder both in outpatient and inpatient department of NIMH and CTC, Dhaka, on the basis of DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, 5th Edition) criteria. A structured questionnaire was prepared to determine the socio-demographic characteristics such as age, sex, residence, marital status, family type and monthly family income etc. and relevant variables of substance use. An informed written consent was taken from each of the patient by using a consent form. The researcher was duly careful about ethical issues. Data were analyzed using Statistical Package for Social Sciences (SPSS), version 15.0 for Windows.

## Results

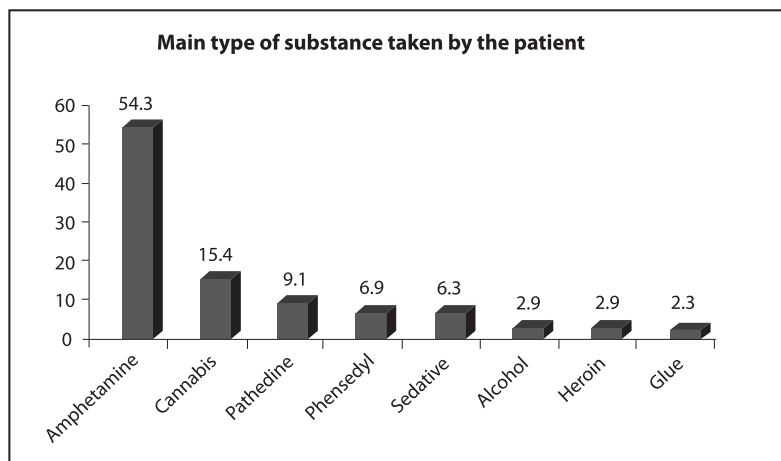
Among the respondents (n=175) one hundred and fifty five (88.5%) were male and twenty (11.43%) were female. The study identified other sociodemographic characteristics of the respondents including age, religion, habitat, educational level, occupation, marital status of the respondent, and monthly income of family (Table 1).

**Table 1: Distribution of respondents according to socio-demographic characteristics (n=175)**

Age (in years)	Frequency	Percent
≤20	37	21.1
21-30	65	37.1
31-40	51	29.1
>41	22	12.6
<b>Religion</b>		
Islam	165	94.3
Hindu	9	5.1
Christian	1	0.6
<b>Habitat</b>		
Urban	130	74.3
Semi-urban	13	7.4
Rural	14	8.0
Slum area	18	10.3
<b>Education</b>		
Illiterate	27	15.5
Primary	44	25.1
Secondary	17	9.7
Higher secondary	63	36.0
Graduate	20	11.4
Postgraduate	4	2.3
<b>Occupation</b>		
Unemployed	70	40.0
Students	52	29.7
Businessman	17	9.7
Service-holder	16	9.1

Housewife	6	3.4
Others	14	8.1
<b>Marital status</b>		
Unmarried	86	49.1
Married	44	25.1
Divorced	25	14.3
Separated	20	11.4
<b>Monthly income (in taka)</b>		
≤ 15000	12	6.9
15001-30000	56	32.0
30001-45000	68	38.9
>45001	39	22.3

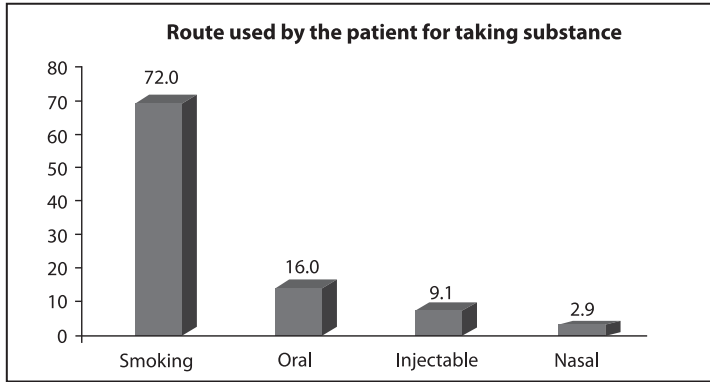
The study identified characteristics related to SUD which includes main type of substance used by the respondents (Figure 1), starting age of substance use (Table 2), routes of taking substance (Figure 2), frequency of taking substance per day (Table 3), amount of money spent per day for taking substances (Table 4), source of money (Table 5), number of relapse (Table 6), and history of substance use by other family members (Figure 7).



**Figure 1: Main type of substance used by the respondents (n=175)**

**Table 2: Distribution of respondents according to starting age of substance use (n=175)**

Starting age (in years) for substances	Frequency	Percent
≤15	22	12.6
16-20	102	58.3
21-25	34	19.4
>26	17	9.7



**Figure 2: Routes used by the respondents for taking substance (n=175)**

**Table 3: Distribution of respondents according to frequency of substance use per day (n=175)**

Frequency of taking substance per day	Frequency	Percent
Once	78	44.6
Twice	92	52.6
More than twice	5	2.9

**Table 4: Distribution of respondents according to the amount of money (in taka) spent for substances per day**

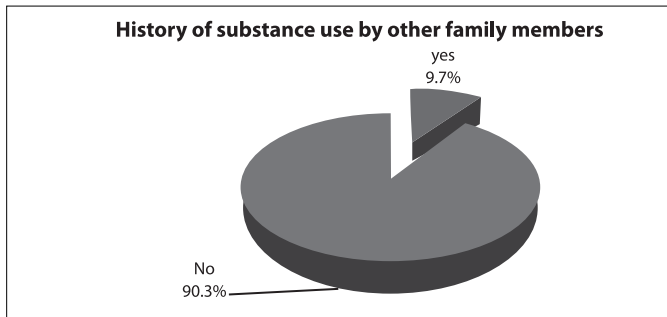
Amount of money (in taka) spent for substances	Frequency	Percent
≤200	43	24.6
201-400	63	36.0
401-600	53	30.3
>601	16	9.1

**Table 5: Distribution of respondents according to source of money for buying substances (n=175)**

Source of money for buying substances	Frequency	Percent
Family	111	63.4
Self	44	25.1
Friends	3	1.7
Relatives	4	2.3
Others	13	7.4

**Table 6: Distribution of respondents according to number of relapse (n=175)**

Number of relapse	Frequency	Percent
Never tried to quit	24	13.7
1-2	79	45.1
3-4	39	22.3
>4	33	18.9



**Figure 3: History of substance use by other family members (n=175)**

### Discussion

In the study, the mean age of the respondents was 29.53(±8.10 years). More than one third of the respondents (37.1%) were included in the age group of 21-30 years, which indicates that younger people are more vulnerable to develop substance use disorder, which is similar to the findings of studies conducted in Bangladesh and Nepal.<sup>6,9</sup>

Most of the patients (74.3%) came from urban area, while only a small portion (7.4%) came from semi-urban area. As the study places were in Dhaka city, most of the patients were from urban background. Regarding occupation of the respondents this study found that majority (40.0%) were unemployed and near about one third (29.7%) were students which showed the gravity of unemployment in the country and disciplinary problems in school. This draws greater attention to the need for creating employment opportunities and implementing strict disciplinary rules in schools along with education among youths regarding harmful effect of substance abuse. More than half (54.3%) of the respondents used amphetamine (Yaba) as their main substance of abuse which was followed by cannabis (15.4%), pethidine (9.1%), phensedyl (6.9%), benzodiazepine (6.35%), heroin (2.9%), alcohol (2.9%) and glue (2.3%). This pattern of substance use differs from a previous study in Bangladesh which showed that maximum of the patients (51.39%) used opioid, cannabis and benzodiazepine; 17.39% used only cannabis. No case of amphetamine abuser was found in that study.<sup>10</sup>

But in a recent study done in a private de-addiction centre, majority (91.4%) of the respondents was poly-substance users and 40% of the substance users used methamphetamine, though it was not listed in the top three.<sup>6</sup> In another study conducted among the opioid abusers, all had used other substances and among the other co-morbid substances, nicotine was the substance used by most (83.1%) respondents, followed by cannabinoids (60.2%) and amphetamines (41%).<sup>11</sup> This comparison showed that the pattern of substance use has been changed a lot during the last 15 years. The use of amphetamine has increased in an alarming way during the last five years. The change can be explained by its easy availability, easy carry, low price and lack of any visible signs of addiction in the users.



Most of the respondents (58.3%) started to use substance when they were in between 16 to 20 years of age. Majority of the abusers (72.0%) took substance through smoking. These findings are consistent with a study done in Bangladesh.<sup>6</sup>

Current study showed that most of the respondents (63.4%) acquired money from family, 7.4% of the respondents used to collect them from theft, purse snatching and other unlawful acts. It was very painful to learn that two of the female (n=20) respondents were involved in prostitution to acquire money for using substance. Relapse rate (86.3%) was found high in this study.

