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NATURE AND CAUSE OF TAKING PSYCHOTROPIC DRUGS: A CROSS-SECTIONAL HEALTH SURVEY IN NORTHERN REGIONS OF BANGLADESH

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ABSTRACT: A health study was conducted in Northern Region of Bangladesh to determine the prevalence and cause of taking psychotropic drugs. The health survey was involved 615 patients who are taking psychotropic drugs and found 63.58% patient is male and 36.42% is female. The majority of patients are student (45.65%), housewife (19.02%) and service holder (13.33%). The age of patients is 15 - 24 years 35.93% and 25 - 34 years 31.38%. Supreme cause of taking psychotropic drug is tension 25.37%, depression 18.21%, sleeping disorder 10.56% and pain 10.24%. The patients are taking anxiolytic drug (59.02%), antipsychotic drug (19.84%) and antidepressant drug (20.65%). The food habit of the patient's shows that their preferred food is sour (16.26%), sweet (31.87%), spiced (23.58%), meat (47.97%) and soft drinks (30.41%). Among the patients, 31.06% are addicted to narcotics and 38.04% are smokers. It is alarming that about 35.77% of the patients are taking this type of drug without the concern of physician which might cause serious adverse effects. It also found that there is limited patient counselling, only 31.71% patients are getting sufficient counselling from doctor and 52.20% patients get sufficient counselling from their family member.

INTRODUCTION: The making and taking of psychotropic drugs, whether on medical prescription or as self-medication, whether marketed by pharmaceutical companies or clamored for by an anxious population, has been an integral part of the twentieth century¹⁻². In this modern era of speed, uncertainty, pleasure and anguish the boundaries between healing and enhancing the mind by chemical means have been redefined once and again³⁻⁴.

The idea and practice of taking psychotropic's not to treat a mental illness but to make them feel better about living in a modern world. Insufficiently vigorous pursuit of pleasure and material reward due to an inability to cope with a speedy and tense society was recognized as a medical problem⁵. As a treatment for this condition a combination of dexamphetamine and amylobarbitone became extremely popular in America, Britain and the Netherlands⁶.

Not only in psychiatric practice but within medicine as a whole, synthetic drugs like chloral hydrate and subsequently the barbiturates became widely used, in dealing with common symptoms from insomnia to anxiety and the vapors^{2,7-8}. The relative high pricing of the barbiturates did not prevent them from becoming the most popular

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hypnotics and sedatives of the first half of the twentieth century. This was not only due to the successful efforts of the pharmaceutical industry to project a modern scientific image on the barbiturates but also to due to the dependency of those drugs.

The prevalence of psychotropic drug use in the general population varies greatly between countries: 3.5% in England⁹, 6.4% in Chile¹⁰, 7.2% in Canada¹¹, and 10.6% in Australia¹². The consumption of psychotropic drugs is increasing in industrialized countries, in France 25% of the general population taking a psychotropic, and in UK (3.5%), Germany (5.9%), Netherlands (7.4%), Belgium (13.2%), Italy (13.7%), and Spain (15.5%) patients are taking psychotropic drug¹³⁻¹⁵. Hypnotic drug use in 0 - 17 year olds also increased during 2007 - 2011, from 8.9 to 12.3 per 1000 in Norwegians¹⁶. In the United States, lifetime, annual and monthly prevalence of non-medical use of psychotherapeutics (mostly pain relievers) among persons aged 12 and over was reported as 20.4, 6.3 and 2.7 per cent, respectively, for 2010¹⁷.

In South America and Central America, use of tranquilizers and sedatives, lifetime prevalence is 6.6 per cent for females and 3.8 per cent for males, while the corresponding prevalence rates in Europe were 13.0 per cent for females and 7.9 per cent for males¹⁸. Elsewhere, a school survey conducted in 2009 - 10 in Morocco found that lifetime, annual and past-month prevalence of the use of psychotropic substances without a prescription exceeded that of cannabis among females aged 15 - 17, Similarly, there is an evident preference for psychotropic drugs among females 15 - 16 years old in Algeria, which exceeds not only cannabis use but also alcohol and tobacco use¹⁹.

