

# MASS PSYCHOGENIC ILLNESS AMONG LEARNERS AT JAFORABAD HIGH SCHOOL, IN HATHAZARI, CHITTAGONG, BANGLADESH

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## **Abstract:**

**Objectives:** Mass psychogenic illness involves people with real symptoms that are often triggered by misunderstood or false information. We investigated symptoms of sharing among 15 learners at a high school in Hathazari, Chittagong districts of Bangladesh.

**Methods:** In 4th August, 2007, a student of 8<sup>th</sup> grade of Jaforabad high school noticed feverish feeling in his classroom, and soon thereafter he had a headache, nausea, vertigo, tingling sensation of limbs and burning sensation of the body. Within an hour another 14 learner of different grade suffers same symptoms except fever. An investigation was performed by several government agencies.

**Results:** We were unable to find a medical or environmental explanation for the reported illnesses. The persons who reported symptoms came from 10 classrooms scattered throughout the school. The most frequent symptoms were headache, vertigo, nausea, and abdominal pain. Blood and urine specimens of admitted 3 learners showed no evidence of organic illness. A questionnaire administered two days later show that the reported symptoms were significantly associated with female sex, seeing another ill person and knowing that a classmate was ill.

**Conclusions:** This illness, had features of mass psychogenic illness — notably, widespread subjective symptoms thought to be associated with psychosocial impact.

**Key words:** Mass psychogenic illness, learners.

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## **Introduction:**

Mass psychogenic or sociogenic illness and transient situational disturbance, was first described over 600 years ago, and it has been reported in a variety of cultures and settings<sup>1</sup>. Epidemics of psychogenic illness often attract intense media attention and may have profound public health, social, and economic repercussions<sup>2</sup>. Mass psychogenic illness typically affects adolescents or children, groups under stress and females disproportionately more than males. Symptoms often follow an environmental trigger or illness in an index case. They can spread rapidly by apparent visual transmission, may be aggravated by a prominent emergency or media response, and frequently resolve after patients are separated from each other and removed from the environment in which the outbreak began<sup>3</sup>.

## **The Incidence:**

Approximately 25 minutes after arriving at the Jaforabad high school on Saturday, August 4th, 2007, a student of 8<sup>th</sup> grade noted 'feverish-like' feeling in his classroom; shortly thereafter he experienced vertigo, headache, nausea, burning in body, tingling sensation in limbs and dizziness. Similar symptoms soon developed in several students in his room. As the classroom was being evacuated, more students of different grades reported symptoms, and high grades of the school became panic area. Emergency medical personnel from nearby health complex, naming Hathazari, rushed to the school within half an hour. The student who first reported symptoms (index case) and two other students were transported to the hospital by taxi, in view of other students

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and teachers. Classes were canceled for the high grade from 6<sup>th</sup> to tenth grade, and that day, a total 15 learners went to the Headmaster room reported symptoms they believed were associated with exposure at the school; 3 of these learners were admitted to the hospital for observation overnight. The index student was among those hospitalized, but no explanation for his symptoms was found. Over the next two days, the school was examined by the Staff of health department including Consultant of Medicine and Upazilla Health and Family Planning Officer(UHFPO), the Local Education Officer, and state officials of the Upazilla Nirbahi Officer, none of whom could detect a problem. The school was closed for 3 days.

On Monday, August 6<sup>th</sup>, the non admitted students were called in the school for the purpose of questionnaire. A questionnaires was already prepared on 4<sup>th</sup> August during the incidence day. On the morning of August 6<sup>th</sup>, while waiting for interview, several students of those affected reported symptoms severe enough that Consultant Of Medicine and UHFPO were called, and the learners were reexamined and complete recovery of all sufferers were seen within half an hour. The Headmaster called numerous government agencies including Local Government Engineerind Department(LGED), Upazilla Environment Officer, Upazilla administrating Department and an extensive environmental and epidemiologic investigation was undertaken. In this article we report the results of that investigation.