One hundred and fifty eight respondents (90.3%) had negative family history whereas only seventeen (9.7%) gave history of taking substance by other family members. These findings differ from the findings of another Bangladeshi study where one third (33.7%) of the substance abusers had family history of substance use.<sup>11</sup>

Although optimum care had been tried by the researchers in every steps of this study, still some limitations existed. The study was conducted in two selected institutions with relatively small sample size using convenient sampling technique. So, the study population may not represent all substance abusers of Bangladesh and limits the generalization of the results. As most of the information were collected with a questionnaire based on the memory of the patients there remain possible chances of recall bias.

## Conclusion

Despite a number of limitations, this study provides information about recent pattern of different types of substance use among the abusers receiving services from government facilities. Amphetamine was found the main substance of abuse. An alarming proportion of respondents started to use substance before or at the age of 20. The study findings would help in management and prevention strategy of substance use in Bangladesh. Policy-makers should be prompt enough to take initiative to save our youth and future generation.

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## Psychiatric disorders among male juvenile offenders in Bangladesh

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### Summary

Juvenile offenders are generally vulnerable to psychiatric illness. The objectives of the study were to determine the prevalence and types of psychiatric disorders among male juvenile offenders in Bangladesh. This was a cross-sectional study conducted in Juvenile Development Center (Boys'), Bangladesh. All the male offenders of 9-18 years were included in the study during January 2011 - June 2011. Total respondents were 138. Validated Bangla version of the Development and Well-Being Assessment (DAWBA) was used to determine psychiatric disorders which were assigned based on ICD-10 diagnostic criteria. Information regarding socio-demography and other factors were collected through face-to-face interview using a semi-structured questionnaire and from the case-notes. Data analysis was done by SPSS for windows 15 version. The mean ( $\pm$ SD) age of the respondents was 14.2 ( $\pm$ 1.7) years. Majority of them were from urban area (73.9%), were Muslims (94.2%), unmarried (97.1%), completed primary level of education (45.7%), lived in nuclear family (77.5%) having monthly family income of less than 10,000 Tk (89.1%). Most (26.8%) inmates were charged with murder. Psychiatric disorders were diagnosed in 57.2% of the respondents. Rate of emotional disorders (48.1%) was higher than behavioural disorders (38.4%). Regarding specific disorders, conduct disorder (46.8%) and major depressive disorder (43.0%) were the most common diagnoses. It can be concluded that there was considerable rate of psychiatric disorders among the male juvenile offenders in the development centre. Broad-based replication study could confirm these findings.

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## Introduction

The term juvenile delinquent is defined by the legal system as a youth who has violated the law in some way, but the term does not imply that the youth meets criteria for a mental disorder. Juvenile delinquency continues to be a major worldwide social problem. A series of new findings in epidemiology, developmental psychiatry, and neuroscience offers the opportunity to recast the problems of this recalcitrant and difficult-to-access population and bring to bear the insights of modern psychiatry in the treatment and successful rehabilitation of juvenile offenders.<sup>1</sup> The crude psychiatric morbidity (CPM) rate was 44.4% in a point prevalence survey among children and young persons appearing in the Nairobi juvenile court, Kenya. Common psychiatric disorders were conduct disorders, mixed disorders of conduct and emotion, emotional disorders with onset specific to childhood, mood disorders and hyperkinetic disorders.<sup>2</sup> In Teplin's Study, largest study till date, substantial rates of psychiatric morbidity were found in juvenile detainees in Chicago, Division of Juvenile Justice (DJJ). Even after excluding for the diagnosis of conduct disorder, 60% of males and 67% of females met diagnostic criteria for one or more psychiatric disorders.<sup>3</sup> Many justice-involved youths use substances on a "regular" basis,<sup>4,5</sup> some of whom have also demonstrated heavy usage levels and substance use disorders.<sup>2,6</sup> There are very few studies regarding psychiatric morbidity among juvenile offenders in Bangladesh. In the country, there is a government-operated development center at Tongi, Gazipur for male juvenile offenders in which they are provided with security, care, and education, services for corrections, rehabilitation and reintegration in the society. A study carried out there (known as 'National Institute for Correctional Services' then) in 1999 revealed a high psychiatric morbidity among the inmates.<sup>7</sup> Current study was aimed to obtain credible baseline data to estimate a prevalence and types of psychiatric disorders among male juvenile offenders.

## Materials and Methods

It was a descriptive cross-sectional study. This study was conducted during January - June 2011. All the male inmates in National Juvenile Development Center (Boys'), Tongi, Gazipur, within the age range of 9-18 years were included in the study. Participants of the study were identified from registrar books of the developmental center. A total of 141 inmates were approached. Three of them did not give consent. So, the respondents were 138 in number. Informed consent (in Bangla) was taken from the respondents' house parents and the respondents aged above 11 years. All the ethical issues have been considered throughout the study. After taking consent, they were interviewed by the researchers by using a semi-structured questionnaire (in Bangla) for socio-demographic variables. House parents were interviewed by using the parent version of DAWBA (Development and Well-Being Assessment). DAWBA is an internationally well accepted research instrument developed by Goodman et al. (2000)<sup>8</sup>, and a novel package of questionnaires, interviews, and rating techniques designed to generate ICD-10 psychiatric diagnoses among children and adolescents of 5 to 16 years (extended upto 18 years). This instrument has been translated in Bangla and standardized and validated by Mullick MSI and Goodman R (2005).<sup>9</sup> DAWBA has three versions- parent version, self version and teacher version. Children of 11 or more years of age were interviewed by using self version of DAWBA. Teacher version of DAWBA was given to the class teachers to fill up the questionnaire. The researchers also recorded verbatim accounts of any reported problem. Information regarding socio-demography and other factors was collected through face-to-face interview using a separate semi-structured questionnaire and from the case-notes. Data analysis was performed by Statistical Package for Social Sciences (SPSS), for windows version-15.

## Results

Among 141 approached, total 138 inmates participated in the study; therefore the respondents' rate was 97.9%. The mean ( $\pm$ SD) age of the respondents was 14.2 ( $\pm$ 1.7) years. Most (42.8%) of the respondents

belonged to the age group of 15-16 years (Table 1). Majority of them were from urban area (73.9%), were Muslims (94.2%), unmarried (97.1%), completed primary level of education (45.7%), lived in nuclear family (77.5%) having monthly family income of less than 10,000 Tk (89.1%). Before entering the development centre, 38.4% were in service and 38.4% were students. (Table 2).

**Table 1: Age distribution of the respondents (n=138)**

Age (in years)	Frequency	Percentage (%)
9-10	2	1.4
11-12	25	18.1
13-14	52	37.7
15-16	59	42.8
Mean $\pm$ SD	14.17 $\pm$ 1.73	

**Table 2: Socio-demographic characteristics of the respondents (n=138)**

Socio-demographic characteristics	Frequency	Percentage (%)
<b>Habitat</b>		
Urban	102	73.9
Rural	36	26.1
<b>Religion</b>		
Islam	130	94.2
Hindu	6	4.3
Christian	2	1.4
<b>Education</b>		
Illiterate	49	35.5
Primary	63	45.7
Secondary	22	15.9
SSC	4	2.9
<b>Occupation</b>		
Unemployed	13	9.4
Labor	19	13.8
Student	53	38.4
Service	53	38.4
<b>Marital status</b>		
Married	3	2.2
Unmarried	134	97.1
Divorced	1	.7
<b>Family pattern</b>		
Nuclear	107	77.5
Joint	31	22.5

Monthly income (Tk.)		
< 10000	123	89.1
10001-20000	10	7.2
20001-30000	5	3.6

Most (26.8%) inmates were charged with murder, followed by rape (15.9%) and child and women repression (15.9%). (Table 3).

**Table 3: Distribution of the respondents by types of charge (n=138)**

Types of charge	Frequency	Percentage (%)
Murder	37	26.8
Rape	22	15.9
Decoity	11	8.0
Theft	19	13.8
Child and women repression	22	15.9
Illegal possession of narcotics good	20	14.5
Illegal possession of arms & animation	17	12.3
Human trafficking	5	3.6
Others (e.g. hijacking)	6	4.3
Absence of crime	8	5.8

Psychiatric disorders were diagnosed in 79 respondents (57.2%) (Table 4). Rate of emotional disorders (48.1%) was higher than behavioural disorders (38.4%) and some (16.5%) suffered from both categories of the disorders. Regarding specific disorders, conduct disorder (46.8%) and major depressive disorder (43.0%) were the most common diagnoses. (Table 5).