Deaths resulting from illicit drugs use, most of which are premature and preventable, are clearly the most extreme manifestation of the harm that can result from the illicit use of drugs. Definitions and methods of recording drug related deaths vary by country but comprise some or all of the following: unintentional overdose, suicide, AIDS acquired through the sharing of contaminated drug paraphernalia and trauma (such as motor vehicle accidents caused by driving under the influence of illicit drugs)²⁰. Approximately 1 in every 20 deaths

among persons aged 15 - 64, is drug-related deaths, in North America and Oceania. In Asia, they account for approximately 1 in 100 deaths, in Europe 1 in 110, in Africa 1 in 150 and in South America approximately 1 in every 200 deaths²¹.

Mental health expenditures from government health department are very insignificant and are less than 0.5% in Bangladesh. Of all the expenditures spent on mental health, 67% are devoted to mental hospital. There are 31 community-based psychiatric inpatient units available in Bangladesh, for a total of 0.58 beds per 100,000 populations. The total number of human resources working in mental health facilities or private practice per 100,000 populations is 0.49 in Bangladesh²². In terms of support for child and adolescent health, no primary and secondary school has either a part-time or full-time mental health professional or no primary and secondary school has school-based activities to promote mental health and prevent mental disorders. At present many students are taking psychotropic drugs such as sedative and anti-anxiolytic drugs during their examination to remove tension.

MATERIALS AND METHODS:

Setting and Design: This cross-sectional health survey was carried out with a self-designed standard questionnaire by directly interviewing the 615 patients. Six districts of Rajshahi division were selected for collecting the data for over nine month's period from May, 2015 to January, 2016. Rajshahi is located in the north-west of Bangladesh **Fig. 1** and the divisional headquarters of Rajshahi Division as well as the administrative district, having an estimated population of 2,595,197. Its total area is 2,407.01 km² (929.35 sq mi) and is situated on the northern banks of the river Padma²³.



FIG. 1: MAP OF RAJSHAHI DIVISION

Another big city Bogra, sometimes described as the nerve centre of Northern Bangladesh, and a bridge between Rajshahi Division and Rangpur Division. The area of the district is approximately 2,898.68 km² (1,119.19 sq mi), and Covers a Population of 3,400,874 people²⁴. Naogaon, one of the old city of Bangladesh consists of 2,600,157 people and has area of 3,435.65 km² (1,326.51 sq mi)²⁵. Another city Natore, which is bordered by Naogaon and Bogra districts to the north, Pabna and Kushtia districts to the south, Pabna and Sirajganj districts to the east, Rajshahi district to the west, has an area of 1896.05 km² (733.67 sq mi) and total population of 1,706,673²⁶.

Sirajganj is the gateway to the North Bengal, and it has area of 2,497.95 km² (964.46 sq mi) and total population is 3,097,489. It is bordered on the north by Bogra District and Natore District; on the west by Natore District and Pabna District; on the south by Pabna District and Manikganj District; on the east Manikganj District, Tangail District and Jamalpur District²⁷. Chapai Nawabganj is located on the north-western part of Bangladesh. The north and west part of Chapai Nawabganj is bounded by Malda and Nadia of India, east is by Naogaon and south-east is by Rajshahi district. It has total area of 1,702.55 km² (657.36 sq mi) and population of 1,647,521²⁸. In this health survey, any patient who was prescribed one or more psychotropic drugs at any stage during this study is included in this survey.

The main objectives of the research was to find out the prevalence of taking psychotropic drug and identify the major psychiatric disease, determine the age and gender that are most vulnerable of taking this types of drugs, determine the relationship between psychosis with smoking, alcoholism, food habits, internet using / computer

usage and to identify whether any relationship exist between psychosis with suicide and effects of parents or family relationship on a person.