#### **Methods :**

This was a descriptive study based on observation and survey questionnaires on the affected victims and simultaneous observation in a control group of learners in same school. The observation and survey was done on 6<sup>th</sup> August, two days after the original incidence in school premises. The questionnaires were prepared on 4<sup>th</sup> August after the incidence happened in school. The

corresponding author prepared the questionnaires while taking care of three victim admitted in Hathazari Health complex on 4<sup>th</sup> august. The headmaster was asked by the Upazilla Health authority to bring back all the sufferers affected on 4<sup>th</sup> august and also other learners who were not affected on 6<sup>th</sup> August at school premises. The corresponding author, THFPO and Upazilla Nirbahi Officer all were present in school premises for purpose of identifies the aetiology of the incidence. No sooner the learners came to the school on 6<sup>th</sup> August, the affected victims of 4<sup>th</sup> August start feeling unwell and soon 8 out of 12 victims started pseudoseizure and unconsciousness follows. The medicine consultant of Hathazari Upazilla Health complex was there instance and immediately manage these 8 learners who immediately regain consciousness with counseling. It is to be mentioned here that among total 15 sufferers, three were still admitted in Health complex and rest 12 were in school premises. The learners at the affected schools were grouped by the teachers into those who were affected and those who were not affected. All 12 sufferers on 4<sup>th</sup> August and 12 healthy students of same class of VIII were selected for questionnaires.. Two doctor interviewed the learners in Bangla and local language using a questionnaire guide that had been designed to elicit symptoms, thoughts and feelings about the symptoms, what made the symptoms feel better and what seemed to exacerbate it. The learners were also asked how they got to know about the illness, what else happened when they were in and out of school. The case series are recorded in preformatted description methods. The questionnaires are composed of demography, their thoughts. physical symptoms, psychological impact, the relief feeling and also few questions on intervention. The intervention undertaken was counseling, physical examination, plenty of fluids and in 3 cases intravenous fluids.

The initial investigation involved identifying cases of illness (defined as two or more learners having headache with at least one key presentation in same school believed to be associated with exposure at the school) and determining the epidemiologic and clinical characteristics of the affected group. Symptomatic persons were identified by examining records from the school, and the local health department. Three learners of admitted case were also contacted for interviews and for blood and urine testing. Blood specimens were collected in nonsiliconized glass tubes and dry plastic tubes. Urine was collected in sterile containers and freshly examined. Chest x ray was carried out in the admitted group. All learners and their relatives have given written consent before interview. All data are analyzed in EP info 6 manual and describe in percentage and number. The control groups showed 100 percent normal responses in questionnaires and thereby not described in result section.

**Results:** The questionnaires were analyzed and the information gathered during the interviews grouped into four themes, physical symptoms, social impact, psychological effects and interventions.

#### *Incidence of symptoms:*

The incidence of Symptoms in the schools was similar. The learners seemed to be aware of which grade was the first to be affected in the school. The symptoms were experienced as soon as the learners entered the school premises. Six percent of sufferers reported symptoms at home. Learners who first reported the symptoms (the index case) mainly concerning feverish feeling and headache and vertigo was taken to the Headmaster's office. Sixty percent learners went to observe what was happening to index case and then their own symptoms started. Twenty percent reported that the symptom started when they watched others become ill in the classroom, or at the hospital.

#### *Physical Symptoms:*

The symptoms started after they got entered their classroom at 1<sup>st</sup> period started with headache, then vertigo, abdominal pain, pins and needles, dizziness, chest tightness were amongst the symptoms reported. (Table1). Symptoms were reportedly worse when sixty percent sufferer were brought to Headmasters

office and any liquid was applied. This, they agreed was due to abnormal feeling after seeing someone ill and which doesn't having any etiology. The 93% sufferers feel of extreme fear that something danger happens to them and they will succumb to death if not cared off.