**Table 4: Distribution of the respondents according to psychiatric disorders (n=138)**

Psychiatric disorders	Frequency	Percentage (%)
Present	79	57.2
Absent	59	42.8

**Table 5: Distribution of the respondents with psychiatric disorders according to type (n=79)\***

Psychiatric disorders	Frequency*	Percentage (%)
<b>Emotional disorders</b>		
Major depressive disorder	34	43.0
Generalized anxiety disorder	6	7.6
Separation anxiety disorder	2	2.5
Specific phobia	1	1.3
Social phobia	3	3.8
Post traumatic stress disorder	9	11.4

<b>Behavioral disorders</b>		
Conduct disorder	37	46.8
Oppositional defiant disorder	4	5.1
Hyperkinetic disorder	1	1.3

\* Multiple responses

## **Discussion**

The present study observed a total psychiatric morbidity of 57.2% among the inmates of National Juvenile Developmental Center (Boys'), Bangladesh. In a study applying DAWBA among 5-10 years old children in Bangladesh, Mullick MSI and Goodman R (2005) found that the overall prevalence of psychiatric disorders was 15%.<sup>9</sup> Rabbani MG et al. (2009) estimated that prevalence of psychiatric disorders was 18.4% among children of 5-17 years with higher prevalence among children of 12 years and above.<sup>10</sup> In Isle of Wight study, prevalence rate of psychiatric disorder was 6.8% in 10-11-year-olds, with the rate in boys being twice that in girls.<sup>11</sup> These findings suggest that psychiatric disorder of the inmates living in National Juvenile Developmental Center, Bangladesh is clearly higher than the general paediatric population. The prevalence found in the current study is almost consistent with a previous study carried out at the same institution.<sup>7</sup>

In the present study, the rate of emotional disorders (48.1%) was higher than behavioural disorders (38.4%). Mullick MSI et al. (1995) found emotional disorders among 32.5% of the children attending at the outpatient department of the Institute of Mental Health and Research, Dhaka.<sup>12</sup> Among the emotional disorders, major depressive disorder (43.0%) and post-traumatic stress disorder (11.4%) were found in a relatively higher proportion. This may be because the inmates experienced, witnessed or confronted with an event that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others. Most of which was related to their participation in criminal activities. Regarding behavioural disorders, almost half (46.8%) of the disordered respondents had conduct disorders. It is probably due to more experience of childhood adversity as more inmates were street children. These findings are consistent with the findings of the study conducted in the California Department of Corrections and Rehabilitation, Division of Juvenile Justice (DJJ).<sup>13</sup> The mean ( $\pm$ SD) age of the inmates was 14.2 ( $\pm$ 1.7), which is almost consistent with the age around 14 years where juvenile offending is highest.<sup>14</sup> The study found that there was increasing rate of violent offence. In a study in 1999 in National Institute for Correctional Service found that only 7% of male inmates were charged with murder<sup>7</sup> but according to the findings of current study in the same institute, National Juvenile Developmental Center, Bangladesh the charge with murder increased around four times (26.8%).

The study explored the psychiatric morbidities using standardized assessment instrument. However, the study had several limitations. Information was taken from the inmates and it was not cross-checked. So there may be some inconsistencies. Parent version of DAWBA was given to their House Parents who were not their real parents. So there was possibility of bias. The researchers were aware that the reality of incarceration may be a factor in this analysis. It was expected that the rates of anxiety and mood symptoms could be affected by being held in an institutional setting.

## **Conclusion**

The present study significantly recognized the mental health problems in the juveniles who are incarcerated. This study may help to implement new standards of practice and treatment in incarcerated inmates. The findings of this study should serve as a call for all juvenile justice systems to expand services for young offenders, especially given to the limitations and obstacles to care after release.

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## Burden among caregivers of patients with mood disorders: a cross sectional study in a tertiary hospital

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### Summary

Mood disorders impose a significant burden on a personal, medical and socioeconomic level of the caregivers. It is observed in our country that in almost all sort of patient with psychiatric illness including mood disorders depend on the care of their family members. The objectives of this study were to determine the level of burden of caregivers of patients with mood disorders attended in a tertiary care hospital and to identify the possible association of duration, type of mood disorders, and the socio demographic variables on the burden of caregivers. This was a cross sectional study, sample size were 95 and SCID-I applied on the subjects and they diagnosed mood disorders and caregiver's burden was assessed by using the Zarit Burden Interview (ZBI). It was found the positive relationship with the disease duration and caregiver burden level ( $p=0.000$ ). The duration of providing care also significant ( $p=0.000$ ) with the higher level of burden. Among the subjects 44.2% diagnosed Major Depressive Disorder, 43.1% Bipolar Mood Disorder (Manic), 7.4% Bipolar Mood Disorder (Depressive) and 5.3% diagnosed Dysthymic Disorder. The caregiver from nuclear family (74.7%) felt higher degree burden than caregivers from joint family (24.3%). The family type and burden level bound significant relationship ( $p=0.013$ ). Regarding the burden level 54.8% caregiver possessed severe burden, 24.2% moderate to severe burden, 18.9% mild to moderate burden and 2.1% possessed little or no burden. To provide a total care to the patients with mood disorders it is necessary to mitigate the caregiver's burden. For this reason clinicians need to review periodically the status of caregiver's burden.

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## Introduction

Caring for someone with psychiatric morbidity is associated with a high level of stress. The term caregiver burden refers to the emotional, social, and financial stresses that caring for a relative or friend with mental illness imposes on the caregiver.<sup>1</sup> In majority cases family members are now seen as a principal source of support and an important partner in the rehabilitation of the mentally ill in developing cultures with recent estimates indicating that between 1/3 and 2/3 of persons with mental illness currently reside with family members.<sup>2</sup> Studies in the western culture have shown a moderate level of caregivers' psychopathology and burden with correlates being clinical characteristic like patients' symptoms and socio-demographic variables and caregivers' socio-demographic factors and coping abilities.<sup>3</sup> Some studies from sub saharan Africa had suggested high level of burden associated with socio-demographic variables of the caregiver and higher symptoms level in the patient.<sup>4,5</sup>

A study from Bangladesh reported that the families with schizophrenic patients were most distressed and socially isolated and they had difficulties in the area of household functioning, financial and community problems.<sup>6</sup>

In Bangladesh the prevalence of mood disorders are about 5%. (4.6% are major depressive disorder and 0.4% are bipolar mood disorders).<sup>7</sup> In contrast to schizophrenia, bipolar disorder has a variable course characterized by recurrent episodes of depression and/or mania. And the Major depressive disorders also have variable courses. Therefore, the experiences and consequences of burden for caregivers of patients with mood disorders may differ from those of the caregivers of patients with schizophrenia.

To date, few studies have examined the care giving strains and the associated health and mental health risks among the family and friends of patients with mood disorders. One study revealed that 93% of caregivers of bipolar patients reported a moderate or higher level of care giving strain, when the patient was admitted to an inpatient unit or outpatient clinic, and 70% continued to report moderate or higher burden 15 months later.<sup>8</sup> Other studies have found that caregiver burden is associated with long-term financial difficulties among caregivers, along with marital strain, restrictions in social and leisure activities, and problems with health and mental health.<sup>9,10</sup>

It is necessary to improve quality of life of family caregivers of mood disorders, by early detection of signs and degree of care-giver burden and factors affecting it positively and it is important to identify the nature and extent of burden among the caregivers of mood disorders. So the researchers felt interest to identify the burden level of the caregivers and to explore the socio demographic risk factors and types of mood disorders of the patient which might be associated with the burden level. The general objective of this study was, to determine the level of burden of caregivers of patients with mood disorders attended in a tertiary care hospital. The specific objectives were to identify the possible association of duration and type of mood disorders, on the burden of caregivers and to find out relationship between socio-demographic variables of the subjects and the degree of the burden of caregivers.

## Material and Methods

This was a cross sectional, analytical and descriptive study. Cases were taken from outpatient and inpatient department of Psychiatry, of Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. Duration of study was one year (from July 2010 to June 2011). Samples were included in the study purposively. 100 consecutive patients who fulfilled the selection criteria were interviewed during the study period. Among them 5 was dropped out due to inadequate data. Before commencing the study, the data collection instruments were pre-tested on 10 % (n=10) of planned study population to test the applicability of the methodology including the research instruments. Some modifications in the questions were made out and were finalized.

Both male and female patients diagnosed with mood disorders at least for 6 months, in the age group 18-60 years only were included. The person who is providing care (financial support, physical and emotional support) to the patient at least for last 6 months were considered as caregivers. Patient and the caregiver with

any severe physical illness from that he/she is unable to communicate with the researcher/interviewer were excluded.

Questionnaire to identify the socio demographic characteristics were used to identify the socio demographic status of sample. SCID (The Structured Clinical Interview for DSM-IV Axis-I disorders Clinician Version) was used to confirm the diagnosis of mood disorders. SCID is a structured interview for making the major DSM-IV Axis-I diagnosis.<sup>11</sup> In this study researcher used the Clinician version of SCID. Diagnostic and Statistical Manual of Mental Disorder (DSM-IV) criteria was used to diagnosis mood disorders on the basis of SCID-CV.