Data Collection: Data were collected from the patients by random selecting the patients from hospital, pharmacies and by home visit. The data collectors were waiting in front of the pharmacy shop, or medical college and convince the patients who are possessing psychotropic medication in their prescription to produce their prescription data to the interviewers as well as participated in the interview session. The language of the questionnaire was English which is translated to Bengali language by the data collectors to the participants whom mother tongue is Bengali language. The Bengali answers given by the respondents translated to the English languages in the same way by the data collectors. Written consent was taken from each patient during this study. Few questionnaires were excluded during the data analysis because of insufficient information.

Statistical Analysis: Descriptive statistics were applied to the collected data using Microsoft Excel 2013 software.

RESULTS:

Patient Characteristics: During the 9 months period, 615 patients of psychosis were questioned in Rajshahi Division, Bangladesh. Baseline characteristics of the patients are presented in **Table 1**. The study included 224 female and 391 male patients. The majority patient with age is 15 - 34 years. The duration of taking psychotropic drug varies usually 2 - 3 days to 6 years but there are some patients who take psychotic drugs more than 6 years. Most of the patients are moderate user with 2 weeks to 2 month is their duration.

TABLE 1: BASIC PATIENT CHARACTERISTICS

Characteristics		Patients 615 (100%)
Sex	Male n (%)	391 (63.58%)
	Female n (%)	224 (36.42%)
Age	<15 n (%)	10 (1.63%)
	15-24 n (%)	221 (35.93%)
	25-34 n (%)	193 (31.38%)
	35-44 n (%)	80 (13.01%)
	45-54 n (%)	69 (11.22%)
	55-64 n (%)	20 (3.25%)
	>65 n (%)	22 (3.58%)
Medical abnormality		30 (4.88%)

Cause	Addiction	10 (1.63%)
	Tragedy/depression	112 (18.21%)
	Pain	63 (10.24%)
	Anxiety/tension	156 (25.37%)
	Excitement	5 (0.81%)
	Sleep disorder	65 (10.57%)
	Mental/psychotic problem	15 (2.44%)
	Gastric problem	20 (3.25%)
	Family history/genetic	18 (2.93%)
	Other	121 (19.67%)
Duration	<1 week	40 (6.50%)
	1-2 week	78 (12.68%)
	2 week-1 month	111 (18.05%)
	1-3 month	145 (23.58%)
	3-6 month	50 (8.13%)
	6 month-1 year	56 (9.11%)
	1 year-3 year	58 (9.43%)
	3-6 year	45 (7.32%)
	>6 year	32 (5.20%)

Patient’s Lifestyle: Usually students are the potent customer of taking psychotropic drug but lonely housewives are also suffering psychosis. The most common cause to being a psychiatric patient is

tragedy, anxiety, depression, sleep disorder and recovery from pain **Table 2.** The sleeping time and computer usages does not gives any indicator of being psychosis.

TABLE 2: PATIENT’S LIFESTYLE

Characteristics		Patients 615 (100%)
Occupation	Agrarian	50 (8.13%)
	Student	281 (45.69%)
	Businessman	52 (8.46%)
	Service holder	82 (13.33%)
	Unemployed	12 (1.95%)
	Housewife	117 (19.02%)
	Worker	21 (3.41%)
Character	Self-centered	172 (27.97%)
	Shared	240 (39.02%)
	Rude	124 (20.16%)
Going to bed	Polite	79 (12.85%)
	8.00-10.00 PM	159 (25.85%)
	10.00 PM-12.00 AM	239 (38.86%)
	12.00 -2.00 AM	74 (12.03%)
	2.00-4.00 AM	117 (19.02%)
Wake up	>4.00 AM	26 (4.23%)
	6.00AM	248 (40.33%)
	6.00-8.00 AM	287 (46.67%)
Sleeping hour	8.00-10.00 AM	65 (10.57%)
	10.00 AM -12.00 PM	15 (2.44%)
	<5 hours	55 (8.94%)
	5-6 hours	194 (31.54%)
	7-8 hours	252 (40.98%)
	9-10 hours	100 (16.26%)
	11-12 hours	14 (2.28%)
>12 hours	0 (0.00%)	
Internet/Facebook/Computer	No	333 (54.15%)
	Up to 2 hours	126 (20.49%)
	3-4 hours	124 (20.16%)
	5-6 hours	23 (3.74%)
Suicide	More than 6 hours	9 (1.46%)
	Committed	76 (12.36%)
	Not committed	539 (87.64%)

Patient's Food Habit: The patients are likely to take all types of food but meat is more preferable **Fig. 2**. The patient does not show direct correlation with coffee, tea or alcohol **Fig. 3**. About 30 - 40% of patients are smoker **Fig. 4** and also involved in addiction to narcotics **Fig. 5**.

