

Prevalence of psychiatric disorder in Bangladesh

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Summary

The prevalence of psychiatric disorders is on rising trend in the country. This two stage nationwide multicentric community based cross sectional study was conducted by National Institute of Mental Health (NIMH), Dhaka during the period of September 2017 to July 2018 to determine the prevalence of psychiatric disorders and to identify common types of psychiatric disorders as well as to find out the physical illness in Bangladesh. In the first stage 19800 respondents in 140 clusters aged between 7 years and above were approached by the trained data collectors with standard printed questionnaires to collect information. Among them 19692 respondents were finally interviewed. Diagnoses of psychiatric disorders were made in the second stage of interview by research psychiatrists following DSM 5 diagnostic criteria of psychiatric disorders. The results showed that, the prevalence of psychiatric disorders was found 13.7% among population 18 years and above and 17.3% below 18 years of age. Division wise prevalence of adult psychiatric disorders were 15.5% in Rajshahi, 14.8% in Rangpur, 14.7% in Khulna, 14.2% in Dhaka, 13.8% in Chittagong, 13.6% in Sylhet and 13.0% in Barishal. Among total diagnosis of psychiatric disorders major depressive disorder were 24.8%, somatic symptom disorder 15.9%, generalized anxiety disorder 13.9%, neurodevelopmental disorders were 10.5%, schizophrenia spectrum and other psychotic disorders 4.7%, conduct disorder 4.7%, bipolar and related disorders 3.7%, obsessive compulsive disorder 3.1%, conversion disorder 1.8%, enuresis 1.3% and dementia 1%. Data of this community survey will be used for planning of mental health services in Bangladesh

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Introduction

Psychiatric disorders constitute a public health problem which have serious negative consequence on existence.¹ Low and middle income countries have higher burden of psychiatric disorders than economically developed countries.^{2,3} Psychiatric disorders is a multidimensional phenomenon in which physicians, sociologists, psychologists, legalists and other experts deal with different aspects of the problem.⁴ Psychiatric disorder patients had a higher relative risk of death than the general populations had died at much younger ages and lost decades of potential life.¹

Acknowledgement of risk and protective factors as well as their interrelations enables definement of risk groups and development of prevention programs. Development of evidence based model of planning requires data in country's sociocultural context. A few previous nation wide studies with large and representative samples of the population in whole of Bangladesh

was so far conducted. Survey with representative samples addressing all types of psychiatric disorders was needed to provide empirical data upon which policy response to drug problems could be based. Proper strategies and planning could be developed to address the issues by understanding the magnitude and pattern of substance use among population in the country. So, taking into consideration all relevant findings, this survey attempted to determine the prevalence of psychiatric disorders and to identify common types of psychiatric disorders as well as to find out the physical illness in Bangladesh.

Materials and methods

This two stage nationwide multicentric community based survey was conducted by National Institute of Mental Health (NIMH), Dhaka, a government institute during the period of September 2017 to July 2018. The study was cross sectional in nature and sampling technique was cluster sampling technique. In the first stage 19800 respondents in 140 clusters aged between 7 years

and above were approached by the trained data collectors with standard printed questionnaires to collect information. The cluster sites were selected randomly with probability proportionate to size (PPS) of population in all seven divisions. As population of the study was not taken from all mauzas of the rural area and all mahallas of urban area, some mauzas and mahallas were selected randomly as clusters. In each division the whole population was stratified in rural and urban areas. In urban areas Mahallas and in rural areas Mauzas were selected randomly as primary sampling unit (PSU). Each PSU was considered as a cluster which was again synonymous with a selected mahalla or mauza. Thus numbers of PSUs selected in each division were equal to the allotted number of clusters. The allotted numbers of clusters in each division with PPS are given below.