The Zarit's Burden Interview has been specially designed to reflect the stresses experienced by caregivers of patients with chronic illness, especially neuropsychiatric morbidities.<sup>12</sup> It has widely used scale for the caregivers of patient with neuropsychiatric diseases. In 2010 it has been used in Nigeria in a study titled 'Psychopathology and subjective burden amongst primary caregivers of people with mental illness in South-Western Nigeria'.<sup>13</sup> Researcher contacted with Steven H Zarit, PhD Professor and Head Department of Human Development and Family Studies, USA, the author of the ZBI and his agent Mapi research trust for the kind permission to use this scale for academic purpose and the author has given written permission for such purpose and translate this scale and then the researcher done forward translation in Bengali, Backward translation in English and reviewed by the guide and other two senior qualified psychiatrists for applying to the pre-testing.

The researcher was duly careful about the ethical issues related to this study and received ethical approval from Institutional review board of Bangabandhu Sheikh Mujib Medical University.

Data were collected according to the methods of the study and analyzed by SPSS version 17. The data was tabulated to identify the possible association of duration of type of mood disorders on the burden of caregivers. Pearson's Chi square test was used to find out the significance. Regarding the chi square test p value < 0.05 taken as significant. Logistic regression also applied to find out any association between grouped variables and caregiver's burden. Result was presented as text, tables, and figures.

## Results

The study identified socio demographic characteristics of the person with mood disorders and their caregivers including age, sex, habitat, family type, occupation and monthly family income.

**Table – 1.1: Socio-demographic characteristics of the patients**

Variables	Burden level of their caregivers								Total	
	Little or No		Mild to moderate		Moderate to severe		Severe			
	n	%	n	%	n	%	n	%	n	%
<b>Age (years)</b>										
18-27	2	2.1	5	5.3	12	12.6	21	22.1	40	42.1
28-37	0	.0	5	5.3	3	3.2	19	20.0	27	28.4
38-47	0	.0	6	6.3	3	3.2	4	4.2	13	13.7
48-57	0	.0	1	1.1	4	4.2	6	6.3	11	11.6
58-60	0	.0	1	1.1	1	1.1	2	2.1	4	4.2
<b>Total</b>	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Sex</b>										
Male	1	1.1	11	11.6	12	12.6	27	28.4	51	53.7
Female	1	1.1	7	7.4	11	11.6	25	26.3	44	46.3
<b>Total</b>	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0

<b>Habitat</b>										
Rural	0	0.0	6	6.3	6	6.3	19	20.0	31	32.6
Urban	2	2.1	12	12.6	17	17.9	33	34.7	64	67.4
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Religion</b>										
Islam	2	2.1	17	17.9	21	22.1	50	52.6	90	94.7
Hindus	0	0.0	1	1.1	2	2.1	2	2.1	5	5.3
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Education</b>										
Illiterate	0	0.0	0	0.0	3	3.2	4	4.2	7	7.3
Primary	0	0.0	7	7.4	5	5.3	9	9.5	21	22.1
Secondary	1	1.1	2	2.1	6	6.3	17	17.9	26	27.3
Higher secondary	0	0.0	6	6.3	6	6.3	14	14.7	26	27.3
Graduate	1	1.1	1	1.1	3	3.2	6	6.3	11	11.6
Post graduate	0	0.0	2	2.1	0	0.0	2	2.1	4	4.2
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Occupation</b>										
Service	0	0.0	5	5.3	3	3.2	11	11.6	19	20.0
Business	0	0.0	1	1.0	3	3.2	3	3.2	7	7.4
Student	2	2.1	4	4.2	10	10.5	15	15.8	31	32.6
Labor	0	0.0	0	0.0	0	0.0	1	1.1	1	1.1
Agriculture	0	0.0	1	1.1	1	1.1	2	2.1	4	4.2
Housewife	0	0.0	6	6.3	5	5.3	14	14.7	25	26.3
Retired	0	0.0	0	0.0	0	0.0	3	3.2	3	3.1
Unemployed	0	0.0	1	1.1	1	1.1	2	2.1	4	4.2
Other	0	0.0	0	0.0	0	0.0	1	1.1	1	1.1
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Principal earner of Family</b>										
Yes	0	0.0	6	6.3	9	9.5	19	20.0	34	35.8
No	2	2.1	12	12.6	14	14.7	33	34.7	61	64.2
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Marital status</b>										
Married	0	0.0	11	11.6	9	9.5	26	27.4	46	48.4
Unmarried	2	2.1	5	5.3	11	11.6	16	16.8	34	35.8
Divorced	0	0.0	1	1.1	2	2.1	9	9.5	12	12.6
Widow	0	0.0	1	1.1	1	1.1	1	1.1	3	3.1
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Family type</b>										
Joint	0	0.0	5	5.3	8	8.4	17	17.9	30	31.6
Nuclear	2	2.1	13	13.7	15	15.7	35	36.8	65	68.4
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Monthly Family income (taka)</b>										
< 10000	0	0.0	1	1.1	2	2.1	8	8.4	11	11.6
10001-20000	0	0.0	12	12.6	15	15.8	30	31.6	57	60.0
20001-30000	1	1.1	2	2.1	4	4.2	11	11.6	18	18.9
> 30000	1	1.1	3	3.2	2	2.1	3	3.2	9	9.5
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0

**Table – 1.2: Socio-demographic characteristics of the caregivers**

Variables	Burden level								Total	
	Little or No		Mild to moderate		Moderate to severe		Severe			
	n	%	n	%	n	%	n	%	n	%
<b>Age (years)</b>										
18-27	1	1.1	3	3.2	5	5.3	7	7.4	16	16.8
28-37	0	0.0	6	6.3	2	2.1	15	15.8	23	24.2
38-47	0	0.0	7	7.4	5	5.3	13	13.7	25	26.3
48-57	1	1.1	2	2.1	8	8.4	15	15.8	26	27.3
58-60	0	0.0	0	0.0	3	3.2	2	2.1	5	5.3
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Sex</b>										
Male	2	2.1	8	8.4	9	9.5	24	25.2	43	45.2
Female	0	0.0	10	10.5	14	14.7	28	29.4	52	54.8
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Habitat</b>										

Rural	1	1.1	5	5.3	6	6.3	18	18.9	30	31.5
Urban	1	1.1	13	13.7	17	17.9	34	35.8	65	68.5
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Religion</b>										
Islam	2	2.1	17	17.9	21	22.1	50	52.6	90	94.7
Hindus	0	0.0	1	1.1	2	2.1	2	2.1	5	5.3
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Education</b>										
Illiterate	0	0.0	0	0.0	1	1.1	2	2.1	3	3.2
Primary	0	0.0	2	2.1	7	7.4	14	14.7	23	24.2
Secondary	0	0.0	5	5.3	4	4.2	9	9.5	18	18.9
Higher secondary	0	0.0	6	6.3	4	4.2	9	9.5	19	20.0
Graduate	2	2.1	4	4.2	5	5.3	18	18.9	29	30.5
Post graduate	0	0.0	1	1.1	2	2.1	0	0.0	3	3.2
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Occupation</b>										
Service	1	1.1	11	11.5	8	8.4	18	18.9	38	40.0
Business	0	0.0	0	0.0	2	2.1	6	6.3	8	8.4
Student	1	1.1	0	0.0	0	0.0	0	0.0	1	1.1
Agriculture	0	0.0	1	1.1	2	2.1	4	4.2	7	7.4
Housewife	0	0.0	6	6.3	11	11.5	24	25.2	41	43.1
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Principal earner of Family</b>										
Yes	2	2.1	10	10.5	11	11.5	28	29.4	51	53.7
No	0	0.0	8	8.4	12	12.6	24	25.2	44	46.3
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Marital status</b>										
Married	1	1.1	17	17.9	23	24.2	48	50.5	89	93.7
Unmarried	1	1.1	1	1.1	0	0.0	1	1.1	3	3.2
Divorced	0	.0	0		0	0.0	1	1.1	1	1.1
Widow	0	.0	0	.0	0	.0	2	100.0	2	2.1
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0
<b>Monthly Family income (taka)</b>										
< 10000	0	0.0	1	1.1	2	2.1	9	9.5	12	12.5
10001-20000	0	0.0	11	11.5	15	15.8	29	30.5	55	57.9
20001-30000	1	1.1	2	2.1	4	4.2	11	11.5	18	18.9
> 30000	1	1.1	4	4.2	2	2.1	3	3.1	10	10.5
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0

**Table 2: Univariate analysis of the association between the variables and burden in the caregiver**

Caregiver Variables	Burden of care (ZBI 41 and above)
	p value
Sex of caregivers	0.409
Relationship to patient	0.555
Habitat	0.547
Religion	0.717
Education	0.423
Occupation	0.047*
Marital status	0.204
Family Type	0.013*