#### *Social Impact:*

The symptoms were perceived to be contagious; this resulted in rejection by school authority and society. Some parents refused to let them play with the other siblings or friends. Non sufferers thought that although there were 20 percent cases who really were affected while rest were shamming.

#### *Psychological Effects:*

Fear of being affected was reported by most(84%) who had experienced any symptoms and this caused some anxiety. They felt they were not responsible for their condition. Rumours abounded as to what the cause of the symptoms were. Satanism was blamed for the symptoms in 6 out of 15 sufferers while 9 others said there were some undetermined danger object in the country which started in Dhaka districts and now flown to other parts of the country.(Table1) There were rumours that two learners had serious illness but this was never verified. It appears that the source of some of the rumours, were members of the school stuffs who phoned the local press and encourage the media to discuss the event.

#### *Intervention Strategy:*

Hundred percent of the affected learners were treated with plenty of fluids as the day was humid and hot and all of them felt thirsty as well. 5 of them were also given Oral Rehydration Saline (ORS) as well as 3 sufferer received intravenous sugar containing fluid. seven patients reported drinking the Juices Fluid mixture while 8 reported physical examination make them better (Table1). At the hospitals some learners were given IV fluids and minor tranquilizer. Faith healers used prayer to intervene, but 4 learners reported that prayer made the symptoms worse. Eighty five percent learners felt comfortable at home and friendly environment and 7 of them felt relieved at cool air.

In August 2007, the Jaforabad school had 552 students(Primary and High grade) and 330 of them were from 6<sup>th</sup> to tenth grade and school

**Table-I**

*Reported Symptoms and Psychosocial impact and Intervention in the Initial Group of 15 Affected Persons in Jaforabad High school in hathazari*

Physical Symptoms	Social Impact	Psychological Effects	Intervention
<ul style="list-style-type: none"> <li>• Vertigo</li> <li>• Headache</li> <li>• Nausea</li> <li>reassurance</li> <li>• Pins and Needles</li> <li>• Vomiting</li> <li>• Abdominal pain</li> <li>• Chest Tightness</li> <li>• Crying</li> <li>• Bodyache</li> <li>• Burning sensation of body</li> </ul>	<ul style="list-style-type: none"> <li>• Rejection by friends</li> <li>• Rejection by teachers and the Public</li> </ul>	<ul style="list-style-type: none"> <li>• Fear</li> <li>• Anxiety</li> <li>• Sadness</li> <li>• Anger</li> <li>Self activity</li> <li>• Cognitive Impairment (unable to concentrate in class)</li> <li>• Belief systems challenged</li> <li>• Restlessness</li> <li>• Hyperventilation</li> </ul>	<ul style="list-style-type: none"> <li>• Plenty of fluids</li> <li>• Sugar containing fluids</li> <li>• Regular</li> <li>• Introduction of</li> <li>• Prayers</li> <li>• Physical examination</li> <li>• Home and family involvement</li> <li>• Cool Air</li> </ul>

stuff was 10 person including 9 teachers. The primary section was established in 1987 and building was done by LGED in 1995- 96. The high school was established in 1993 in same area of Rahimpur village. The property was located 4km outside the Hathazari upazilla with a population of approximately 2222 persons.

At the time of the study, clinical information was available for 15 persons who reported symptoms that they believed were associated with exposure at the high school on or after August 4<sup>th</sup>, 2007. Blood and urine specimens were collected at the health department from 3 persons. The average age of the patients were 13.73 yrs (range 12-17 yrs) and most (86.7%) are students of VII<sup>th</sup> and VIII<sup>th</sup> grade (46.7% and 40% respectively) Fifty- three percent of the affected persons were female (Table 2), as compared with 56 percent of the overall population of students and staff at the school (P<0.01). A wide variety of symptoms were reported; the most common were headache (93.3%), Vertigo (86.7%), nausea (80%), abdominal pain (46.7%), burning

sensation of the body (40%) chest tightness (33%), and body ache (33%). Although only one of the affected persons reported fever, a temperature over 37.7°C (100°F) was seen only for 6 hours according to the medical record. Most symptoms resolved quickly with the administration of oxygen or the removal of the person from the school. None of the persons admitted to the hospital for observation overnight had complications, and all of them were discharged on the day after following.