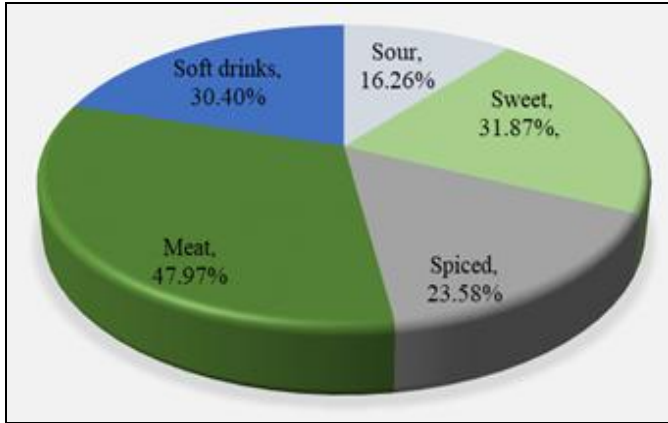


FIG. 2: PREFERRED FOOD OF PATIENTS

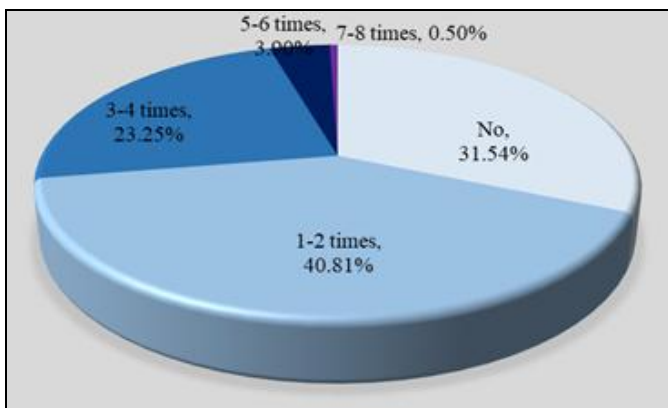


FIG. 3: PATIENT'S TAKING COFFEE, TEA OR ALCOHOL

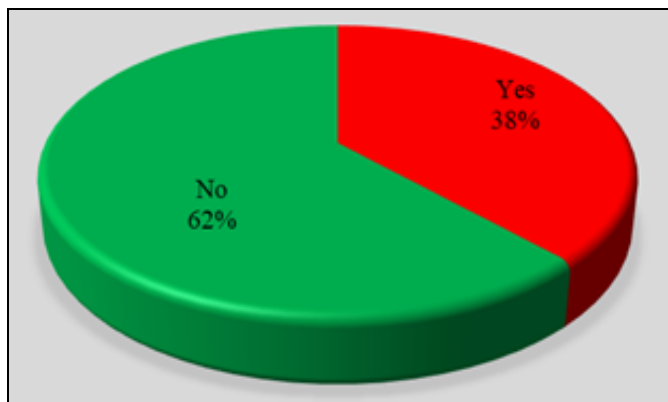


FIG. 4: PATIENT USED TO SMOKING

Social Factor: A large number of patients are taking this type of drug without the concern of physician and only one third of the patients who are going to the doctor gets a good counselling **Table 3**. About one fourth of the patient lives in a family

where a friendly family environment is not exist and about half of the patients are not getting mental support from their family members.