\* Significance

**Table 3: Logistic regression analysis results of the variables associated with caregiver's burden**

Variables	$\beta$	S.E.	Wald	df	Significance
Age of caregivers	0.324	0.317	1.045	1	0.307
Sex	0.961	1.065	.814	1	0.367
Relationship to patient	0.635	0.459	1.920	1	0.166
Habitat	-0.319	.837	.145	1	0.703
Religion	1.906	1.722	1.224	1	0.268
Family type	2.470	0.871	8.043	1	0.005*
Educational qualification	0.047	0.568	.007	1	0.934
Occupation	-0.035	0.324	.012	1	0.913
Marital status	-0.028	0.809	.001	1	0.973
Monthly family income	-0.099	0.455	3.191	1	0.074
Duration of care giving	1.621	0.542	8.945	1	0.003*

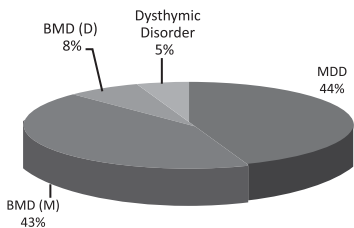
**Table 4: Level of burden and duration of illness of the patients**

Level of Burden	Duration of illness				p value
	Less than 5 years		More than 5 years		
	n	%	n	%	
Little or no	2	3.0	0		0.000
Mild to moderate	17	25.4	1	3.6	
Moderate to severe	23	34.3	0		
Severe	25	37.3	27	96.4	
Total	67	100.0	28	100.0	

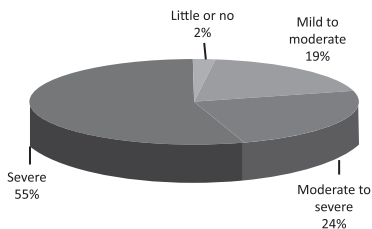
**Table-5: Level of burden and duration of care giving**

Level of Burden	Duration of care giving				p value
	Less than 5 years		More than 5 years		
	n	%	n	%	
Little or no	2	2.9	0	0.0	0.000
Mild to moderate	17	24.3	1	4.0	
Moderate to severe	23	32.8	0	0.0	
Severe	28	40.0	24	96.0	
Total	70	100.0	25	100.0	

**Figure 1: Types of mood disorders diagnosed among the patients**



**Figure 2: Level of burden of caregivers**



**Table 6: Level of burden among caregivers according to the type of mood disorders of patients**

Level of Burden	Types of mood disorder							
	MDD		BMD(M)		BMD(D)		Dysthymic disorder	
	n	%	n	%	n	%	n	%
Little or no	0	0.0	0	0.0	2	28.6	0	0.0
Mild to moderate	10	23.8	6	14.6	0	0.0	2	40.0
Moderate to severe	11	26.2	7	17.1	2	28.6	3	60.0
Severe	21	50.0	28	68.3	3	42.8	0	0.0
Total	42	100.0	41	100.0	7	100.0	5	100.0

p value: 0.067

**Table 7: Relationship with the patients and the level of burden**

Family type	Level of burden		p value
	No/tittle and Mild to Moderate (ZBI score <41)	Moderate to Severe and severe (ZBI score > 41)	

Relationship with the patients	Level of Burden								Total	
	Little or No		Mild to moderate		Moderate to severe		Severe		n	%
	n	%	n	%	n	%	n	%		
Spouse	0	0.0	11	11.6	7	7.4	23	24.2	41	43.2
Parents	1	1.1	4	4.2	11	11.6	18	18.9	34	35.8
Siblings	1	1.1	2	2.2	4	4.2	6	6.3	13	13.7
Offspring	0	0.0	1	1.1	0	0.0	2	2.2	3	3.1
Others	0	0.0	0	0.0	1	1.1	3	3.1	4	4.2
Total	2	2.1	18	18.9	23	24.2	52	54.7	95	100.0

p value: 0.555

**Table 8: Family type of caregivers and level of burden**

Family type	Level of burden				p value
	No/little and Mild to Moderate (ZBI score <41)		Moderate to Severe and Severe (ZBI score > 41)		
	n	%	n	%	
Joint	11	36.7	19	25.3	0.013
Nucl ear	9	63.3	56	74.7	
Total	20	100.0	75	100.0	

## Discussion

This study found that 42.1% patients were within age group 18-27 years and 28.4% within 28-37 years. A previous study done in Spain found that more than 50% of patients with bipolar disorders were less than 40 years of age.<sup>9</sup> Regarding the burden level, the highest burden of caregivers (22.1%) was among those who took care of patients of 18-27 years. The univariate analysis showed occupation of the caregivers and the family type shows significant association with burden scores 41 or above.

Among 95 caregivers 27.3% were within 48-57 years age, 26.3% were within 38-47 years age and 24.2% were within 28-37 years age. It indicated that most of the caregivers are elderly than their patients, because in case of patients 18-27 years age group is more than any other groups. Previous study found that the mean age of the caregivers was 49.05 (+11.40).<sup>9</sup> Another study revealed the mean age of the caregivers 49.99 (+14.61).<sup>8</sup> These are consistent with our present study.

Regarding the gender 45.2% were male and 54.8% were female among the caregivers. That means the female gender is predominant among caregivers. These findings also similar with two previous studies, where researchers found 66.0% and 68.6% care givers were female in gender.<sup>9,14</sup> Another study among the caregivers of patients with depression in Netherlands found 53% were female among the caregivers.<sup>15</sup> Another American study found an interesting result that just after diagnosis most of the patients received care (54%) from male caregivers (spouse or parents) but after one year 42% of caregivers had dropped out, and majority of them were male.<sup>16</sup> Then one year after the 37% was male caregivers and 63% was female caregivers. Regarding the occupation of the caregivers 43.1% were house wife and 40.0% were service holder. This findings is statistically significant ( $p=0.000$ ) with the level of caregiver burden. A study found that employment status of caregivers was statistically significant ( $<0.001$ ) with the level of caregiver burden.<sup>13</sup> Our study is consistent with this study done in Nigeria among the caregivers of patients with mental illness. Among the 95 caregiver 54.8% posses severe burden, 24.2% having moderate to severe burden , 18.9% having mild to moderate burden and only 2.1% having little or no burden. The Nigerian researchers used same scale (ZBI) to measure the caregiver burden of patients with mental illness and found 60.7% had severe burden.<sup>13</sup> This is consistent with our present study. However, another study used same scale to measure burden of caregivers of disabled elderly and they found 37% caregivers had significant burden.<sup>17</sup> We can infer that caregiver of mood disorders possessed more burden than the caregivers of disabled elder persons, where the study population were different. In our study we found that, caregivers of bipolar mood disorder (manic) patients having more severe burden than any other form of mood disorders. It was found that 68.3% having severe burden, 17.1% moderate to severe burden and 14.6% having mild to moderate burden of the caregivers of Bipolar Mood Disorder (Manic). In our study 97.9% of caregivers possessed burden (mild, moderate and severe) , this finding is consistent with the previous study where they found 93% of caregiver of patients with mood disorders reported a significant level of burden when the patient was admitted to inpatient department or treated outpatient clinic, and 70% continued to report moderate or higher burden 15 months later.<sup>14</sup>

In present study we found 43.2% caregivers were spouse (18.9% husband, 24.2% wife) and 35.8% were parents (13.7% father, 22.1% mother) of the patients. A Spanish study 54.7% caregivers were parents and 38.4% were spouse.<sup>9</sup> In Bangladeshi culture the marital bondage is stronger and divorced rate is lower than the Western society. A western study the parents are more involved (44.3%) in care giving to patients with mood disorders than spouse (23.5%). Caregivers from nuclear family possessed more burden than caregivers from joint family.<sup>14</sup> In case of moderate to severe and severe burden (ZBI score  $> 41$ ) 74.7% caregivers were from nuclear family and 25.3% from joint family. This finding is statistically significant ( $p=0.013$ ). An Indian study found that caregivers from nuclear family background reported higher levels of burden where the mean score 69.0 (+8.9) in caregiver reaction assessment scale.<sup>18</sup> But another Indian study on caregivers of Dementia found the burden in caregivers from joint families did not differ from nuclear families.<sup>19</sup>

The level of caregiver's burden and the duration of illness of the patients with mood disorders found statistically significant ( $p = 0.000$ ). In this study duration more than 5 years most of the caregivers (96.4%) having severe burden but in case of disease duration less than 5 years the severe burden was only 37.3% and moderate burden is 34.3%. The duration of care giving and the level of burden also found statistically significant ( $p=0.000$ ). Most of the caregivers (96%) having severe burden when they were provided care more than 5 years, but in case of this duration less than 5 years the severe burden was only 40.0%, moderate burden was 32.8%, mild to moderate burden was 24.3% and little or no burden was 2.9%. Previously mentioned Nigerian study found the duration of patient's illness was statistically significant (0.004) with the higher burden level of caregivers.<sup>14</sup> this result is similar with our study. An African study estimated caregiver burden by using ZBI scales and they found high level of burden among the caregiver who has provided care at least 4 years to the patient with mental illness.<sup>20</sup> This finding also supported our result.