Table 1: Allotted number of clusters in each division⁵

Division	Population size	Allotted cluster
Rajshahi	1,84,84,858	18
Khulna	1,56,87,759	15
Barishal	83,25,666	8
Dhaka	4,74,24,418	46
Sylhet	99,10,219	10
Chittagong	2,84,23,019	28
Rangpur	1,57,87,758	15
Total	14,40,43,697	140

Then each randomly chosen Mahalla or Mauza (cluster or PSU) was divided arbitrarily into segments. One forty two (142) samples in one segment were calculated by dividing the total sample size 19800 by 140 clusters. The number of segments for each Mahalla or Mauza (cluster or PSU) was determined by dividing the total population of the Mahalla or Mauza by 142. Then one segment containing 142 populations from each chosen Mahalla or Mauza (cluster or PSU) was selected randomly for interview. Diagnoses of psychiatric disorder were made in the second stage of interview by research psychiatrists following DSM 5 diagnostic criteria of psychiatric disorders.⁶ All males and females aged 07 years and above living in the selected segments of Mahalla or Mauza (cluster or PSU) during study period were included in the study population. Those, who or whose guardian refused to be included in research and those were suffering from severe physical illnesses were excluded. People living in residential structures like hostels or dormitories were not included in the survey. Data were collected in two stages. In the first stage, all of 142 respondents from a randomly selected segment of a cluster were interviewed through household to household visit. The final sampling unit was household in the study area. Household or participants refusing

to participate in the survey or people not available for interview during at least 2 visits were excluded. In each of these cases replacement was made from next household. If next one was missed then the household or case/s was/were considered as dropped out. A total of 19800 respondents from 140 clusters were approached by data collectors for interview. Self Reporting Questionnaire (SRQ)⁷ and Reporting Questionnaire for Children (RQC)⁸ questionnaires were pretested, adapted and used in national survey on mental health⁹ and community survey on child psychiatric disorders including substance abuse respectively¹⁰. These questionnaires were applied among study population. The sociodemographic questionnaires used in the survey were pretested and necessary modifications were done before applying on final samples. A total of 19800 respondents were approached for interview in first stage in order to identify probable cases and probable noncases. In the second stage of study systemic random sampling technique was adopted for screen negative cases. The sampling interval was 4 for screen negative cases. When search for true cases was made, all screen positive and every fourth screen negative respondents were interviewed by research psychiatrists to find out the true cases psychiatric disorders. If 4th respondent of screen negative cases was not found the 3rd or 5th respondent was included for interview. If any of the screen positive cases or 3rd or 5th respondent in the screen negative cases was not available for interview even after recall for twice then the case was assumed as dropped out. Research psychiatrists remained blind about the result of screening instruments to reduce the risk of bias. Data collectors guided them to interview the cases. Diagnoses of psychiatric disorders were confirmed following DSM-5 criteria for the purpose. After proper editing data were coded; subsequently data were entered in the computer for summarization. Descriptive statistics of the collected data was done using standard statistical parameters. Statistical package for social sciences (SPSS) 23 was used to summarize and to analyze the data. Associations between variables were tested as required and statistical tests were applied to examine the significance of differences in distributions of substance use in the background of different socio-demographic factors. Ethical clearance was taken from Bangladesh Medical Research Council (BMRC). Ethical issues and confidentiality was maintained at every stage of data collection for every individual.

Results

In the first stage 19800 respondents in 140 clusters were approached by the trained data collectors to collect information. Among them 19692 respondents were finally interviewed. Prevalence of psychiatric disorders was found 13.7% among adult population (18 years and above) and 17.3% among children (7 years to 17 years) (Figure 1).

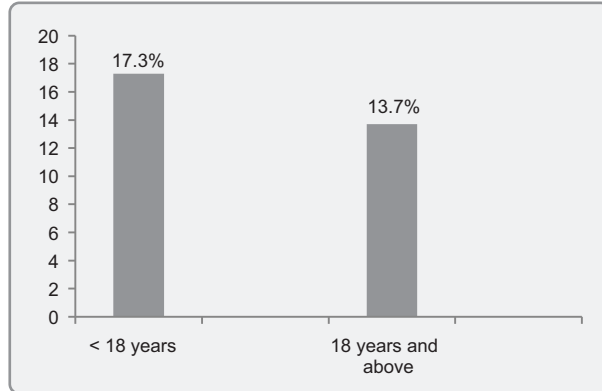


Figure 1: Prevalence of psychiatric disorders below 18 years and above 18 years of age (n=19692)

Highest prevalence of psychiatric disorders was reported in Rajshahi division (15.5%) followed by Rangpur (14.8%), Khulna (14.7%), Dhaka (14.2%), Chittagong (13.8%), Sylhet (13.6%) and Barishal division (13.0%) (Table 2).