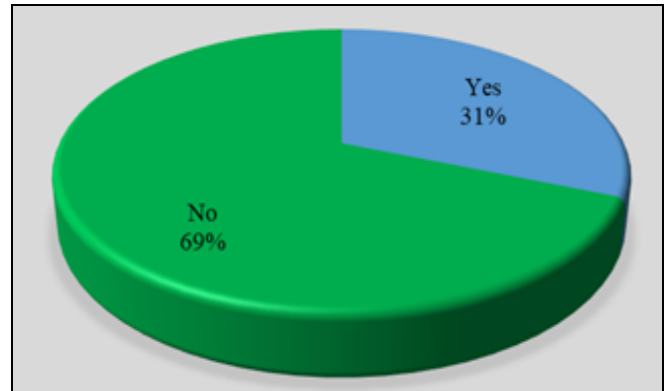


FIG. 5: PATIENT USED TO NARCOTICS

Prescribed Therapeutic Drug: The patients are mainly taking anxiolytic drug but they also take antidepressant and antipsychotic drug **Fig. 6**.

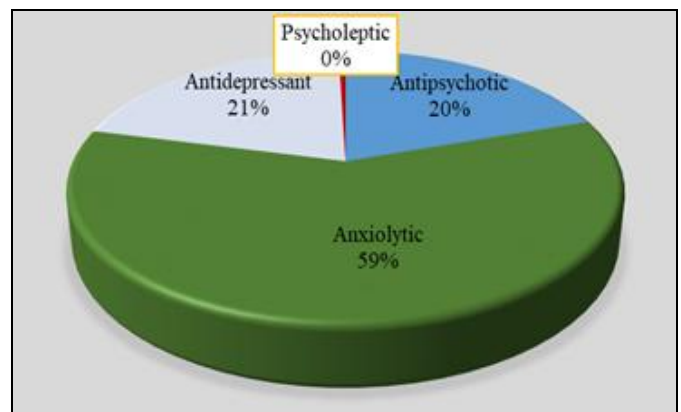


FIG. 6: PRESCRIBED THERAPEUTIC DRUGS

TABLE 3: SOCIAL FACTORS RELATED TO THE PATIENT

Characteristics		Patients 615 (100%)
Type of doctor	MBBS	312 (50.73%)
	Quack	80 (13.01%)
	Herbal	3 (0.50%)
	Self-medication	220 (35.77%)
Counselling by doctor	Sufficient	195 (31.71%)
	Insufficient	175 (28.46%)
	Not application	220 (35.77%)
Guardian	Concerned	461 (74.96%)
	Unconcerned	152 (24.71%)
	Not applicable	2 (0.33%)
Family relationship	Good	458 (74.47%)
	Bad	155 (25.20%)
	Not applicable	2 (0.33%)
Guardian counselling	Good	321 (52.20%)
	Bad	292 (47.48%)
	Not applicable	2 (0.33%)

DISCUSSION: To our knowledge, this survey represents the first psychotropic study report in the Bangladeshi population which directly relates psychosis with occupation, character, sleeping, food habit, and family relationship. The study involved a total number of 615 patients who are taking psychotropic drugs and native of Rajshahi division of Bangladesh. Our study group comprised of 63.58% male and 36.42% female of which 45.65% are student, 19.02% housewife, 13.33% service holder, and other profession such as agrarian, businessman, unemployed and workers are also exist.

Most of the patients are young to middle aged with 15 - 24 years 35.93%, 25 - 34 years 31.38% which is due to large number of students and service holders. Patients with 35 - 44 years consists 13.01% and 45 - 54 years consists 11.22%. Hassan L *et al.*, (2014) published similar results and found that in England, 29.4% patients are between 18 - 24 years, 29% patients between 25 - 34 years, 20.3% patients 35 - 44 years, 12.8% patients 45 - 54 years, 5% patients 55 - 64 years and 2.6% patients 65 - 74 years old²⁹. The patients are taking psychotropic drug due to anxiety/tension 25.37%, depression 18.21%. The tension is arises due to exam, stress of life *etc.* Depression is due to various tragedies such as love tragedy, admission tragedy, breakup with partner, death of life partner and parents. Sleeping disorder and pain is also common cause of taking psychotropic drug comprising 10.56% and 10.24% respectively. Pain mainly arises during surgery and from other source such as broken of hands and leg, piles *etc.*

The patients are also taking psychotropic medicine due to various medical abnormality such as allergy, angina, ischemic shock, palpitation, and vertigo. Gastric problem like nausea, vomiting and anorexia is also cause of taking psychotic drugs. Duration of psychiatric therapy consists of less than 1 week to more than 6 years. Most of the patients are taking drugs 1 - 3 months 23.58% followed by 2 weeks to 1 month 18.05%.