## Conclusion

The current study demonstrates that most of the caregivers of patient with mood disorders have higher level of burden and it was significantly associated with the duration of patient's illness and the duration of care giving. The caregiver's occupation and family type found statistically significant to the degree of their burden level. In the analysis of the principal research instrument (Zarit Burden Interview-ZBI) it was found that the stigma, consequence of the illness to the patient and financial constraints were the caregivers most reported causes for burden.

In the country like, Bangladesh where the patient is mainly cared for physically and financially by the relatives or informal caregivers the study findings will be help to mitigate the caregiver burden and as well as provide well being for patients. It is necessary to incorporate the caregiver burden issue in the management plan of mood disorders and also other mental illness for the better outcome of the patient.

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## Impaired insight and its implications in Schizophrenia

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### Summary

In Psychiatry insight refers to the conscious awareness and understanding of one's own psychodynamics and symptoms of maladaptive behavior, highly important in effecting changes in the personality and behavior of a person. Impaired insight into illness is common. It has direct or indirect impacts on almost all phases of the diagnosis and treatment protocols. Not surprisingly, there is scarcity of summarized outline of evidence based importance of insight in psychiatry. This article aimed at fulfilling this scarcity. For this purpose, thirty articles were selected through searching internet and reviewed. This article reviews recent research related to impaired insight in major mental illness and its consequences for cognitive, behavioral, legal, and treatment compliance issues affecting this population. It discusses efforts to find the neurobiological basis for lack of insight and the various structures or circuits of the brain that have been implicated in schizophrenia. In the search for a more reliable and valid measure of insight for treatment decisions, the development of various assessment instruments is summarized. Impaired insight is shown to be related to a poorer course of the illness and noncompliance with necessary treatment in schizophrenia. The implications of these findings for treatment decisions, legal interventions, and ongoing treatment monitoring are discussed.

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### Introduction

Lack of insight into illness (clinical insight) is recognized as a multidimensional construct that exists on a continuum, that is consists of four core domains: awareness of having a serious mental illness; awareness and attribution of symptoms to the illness; acceptance of the need for treatment and awareness of the social, occupational or other negative consequences (i.e. hospitalization, legal issues, etc.) of the illness<sup>1</sup>. The current study explored the self-experience of persons with Serious Mental Illness (SMI) by investigating the associations between different insight and self-stigma clusters, self-clarity, hope, recovery, and functioning. One hundred seven persons diagnosed with a SMI were administered six scales: self-concept clarity, self-stigma, insight into the illness, hope, recovery, and functioning.<sup>2</sup> As obstacles to involuntary treatment for serious mental illness have increased over the years, so have the number of disheveled, mentally ill, homeless people on our streets (estimated as more than 150,000 nationwide) and the number of incarcerated people with mental illness in our jails and prisons also increased.<sup>3,4</sup> Among the patients with major mental illnesses for whom involuntary treatment decisions are often required because they lack insight about their illness, the two diagnoses most frequently encountered are schizophrenia and bipolar affective disorder.<sup>5,6,7</sup>

Impaired insight is shown to be related to a poorer course of the illness and noncompliance in schizophrenia, so assessment of insight has become a burning issue. This article aimed to summarize the implications of these findings for better treatment decisions, functional outcome, compliance to drug and better prognosis of schizophrenia.

## Methodology

Study documents were identified through searching Google Scholar and Pub Med. Used searching keys were mainly Impaired insight in schizophrenia and then search was done using management of different types of implications of impaired insight in schizophrenia separately. The purpose of the review was to summarize the key findings of the impaired insight and their implication in diagnosis, treatment and prognosis of schizophrenia. So, full free articles focusing only on implication of impaired insight in psychiatric diseases, both original and review type, were included. Thus, total 30 articles were finally selected among 45 primarily selected articles and findings were summarized after reviewing.

## Discussion and Findings

### Insight

Insight is generally defined as an abstract concept that involves a clear grasp or understanding of meaningful relationships within a situation. When used in the context of severe psychiatric disorders such as schizophrenia, it relates to the individual's understanding of his or her illness or the motivation underlying the individual's own behavior.<sup>5,8</sup>

### Etiology

Deficits in insight have implications for numerous clinical inpatient hospitalization issues, including the decision to hospitalize a patient voluntarily or involuntarily in the first place. Other insight-related issues include adherence to treatment after discharge, guardianship or capacity assessments, readiness for discharge decisions, the choice of oral medications versus long-acting depot medication, recommendations for placement in a structured setting after discharge, and the referral of patients to appropriate psychotherapy on hospital discharge.

The etiology of lack of insight has been variously conceptualized as:

- Stemming from neuropsychological (brain) deficits
- Part of the primary psychiatric illness itself
- A form of defensive denial protecting the patient against the distress of awareness of illness

Regardless of the theoretical model—and it is likely that all apply in different circumstances—the assessment of insight should be detailed and well documented in the clinical record.<sup>9</sup>

### Grades of insight: 5 grades of insight

1. Complete denial of illness 2. Slight awareness of being sick and needing help but denying it at the same time 3. Awareness of being sick but blaming it on others, on external events, on medical or unknown organic factors 4. Intellectual Insight is admission of illness and recognition that symptoms or failures in social judgment are due to irrational feelings or disturbances; without applying that knowledge to future experiences 5. True Emotional Insight is the emotional awareness of the motives and feelings within, of the underlying meaning of symptoms; and whether this awareness leads to changes in personality and future behaviour, openness to new ideas and concepts about self 6. Impaired Insight means diminished ability to understand the objective reality of a situation. A person with very poor recognition or acknowledgement is referred to as having 'poor insight' or 'lack of insight'. The most extreme form is 'Anosognosia' that is the total absence of insight into one's mental illness.<sup>10</sup>

## **Neurobiological Basis of Impaired Insight in Schizophrenia**

Awareness of mental illness and social judgment to neuropsychological tests showing decreased functioning of the prefrontal lobes and the right and left parietal lobes of the brain. Other researchers have proposed that the basal ganglia, structures of the inner brain, may be centrally involved in the dysfunctional neural circuits found in schizophrenia.<sup>11</sup> These structures are believed to be involved in "habit learning" and may build up cognitive patterns for the development of self-awareness (identity), may influence one's perception of reality, may result in abnormal cognitive experiences and, through inability to sort out reality from hallucinations, may lead to an inability to separate self from other.<sup>12</sup> Impaired insight into illness (clinical insight) in schizophrenia has negative effects on treatment adherence and clinical outcomes. Based on our previous research, which showed that impaired insight into illness was associated with increased left hemisphere volume relative to right.<sup>13</sup>

### ***Lack of Insight has been correlated with***

Worse outcomes, More admissions, Worse Psycho-social functioning, Reduced success rates in outpatient treatment of relapses, Longer intervals between onset of symptoms and seeking treatment.<sup>14</sup>

### **Consequences of Impaired Insight**

When ill, patients with schizophrenia are unable to screen out irrelevant information and integrate relevant information needed to make a decision. For some persons these deficits occur primarily during a period of decompensation and relapse. However, for many people with mental illnesses such as schizophrenia, the deficits exist to some degree even when stabilized on medication.<sup>5,8,15</sup> These deficits will inevitably impact their insight and ability to make logical and constructive decisions, and this viewpoint has been widely supported by clinical experience as well as research.<sup>5,8,15,16,17</sup>

### **Frequency of Impaired Insight in Schizophrenia**

Impaired insight is a very common symptom of schizophrenia. In reviewing two large multinational studies on the major symptoms of schizophrenia, researchers found that lack of insight was the most frequently present symptom of schizophrenia, occurring in 89 percent of patients in one study and in 81 percent of patients in the second study.<sup>8</sup> More recent efforts have used a variety of assessment instruments to provide increasingly valid measures of insight. Using the Scale to Assess Unawareness of Mental Disorder (SUMD) developed to measure insight, another study has assessed 412 inpatients diagnosed with schizophrenia and report that 57.4 Percent of these patients demonstrated a moderate to severe lack of awareness of having a mental disorder, 31.5 percent had a severe unawareness of the social consequences of mental disorder and 21.7 percent had a severe unawareness of the efficacy of medication.<sup>14,18</sup> SKQ results and the severity of patients' psychopathology in this study,<sup>11</sup> although such a relationship was seen between the ITAQ and severity of illness in their earlier study.<sup>19</sup> Another study has also found that impaired insight was a frequent deficit in schizophrenia and reported that 74 percent of long-term schizophrenic patients believed that their treatment was unnecessary because they were not psychiatrically ill.<sup>20</sup>