Of the 15 ill learners who responded to an open-ended question about what they thought had caused the illness, only one (6.7% percent) believed that exposure to fumes or other toxic substances at the school had caused his symptoms, and 13 (86.6% percent) were not sure; one learner (6.7% percent) ascribed their symptoms to other causes (Table 2). Ill persons in the initial group (3 patient) reported the onset of symptoms in at least 9 different locations throughout the school, including 6 classrooms, which were served by several independent air-handling systems. Nine persons reported that they had become ill while

in classroom, four outside the class room, and two during evacuating class room and taking towards Headmaster's room.

Of the 3 persons evaluated at the local upazilla health complex, all test results were normal. Complete blood counts and chemistry profiles were obtained in these three learners; in all cases, the results were normal. The index case had fever 37.7°C (100°F for 6 hours and thereafter no documented fever was observed. All three admitted case had complete recovery without any neurological or psychological deficit.

**Table-II**

*Characteristics and Reported Symptoms in the 15 Affected Persons*

Characteristics or Symptoms	Number of patients (percentage)
<b>Sex</b>	
Male	7(46.7%)
Female	8(53.3%)
Student	15(100%)
Reported an odor	1(6.7%)
<b>Symptoms</b>	
Vertigo	13(86.7%)
Hedache	14(93.3%)
Nausea	12(80%)
Vomiting	3(20%)
Burning sensation of body	6(40%)
Bodyache	5(33%)
Abdominal pain	7(46.7%)
Difficulty in breathing	2(13.3%)
Cough	3(20%)
Chest tightness	5(33%)
Crying	5(33%)
Tingling of limbs	6(40%)
Restlessness	4(26.7%)
Fever	1(6.7%)
Neck Pain	1(6.7%)
Tremor all over body	2(13.3%)
Leg pain	1(6.7%)
Weakness	1(6.7%)
Itching	1(6.7%)
Something coming out of skin	1(6.7%)

Percentage may not sum because of rounding. Many affected person have more than one symptoms

**Discussion:**

Commonly in sudden and dramatic situations such as these where there is widespread illness whose causes are obscure or unknown, chemicals that are present in the environment in minute concentrations are summarily and misguidedly targeted as likely culprits. Outbreaks often involve acute onset and rapid spread of symptoms with minimal physical or abnormal laboratory findings (except those associated with hyperventilation). Person-to-person spread within minutes has been called pathognomic of this illness<sup>4</sup>. The incidents often occur after an environmental event or trigger, such as an odor,<sup>1,2,5,6,7</sup> and are frequently preceded by an index patient's illness and a prominent response by emergency personnel to the event or illness<sup>1,2,5,8,9,10</sup>. Reported outbreaks affect females disproportionately more often than males, and frequently involve adolescents or children<sup>2</sup>. In Jaforabad incidence outbreaks slightly involves more female than male learners(53% versus47%) but there was no primary section cases although they remain in same school and despite observing the incidence. Illness can spread through exposure to audiovisual cues<sup>11,12</sup> and by "line-of-sight" transmission. The latter term refers to the apparent spread of symptoms among persons who see others become ill. The present study is consistent with line of sight and audiovisual cues as 11 out of 15 learners presented in such way. Symptoms can recur in the setting of the initial outbreak<sup>11</sup>. Media coverage frequently escalates such outbreaks<sup>11,13,14,15</sup>. In the present study initially the media describe incidence as mass hysteria with extensive coverage but as orientation regarding illness was carried out quickly to media, there was silence from them and there was no cases on reopen of the school. Information on the diagnosis of mass psychogenic illness is incomplete. Whether such psychosocial factors as school morale affect the likelihood of it developing is unknown. The Jaforabad school where the mass psychogenic illness developed in 2007 is reportedly in a poor neighborhood.