Table 2: Division wise prevalence of psychiatric disorders (n=19692)

Categories	Psychiatric disorder		p value
	Yes	No	
Dhaka	14.2%	85.8%	p=.344
Chittagong	13.8%	86.2%	
Sylhet	13.6%	86.4%	
Khulna	14.7%	85.3%	
Rajshahi	15.5%	84.5%	
Rangpur	14.8%	85.2%	
Barisal	13.0%	87.0%	

Prevalence of psychiatric disorders were found higher among female (18.9%) than male (10.3%), among rural (14.6%) than urban (13.2%) among Hindu (17.0%) than other religious groups (Table 3).

Highest prevalence of psychiatric disorders was found in age group 53 years and above (22.9%) followed by 7 years to 12 years (18.5%) and 13 years to 17 years (16.0%) (Table 4).

Table 3: Distribution of psychiatric disorders according to sociodemographic criteria (n= 19692)

Characteristics	Categories	Psychiatric disorder		Statistic
		Yes	No	
Age	< 18 Years	17.3%	82.7%	Fisher's Exact
	18 Years and above	13.7%	86.3%	Test=.000
Sex	Female	18.9%	81.1%	Fisher's Exact
	Male	10.3%	89.7%	Test=.000
Urban-Rural	Urban	13.2%	86.8%	Fisher's Exact
	Rural	14.6%	85.4%	Test=.015
Types of family	Extended family	14.1%	85.9%	Fisher's Exact
	Nuclear family	14.4%	85.6%	Test=.263
Marital status	Yes	14.3%	85.7%	Fisher's Exact
	No	14.3%	85.7%	Test=.943
Religion	Islam	13.9%	86.1%	p = .000
	Hindu	17.0%	83.0%	
	Christian	6.9%	93.1%	
	Buddhism	8.7%	91.3%	

Table 4: Prevalence of psychiatric disorder according to age group (n=19692)

Age groups in years	Psychiatric disorder	
	Yes	No
7-12	18.5	81.5
13-17	16.0	84.0
18-22	10.4	89.6
23-27	11.8	88.2
28-32	12.4	87.6
33-37	12.7	87.3
38-42	11.6	88.4
43-47	14.5	85.5
48-52	14.7	85.3
53 and above	22.9	77.1

Highest prevalence of psychiatric disorders was found in illiterate (17.9%), unemployed (24.8%), house wife (19.5%) and domestic workers (25.6%) (Table 5).

Table 5: Distribution of psychiatric disorders according to education and occupation (n= 19692)

Characteristics	Categories	Psychiatric disorder	
		Yea	No
Education	Illiterate	17.9%	82.1%
	Institutional education	12.8%	87.2%
	Non-institutional education	18.6%	81.4%
Occupation	Unemployed	24.8%	75.2%
	Businessman	7.9%	92.1%
	Farmer	8.3%	91.7%
	Service	7.9%	92.1%
	Housewife	19.5%	80.5%
	Domestic worker	25.6%	74.4%
	Labor	11.4%	88.6%
	Student	14.3%	85.7%
	Others	18.9%	81.1%

In terms of presence of physical illness, 91.1% of the respondents answered that, they had no physical illness or they didn't know about their physical illness.

Major depressive disorder (24.8%) was the commonest diagnosis among the respondents diagnosed with psychiatric disorders followed by somatic symptoms disorder (15.9%), anxiety disorders (13.9%), neurodevelopmental disorders (10.5%) and conduct disorder (4.7%) (Table 6).