### **Assessment of Insight**

Several studies have shown a positive relationship between insight and both treatment compliance and outcome, consistent and valid measures are needed to help clinicians assess insight and make more appropriate treatment decisions. As described above, insight has been assessed through a variety of brief scales based on semistructured interviews that allow the clinician to rate different aspects of insight on a continuum, including the SUMD, the ITAQ, the SKQ and other brief questionnaire.<sup>11,14,18,19,24,25</sup> These approaches have provided more valid and reliable assessments of the individual's insight and ability to comply with treatment recommendations, as well as a means to correlate these measures with both neuropsychological measures

and outcome variables. Another approach to assessing insight has used patients' ratings of how similar describing patients with classic symptoms of schizophrenia and bipolar disorder.<sup>23,26,27</sup> The results revealed that at time of hospitalization, in contrast to the ratings of their clinicians and unlike those with bipolar disorder, patients with schizophrenia showed less awareness of their positive symptoms of mental illness such as conceptual disorganization.<sup>21,26</sup> The recent study by Startup in contrast, suggested that patients with schizophrenia who had poor insight were able to recognize the psychotic symptoms in others as being related to mental illness, but were unable to identify the symptoms as indicative of their own mental illness.<sup>27</sup> With few exceptions, the majority of studies indicate that insight is negatively correlated with illness severity and chronicity.<sup>22,23,25,28,29</sup> Schizophrenic patients with good insight showed greater improvement after long-term hospitalization; those with poor insight were more frequently rehospitalized.<sup>23</sup>

### **Implications for Treatment**

Several of the studies mentioned above indicate that impaired insight is a neuropsychological deficit that is persistent throughout the illness for a large percentage of people with schizophrenia, even for those who have been stable and maintained in the community with residential supervision. These findings suggest three necessary aspects of treatment. First, intensive case management programs are necessary for a large proportion of these individuals, to include careful ongoing monitoring, closer supervision of medication compliance, and objective assessment of their symptoms and abilities to cope with daily demands. Second, continuous patient education should be a basic part of any treatment plans, so as to improve compliance for those who are able to understand the factors that cause their symptoms and how to be constructively involved in their own treatment. Third supplemental information from significant others is needed for deciding issues of future voluntary versus involuntary treatment, especially for those with a past history of noncompliance. Finally, even with these steps, there will be a significant proportion of patients who lack the insight and understanding of their illness that is needed to comply with necessary, appropriate treatment. Rather than condemning this group to frequent re hospitalizations, deterioration of mental and physical health, homelessness, and incarceration, these patients can be identified with present screening methods and closely monitored. When their noncompliance is demonstrated to result in the above negative consequences, the humane action is to take legal and therapeutic steps to provide coerced and supervised treatment that will prevent their decompensation. A modification of some treatment and commitment laws are essential to accomplish this goal.<sup>30</sup>

### **Insight and quality of life**

A study has pointed that greater sense of emotional wellbeing being was associated with awareness into need for the treatment. A recent study published in this area suggested that increasing the hope of persons with schizophrenia may directly and positively increase both their quality of life and the usefulness of their insight into their illness.<sup>31</sup>

### **Insight and functional outcome**

Most of the studies of insight and functional outcome in schizophrenia have focused on general level of functioning whereas others concentrated on specific aspects like work and social functioning. A Study held in Chennai, India, compared insight in 183 schizophrenia patients who had received treatment with 143 who were never treated (and had less insight). Different variables correlated with insight in the two groups, even after multivariate modeling. The authors argued that this was because treatment improved insight, except in an "unmasked" group of refractory illnesses, with absence of insight in effect being a negative symptom. Thus, the group with poor insight would have a very poor prognosis because their illness itself differed.<sup>32</sup> A recent study has found that awareness among schizophrenia subjects of their social behavioral problems is affected by their cognitive capacity and this applies not only to current behaviors but also to the retrospective estimation of their behaviors in the social domain.<sup>33</sup> A very recent publication from Spain, which measured insight, treatment compliance and functioning longitudinally, found that poor insight correlates with symptom severity and global functioning but also has some trait value for schizophrenia, which is apparent once acute psychotic symptomatology is not prominent.<sup>34</sup>

### **General interventions to maximize compliance**

Conduct an assessment of compliance history and risk factors, including substance abuse and financial or other practical barriers, as part of the evaluation of every patient. Allow sufficient time to know the patient as a person and to understand his or her personal goals, concerns, and psychodynamic issues. Use a negotiated approach to medication. Create a therapeutic environment where deviation from recommendations can be discussed openly, rather than concealed. Show an interest in medication by asking in a nonauthoritarian manner how much is being taken and the effects. Involve the patient in medication treatment by allowing self-regulation of dosage, if possible. Maximize efficacy and minimize side effects in choosing agents and dosages. Attend seriously to all side effects and actively elicit and respond to concerns. Educate patient and family regarding the biological underpinnings of illness, relapse prevention, and medication side effects. Enlist support in the community, including family, friends, and employers. If needed, arrange for supervised medication administration. Employ cognitive and memory-enhancing strategies if disorganization or forgetfulness is a problem. When the patient is rendered incompetent because of illness, be prepared to recommend judicial intervention. If the patient will not comply and is competent, manage countertransference to allow for a continued relationship and the possibility of future treatment. Promote the patient's participation in activities that can compete with psychosis as sources of gratification and self-esteem.<sup>35</sup>

### **Therapy for improving insight**

A study has proposed a brief pragmatic psychological intervention, namely compliance therapy aimed at improving insight, attitudes to illness and treatment, and medication compliance in acutely psychotic patients. The intervention employs a collaborative approach with patients, and draws from the principles of motivational interviewing as well as cognitive techniques.<sup>36</sup> Another study has found that one of the factors related to insight and compliance prior to discharge was whether or not compliance therapy was given.<sup>37</sup> In a review of cognitive behaviour therapy for schizophrenia a researcher has found that short insight focused CBT demonstrated significantly greater improvement in insight into compliance with treatment and ability to relabel their psychotic symptoms as pathological.<sup>38</sup> Moreover, the efficacy of cognitive behavior therapy for improving medication adherence seems to be more promising than that of traditional individual psychoeducation approaches, which have been consistently disappointing in their failure to show adherence benefits.<sup>39</sup>

### **Conclusion**

Lack of insight in schizophrenia is universal. In recent years, there has been a surge of research into the conceptualization and assessment of insight in schizophrenic patients. However, these studies have yielded inconsistent results. Neurobiology of insight in schizophrenia is still poorly understood. A precise definition and assessment of insight and insight dimensions is a necessary precondition for conclusive insight research. Very few studies were originally designed to investigate the role of insight in schizophrenia. Different dimensions of insight are probably related to different aspects of outcome, and this needs to be reflected in the study planning phase. Psychiatrists would assess and treat patients more accurately as well as enhance patient's adherence to treatment if they had an accurate understanding of insight. The concept of insight has stimulated research into difficult theoretical and practical areas such as self-awareness and treatment compliance, respectively. Despite several methodological limitations, this work gives a brief summarized format of the current state of evidence based treatment approaches from a practical perspective and can therefore be seen as an important and helpful paper for further research as well as for day to day clinical practice in particular.

### **Conflict of interest**

None



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## Hematidrosis: a rare clinical entity

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### Summary

Hematidrosis or hematohidrosis or hemidrosis is a very rare condition in which a human being sweats blood. Physical and psychological stresses are found to be the most frequent causes among other causes such as systemic diseases and vicarious menstruation. This is a case report of 16-year-old girl with oozing of blood from intact skin of forehead, scalp, ears, eyes and nose. Physical exertion, long journey, intense fear secondary to psychosocial stressors and academic examination were identified as precipitants in this case she was provisionally diagnosed as mixed anxiety and depressive disorder. Pharmacotherapy and psychotherapy were followed by complete remission; it is inferred from the experience that hematidrosis is a treatable condition if the underlying cause is correctly identified.