The same could be said of the neighborhoods in which the incidents of similar illness were reported, in the Dhaka districts. Mass Psychogenic illness, should be regarded as a phenomenon with certain Characteristics<sup>16</sup>

1. First, it is an outbreak of abnormal illness behaviors that cannot be explained by physical disease.
2. Secondly, it affects people who would normally not behave in this fashion.
3. Thirdly, it excludes symptoms deliberately provoked in groups gathered.
4. Anxiety is always present but is not a prominent feature. Mass psychogenic illness covers outbreaks demarcated by the phenomena of anxiety, Headache, nausea, vertigo abdominal pain, chest tightness, fainting, hyperventilation etc.

With any approach to mass psychogenic illness, the goal should be to restore the community to normal functioning as quickly as possible. Prompt public identification of episodes of mass psychogenic illness has been advocated as an important step in terminating them<sup>8</sup>.

Once the diagnosis is determined, reassuring patients is the primary therapy. Separating them can be beneficial<sup>9,10</sup>. Most patients experience rapid resolution of symptoms once they are removed from the environment in which the outbreak started. In treating individual patients, it is important to acknowledge that although no toxic cause of their illness has been identified, the person's symptoms are real. A diagnosis of mass psychogenic illness is not equivalent to saying that the symptoms are just "in the patient's mind." It is also important to emphasize that mass psychogenic illness affects normal, healthy persons and does not imply underlying psychopathology. In any approach to mass psychogenic illness, a prompt, coordinated response is important in resolving widespread community anxiety surrounding these episodes. Health care personnel are often unprepared to handle this intense anxiety. Physicians should discuss the diagnosis of mass psychogenic illness with colleagues to

gain support for subsequent actions. Promptly notifying emergency response and public health personnel, and openly discussing with them the reasoning behind and appropriate handling of such a diagnosis, are critical in effectively and consistently responding to such emergencies<sup>16</sup>.

The learners in our study reported symptoms, such as fear of being affected. These could be associated with anxiety. The illness was sudden, dramatic and explosive. The learners were mostly affected at school. The spread appears to have been definitely by line of sight - they developed symptoms when they saw others having illness. There is no evidence of any preexisting tension and the majority of the learners were female, under the age of sixteen. When the Headmaster set limits, no further outbreaks were reported. It seems evident that the current incidence in Jaforabad high school is anxiety driven Mass psychogenic illness.

#### **Conclusion:**

It appears that what is common in all reported cases of mass psychogenic illness is the transmission of the outbreak along "line of sight". Those who never witness the outbreak are never involved. This phenomenon is described as an explosive spread. The episodes are always benign in nature, lasting no more than a few hours. Further episodes may occur in a similar explosive fashion within a few days, but only if the group recongregates.

Recommended Intervention: Researchers on Mass psychogenic illness seem to agree that, cases of Mass psychogenic illness should be handled thus<sup>18</sup>:

1. Time should not be wasted in a fruitless search for environmental precipitants, which by reinforcing behavior may serve to prolong the episode. The illness should not be a diagnosis of exclusion, after all the physical, chemical and biological factors have been ruled out then it should be made.
2. Group anxiety should be reduced.
3. Those in authority should make statements denying the role of the presumed agent. Public health statements can help terminate these epidemics. A temporary

school closure may be necessary separating learners and minimizing contact among those affected and those not affected may be successful. This strategy was adopted by one of the headmasters in the affected schools and no further reports of symptoms were received.

4. Setting of limits. The headmasters in our study, set limits to the symptoms and told those who were still having symptoms to stay at home until it stopped and they will not be appeared in examination until it stopped.
5. It seems clear that because of the psychological nature of this epidemic, only psychological interventions will be effective. Trying to find an organic cause for the epidemic will not only waste valuable time but scarce resources as well.

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