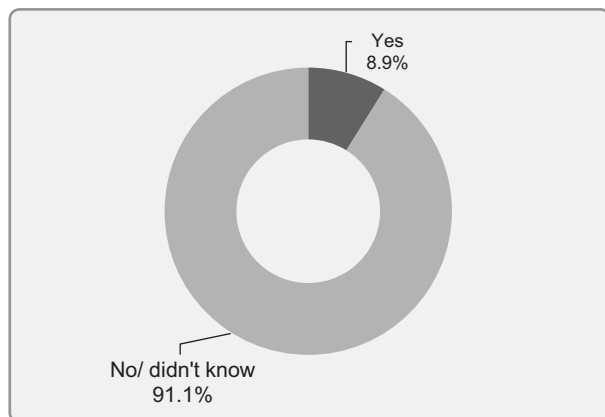


Figure 2: knowledge about presence of physical illness of the respondents (n=19692)

Table 6: Types and percentages of specific psychiatric disorders among the respondents diagnosed with psychiatric disorder (n=2807)

Types of psychiatric disorders	Percentages
Neurodevelopmental disorders	11.8
Bipolar and related disorders	3.7
Schizophrenia spectrum and other psychotic disorders	4.7
Depressive disorders	24.8
Delusional disorder	1.0
Dementia	1.0
Conduct disorder	4.7
Generalized Anxiety disorder	13.9
Somatic symptom disorder	15.9
Adjustment disorder	1.2
Premature ejaculation	1.4
Obsessive compulsive disorder	3.1
Substance use disorder	2.9
Antisocial personality disorder	1.0
Conversion disorder	1.8
Erectile dysfunction	1.8
Panic disorder	2.8
Insomnia disorder	2.6
Specific/social phobia	0.9
Borderline personality disorder	0.8
Acute stress disorder	0.8
Others	1.0
Total	100

Discussion

In the first stage, 19800 respondents in 140 clusters aged 7 years and above were approached by the trained data collectors for collecting information. Finally 19692 individuals (99.45%) were interviewed. Majority of the missed respondents in the first stage stage of interview was mainly because of refusal of guardians and respondents to take part in the study, absence of samples in the house and houses found under lock. Recalls for three consecutive times were made as required to reduce non response. There were 4970 screen positive cases (25.24%) and 14722 screen negative cases (74.76%). All screen positive cases and every fourth screen negative cases were approached by research psychiatrists for diagnosis. But among screen positive cases 4667 and screen negative cases 3250 individuals could be interviewed in the second stage of interview. So, total numbers of samples interviewed in the second stage by research psychiatrists were 7917. Drop out in the second stage of interview was mainly due to absence of respondents in the house who were initially interviewed, denial to be interviewed, fleeing out of home because of shyness, fear of

being exposed and caught in legal system. It was well realized that data in relation to substance use was either not available or difficult to capture. Recalls for three times were also made in the second stage also. Psychiatric interview in the second stage of interview was conducted within two weeks of the completion of first screening stage of interview. Diagnoses of psychiatric disorders were made in the second stage of interview by research psychiatrists following diagnostic criteria of DSM 5.⁶ DSM-5 was a globally accepted valid instrument for diagnosis of psychiatric disorders specially when it was applied by expert clinicians. Research psychiatrists employed for this survey were experienced and they were intensively trained specially on application of DSM-5 in the field survey. DSM criteria was used in different studies in Bangladesh including national survey on mental health in 2005⁹ and child mental health survey in 2009.^{9,10}

Prevalence of psychiatric disorders found in adult population (13.7%) in current study was different from the finding among adults (16.1%) in 2005.⁶ It might be due to the lack of knowledge about psychiatric disorders, unfamiliarity and social obligatory for assertion of the psychiatric symptoms. In other hand prevalence of psychiatric disorders found in child population (17.3%) of the country was not markedly different from the figures found among children (18.05%) in 2009.¹⁰ No significant differences among prevalences of adult psychiatric disorders in different divisions of the country was found. Among diagnosed psychiatric disorders major depressive disorder (24.8%), somatic symptom disorder (15.9%), generalized anxiety disorder (13.9%), and neurodevelopmental disorders (10.55) were the most frequent diagnosis which are also in consistent with findings of previous studies in the country.^{9,10} Among child psychiatric disorders, neurodevelopmental disorders (NDDs) were found to have a significant level of prevalence which supported the ongoing government initiatives for addressing the issue of autism and other NDDs with priority approach. Many mental disorders were associated with an increased risk of later substance use conditions.¹¹ Study results showed that secondary substance use disorders might be reduced substantially through the prevention of primary mental disorders.¹¹

The greater susceptibility of women to mental disorders might be attributed to a variety of gender specific factors such as biological (neuroendocrine) vulnerability, specific life events like pregnancy, menstruation and menopause and gender specific roles like mothering and associated stress.¹²⁻¹⁴ The difference between mental morbidity among male and female in the study might be further explained by male dominance in the society and high incidence of domestic violence in the country. A study of rural households in the country found that 38% of women was beaten by their husbands.¹⁵ The problem might be higher in rural and urban slum areas. Female characteristics such as increased reporting by female might be also an explanation.