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### Introduction

Hematidrosis is a rare clinical condition of sweating of blood. It may occur when a person is suffering from extreme stress. For example, facing his or her own death.<sup>1</sup> Very few cases of hematidrosis have been reported in literature. Hematidrosis is also known as hematohidrosis and hemidrosis. The exact etiology of hematidrosis is unknown. It is believed to be a systemic disease, e.g. it has been associated with vicarious menstruation, a condition in which bleeding occurs from a surface other than the mucous membrane of the uterine cavity at a time when normal menstruation should take place. Hematidrosis has been reported with primary thrombocytopenic purpura.<sup>2</sup> In another study, a case of hematidrosis, accompanied with otorrhoea and otoerythro-sis has been reported.<sup>3</sup> Hematidrosis can also occur in the settings of excessive exertion, psychogenic and other unknown factors.<sup>4</sup> Few theories have been proposed regarding the etiopathogenesis of hematidrosis. One such school of thought says that there are multiple blood vessels around the sweat glands arranged in a net like form. It is believed that under the pressure of great stress the vessels contract. Subsequently as the anxiety passes the blood vessels dilate to the point of rupture. The blood at this point goes into the sweat glands which push the blood to the surface and manifests as droplets of blood mixed with sweat.<sup>5</sup> The term "hematofolliculohidrosis" was proposed because it appeared along with sweat like fluid and the blood exuded via the follicular canals.<sup>6</sup>

## Case Report

A 16 years college girl was brought to Child, Adolescent and Family Psychiatry Department of National Institute of Mental Health, Dhaka with complaints of recurrent episodes of bleeding for last 1 year from nose (Figure-1), ears, eyes, forehead (Figure-1), scalp, face (Figure-2), behind ears, finger pulp (Figure-3), tongue (Figure-4), sole of feet, and under the breast creases. Initially the bleeding started suddenly from nose and ear during an episode of heavy exercise in a parade ground. Then she visited ENT Department of Rajshahi Medical College Hospital and detailed ENT evaluation was done, but no abnormality was found and episode of bleeding was subsided spontaneously 6 hours later. Since then she developed 2 to 3 bleeding episodes at every 2 to 4 weeks interval from previously mentioned areas. Each episode persisted for 4 to 10 minutes which initially oozed with sweat, later on became like frank bleeding and subsided spontaneously without leaving any injury, scar mark or bleeding point.



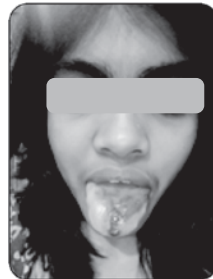
*Fig.-1: Bleeding from forehead and nose*



*Fig.-2: Bleeding from face*



*Fig.-3: Bleeding from right index finger*



*Fig.-4: Bleeding from tongue*

(Photographs are published with permission of the patient)

In each episode approximate blood amount was about 2 to 3 ml from each site. She also stated that each episode of bleeding was preceded by dull headache and abdominal pain. Episodes of bleeding were more intense and more frequent during period of intense stress especially during physical exercise, emotional upset during personal and familial conflict, during academic examination and after long journey. She had no known history of abnormal bleeding disorders, physical trauma, fever, oral ulceration, photosensitivity, joint pain, alopecia, yellowish coloration of eyes or skin, itching, hematemesis, melaena or hemoptysis. She had no known history of taking any anticoagulant or antiplatelet drug or taking food colorant. Family history of any significant bleeding disorder including consanguineous marriage among her parents was excluded. Then she was referred to Dhaka Medical College Hospital for detailed medical, hematological, ENT and dermatological evaluation. After detailed medical, hematological, ENT and dermatological clinical as well as laboratory evaluation no cause of abnormal bleeding was found. Then the patient was referred to National Institute of Mental Health, Dhaka for psychiatric evaluation as a suspected case of factitious disorder.



Her relevant investigations were done at Dhaka Medical College Hospital and results were as follows: Complete blood count- Hb% 10.5 gm/dL, platelet count normal, peripheral blood film- microcytic hypochromia, bleeding time, clotting time, prothrombin time, activated partial thromboplastin time, international normalized ratio (INR), alpha feto protein level, platelet function test, factor xiii level, eglobulin lysine test, renal and liver function test results were within normal limit. Serum ANA, anti ds DNA, serum c-ANCA & p-ANCA test results were negative. Chest X-Ray P-A view, X-Ray PNS at OM view, CT Scan of head, orbit, nose and paranasal sinuses, endoscopy of upper GIT, functional endoscopy of nose and paranasal sinuses, neck angiography, HRCT of temporal bone, audiogram and tympanogram including direct laryngoscopy did not reveal any bleeding lesion at ear, nose, throat, eye and upper GIT that could explain the previously mentioned symptoms.

After her admission in NIMH, she developed further bleeding episode for 5 times. On observation each episode started with oozing of blood from face, forehead behind ears and trunk and persisted for 2 to 3 minutes which subsided spontaneously without leaving any bleeding point, scar or injury mark from bleeding areas and each bleeding episode was painless. During bleeding episodes blood was collected using cotton swab and microscopic examination of the specimen revealed the same component as normal human blood which also came positive after benzidine test. Biopsy done during remission revealed an unremarkable epidermis, capillary sized vessels with RBC in their lumen in the dermis along with papillary dermal edema and dermal melanophages. Special stains to detect hemosiderin (prussian blue) was positive. During psychosocial evaluation the girl was alert, well oriented, comprehended and communicate relevantly. No psychotic symptom was elicited. She was euthymic and reactive. Her intelligence was within normal limit. When enquired about her school and scholastic performance her affect changed immediately. She became anxious and expressed fear about examination as well as academic performance. She had some sort of perfectionist trait since childhood. She had no recent or past history of physical or sexual abuse.

Analysis of stress with response to stress Questionnaire- Child/Adolescent version showed that child was definitely stressed. The girl fulfilled the criteria of mixed anxiety and depressive disorder apart from his bleeding problem. She had given Tab. Propranolol (20 mg) three times daily, Tab. Sertraline (100mg) daily at morning, Tab. Clonazepam (0.5 mg) daily at night and advised psychotherapy such as counseling, relaxation technique and cognitive behavioral therapy (CBT) to reduce the stress. There was complete subsidence of bleeding after 7 days and then she was discharged with advice for regular follow-up and psychotherapy at every 15 days interval in our outpatient department.

## Discussion

Hematidrosis is a condition in which capillary blood vessels that feed the sweat glands rupture, causing them to exude blood and occurs under conditions of extreme physical and emotional stress.<sup>5</sup> One author proposed the term "hematofolliculohidrosis" because it appears along with sweat fluid and blood exude via the follicular canals.<sup>6</sup> Various causative factors, like it being component of systemic disease, vicarious menstruation, excessive exertion, psychogenic, psychogenic purpura and unknown causes have been suggested.<sup>1</sup> Acute fear and in time mental contemplation are the most frequent causes, as reported in six cases in men condemned to execution, a case occurring during the London Blitz, a case involving fear of being raped, a case of fear of a storm while sailing etc.<sup>6</sup> In another Indian case report, the probable cause for hematidrosis was chronic stress, as the other causes were ruled out by detailed investigations.<sup>7</sup> Hysterical mechanism and psychosomatic disorders are also believed to induce bleeding.<sup>6</sup> psychogenic purpura is supposed to be caused by hypersensitivity to the patient's own blood on autoerythrocytic sensitization and is characterized by repeated crops of ecchymosis, gastrointestinal bleeding and hematuria.

Another type of bleeding through skin is psychogenic stigmata; a term used to signify areas of scars, open wounds or bleeding, through the unbroken skin, Patients belonging to this group were found to be frequently neurotic. The clinical findings of this type are a slight elevation of skin before prolonged oozing of blood; a pea sized bluish discoloration on patient's palms and erysipelas like lesions. In another study, a patient developed bleeding from her old scar whenever she had severe anxiety.<sup>6</sup>

The extravasated blood has identical cell components as of peripheral blood. The severe mental anxiety activates the sympathetic nervous system to invoke the stress-fight or flight reaction to such a degree as to cause hemorrhage of the vessels supplying the sweat glands into the duct of sweat glands. Effect on the body is weakness and mild to moderate dehydration from the severe anxiety and blood and sweat loss.<sup>8</sup>

It has recently been proposed that there may be some defects in the dermis causing stromal weakness. These defects will communicate with vascular spaces in the dermis and they will eventually dilate and enlarge as blood filled spaces when the blood comes in. After that, they will exude the blood out by either via follicular canals or directly onto the skin surface and thus will occur whenever the positive pressures inside is enough. Later they will collapse leaving no scar. This phenomenon acts like a balloon waxes and wanes and thus explains why these bleeding episodes are sometimes intermittent and self-limiting. Immediate biopsy is important because a biopsy done after these spaces collapsed will not help in identifying them.<sup>6</sup> One study revealed some intradermal bleeding and emphraxised (obstructed) capillaries. No abnormality was found in sweat gland, hair follicle and sebaceous gland. They concluded that pathological basis for hematidrosis might be a distinctive vasculitis.<sup>8</sup> In this child no underlying systemic disease was found. Intense physical and psychosocial stressor such as physical exertion, long journey, examination fear, parental conflict all are responsible for spontaneous bleedings. Recursion was achieved with pharmacotherapy, supportive psychotherapy and relaxation technique.

## Conclusion

Both physical and mental stresses are important contributory factors which manifest in different forms, both physically and psychologically. In this girl apart from causing mental distress immediately, it also acts as an important epigenetic factor for hematidrosis. Successful treatment of this condition with beta blocker,<sup>8</sup> anxiolytic,<sup>8</sup> and antidepressant<sup>8</sup> are mentioned in the literature along with psychotherapy.

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