The majority of the patients were managed by anxiolytic drug (59.02%), antipsychotic drug (19.84%), antidepressant drug (20.65%) and psycholeptic drugs (0.49%). Similar results was published in previous study, where antipsychotic

drug use lies between 18 - 23% and antidepressant use between 21 - 51%²⁹⁻³². The higher rate of use of anxiolytic drug in this study is mainly due to tension, anxiety and sleep disorder.

In personal life 27.97% patients are self-centered and 20.16% patients are rude but 39.02% patients are shared and 12.85% patients are polite. The patients like all types of food such as sour (16.26%), sweet (31.87%), spiced (23.58%), meat (47.97%) and soft drinks (30.41%). Usually 31.54% patients takes no coffee, tea or alcohol, while 40.81% patients takes 1 - 2 times and 23.25% patients takes 3 - 4 times every day. There is large proportion of patients are addicted to narcotics (31.06%) and 38.04% patients are smokers. Similar data was reported by Petroianu *et al.*, (2000) and found 35% of tobacco smoking in Brazil³³.

The patients are going to bed at proper time and wake up early in the morning, which indicated that there is no relations exist between sleeping habit and psychosis. About 25.85% patients are going to bed between 8.00 to 10.00 PM and 38.86% patients are going to bed between 10.00 PM to 12.00 AM. Approximately 40.33% patients wake up before 6.00 AM and 46.67% patients are wake up between 6.00 AM to 8.00 AM. The average hour of sleeping is 7 hours. More than half of the patients are not used internet, Facebook or computer and 12.36% patients are trying to suicide in any stage of their life.

More than one-third (35.77%) of the patients are taking this type of drug without the concern of physician which might cause various side effects such as dependence or accidentally over dose may cause serious toxicity or even death. The patients who are going to doctor does not even get sufficient counselling, only 210 of 395 patients (about 46%) who are going to doctor gets sufficient counselling. Family is a very potent source of mental satisfaction and can provide mental support to a person in stressed conditions. About one-fourth of the patients family, there is not friendly family relationship exist. In almost three-fourth of the patients (74.96%), guardians are aware about their family member's psychiatric problem but only 321 of 461 patients (69.63%) gets sufficient counselling from their guardians.

Our study has several limitations, such as, the data presented here is based on retrospective analysis. Secondly, the number of patients was relatively small. And lastly the study was conducted for only Northern regions of Bangladesh, which may vary from the results of other parts of the country.

CONCLUSION: It can be concluded that males are more affected in psychosis and most of the patients are in age between 15 - 34 years old. Among various profession, students, housewives and service holders are mostly affected group. Students are taking psychotropic drugs due to exam phobia and stressful life. The patients are taking psychotropic drug due to depression or tragedy (which arise from breakup with partners and favoured person), tension, pain and sleeping disorder. More than 10% of patients, who are taking psychotropic drugs are attempted to suicide in any stage of their life.

A large number of patients are smoker and addicted to narcotics. In one in three patients are taking medication without physician concern and large number of patients are not getting sufficient concern from their guardians and existence of bad family relationship is also a cause of being psychotropic patient.

ETHICAL CONSIDERATIONS: The study was conducted following the general principles (section 12) of WMA declaration of Helsinki. This survey based research is also logistically supported by the Department of Pharmacy, Varendra University, Rajshahi. The human subjects involved in this study did not use any hazardous agents and samples were not collected from them. As the human subjects only participated in the interview, this survey based research didn't take any further approval from institutional ethics committee.

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COMPETING INTEREST: The research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest. The authors declare that they have no competing interests.

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