There were some limitations of the survey. The families of the patients of mental disorders were stigmatized and discriminated in the society. Collecting information with self reporting questionnaire always carried the risk of underreporting of the problems. The impact on spouse, children and other family members were significant. Tabular and graphical presentation of data and chi square analysis of the data showed association of sociodemographic factors with psychiatric disorder in the country. We were therefore confident that within the possible margins of error, profile of psychiatric disorder we had reported reflects the exact profile of psychiatric disorder in Bangladesh.

Conclusion

It could be concluded that, national representation of population was ensured in this study and generalization of study findings was valid and acceptable. Findings of this community survey would be used for planning of mental health services in Bangladesh. Measures taken by the government to address the issue of psychiatric disorder should be supported by the evidences generated from this research.

References

1. Colton CW, Manderscheid RW. Congruencies in Increased Mortality Rates, Years of Potential Life Lost, and Causes of Death Among Public Mental Health Clients in Eight States. *Prev Chronic Dis* 2006;3(2):A42.
2. Bass JK, Bornemann TH, Burkey M, Chehil S, Chen L, Copeland JR, et al. A United Nations General Assembly Special Session for Mental, Neurological, and Substance Use Disorders: The Time Has Come. *PLoS Med* 2012;9(1):e1001159.
3. Hock RS, Or F, Kolappa K, Burkey MD, Surkan PJ, Eaton WW. A new resolution for global mental health. *Lancet* 2012;379(9824):1367-8.
4. Oetting E, Donnermeyer JF. Primary socialization theory: the etiology of drug use and deviance. *Subst Use Misuse* 1998;33:995-1026.
5. Hoq KMM, Azad AK, Wazed MA. Bangladesh Bureau of Statistics. *Statistical Year Book Bangladesh* 2015.
6. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 5th ed. Arlington, VA: American Psychiatric Association; 2013.
7. Harding TW, De Arango MV, Baltazar J, Climent CE, Ibrahim HHA, Ignacio LL, et al. Mental disorders in primary health care: A study of their frequency and diagnosis in four developing countries. *Psychol Med* 1980;10:231-41.
8. Giel R, Arango MVD, Climent MCE, Harding MTW, Ibrahim MHHA, Ladrado-Ignacio ML, et al. Childhood mental disorders in primary health care: Results of observations in four developing countries using Reporting Questionnaire for Children (RQC): WHO collaborative study on strategies for extended mental health care. *Pediatrics* 1981;68:677-83.

9. Firoz AHM, Karim E, Faruq A, Mustafiz AHM, Zaman MM. Prevalence, medical care, awareness and attitude towards mental illness in Bangladesh. *Bang J Psychiatry* 2006;20(1).
10. Rabbani MG, Alam MF, Ahemd HU, Sarker M. Prevalence of mental disorders, mental retardation, epilepsy and substance abuse in children. Survey report 2009, National Institute of Mental Health, WHO, Dhaka.
11. Swendsen J, Kevin P, Conway. Mental disorders as risk factors for substance use, abuse and dependence: Results from the 10 year follow up of the national comorbidity survey. *Addiction* 2010;105(6):1117-28.
12. Harpham T. Urbanization and health in transition. *The Lancet* 1997;349:11S-13S.
13. Cochrane R, Stopes-Roe M. Factors affecting the distribution of psychological symptoms in urban areas of England. *Acta Psychiatr Scand* 1980;61:445-60.
14. Vazquez-Barquero JL. Mental health in primary care settings. In: Goldberg D, Tantom D (editors). *The public health impact of mental disorders*. Toronto. Hogrefe and Huber Publishers. 1990; 35-40.
15. Schuler SR, Hashemi SM, Riley AP, Akhter S. Credit program. Patriarchy and men's violence against women in rural Bangladesh. *Soc Sci Med* 1996;43:1729-42.