Protean nature of mass sociogenic illness

From possessed nuns to chemical and biological terrorism fears

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Background Episodes of mass sociogenic illness are becoming increasingly recognised as a significant health and social problem that is more common than is presently reported.

Aims To provide historical continuity with contemporary episodes of mass sociogenic illness in order to gain a broader transcultural and transhistorical understanding of this complex, protean phenomenon.

Method Literature survey to identify historical trends.

Results Mass sociogenic illness mirrors prominent social concerns, changing in relation to context and circumstance. Prior to 1900, reports are dominated by episodes of motor symptoms typified by dissociation, histrionics and psychomotor agitation incubated in an environment of preexisting tension. Twentieth-century reports feature anxiety symptoms that are triggered by sudden exposure to an anxiety-generating agent, most commonly an innocuous odour or food poisoning rumours. From the early 1980s to the present there has been an increasing presence of chemical and biological terrorism themes, climaxing in a sudden shift since the 11 September 2001 terrorist attacks in the USA.

Conclusions A broad understanding of the history of mass sociogenic illness and a knowledge of episode characteristics are useful in the more rapid recognition and treatment of outbreaks.

Declaration of interest None.

Mass sociogenic illness refers to the rapid spread of illness signs and symptoms affecting members of a cohesive group, originating from a nervous system disturbance involving excitation, loss or alteration of function, whereby physical complaints that are exhibited unconsciously have no corresponding organic aetiology. In the standard psychiatric nomenclature, mass sociogenic illness is subsumed under the general heading of 'somatoform disorder', subcategorised as 'conversion disorder' or 'hysterical neurosis, conversion type' (American Psychiatric Association, 1994).

BACKGROUND

Mass sociogenic illness is an underappreciated social problem that is both underreported and often a significant financial burden to responding emergency services, public health and environmental agencies and the affected school or occupation site, which is often closed for days or weeks (Jones *et al*, 2000). The typical study of mass sociogenic illness is written by health care professionals who briefly review the contemporary literature and add a singular episode in which they were inadvertently involved. Although hundreds of books and articles have appeared on the historical aspects of individual hysteria (see Micale, 1995), excluding the voluminous literature on medieval dance manias and tarantism, there is a paucity of books and articles assessable in English on detailed historical aspects of mass sociogenic illness (Madden, 1857; Hirsch, 1883; Small, 1896; Burnham, 1924; Rosen, 1968; Markush, 1973; Sirois, 1974; Bartholomew & Sirois, 1996, 2000; Boss, 1997). Given this situation, it is easy to lose sight of the dynamic, protean nature of mass sociogenic illness and its historical and transcultural manifestations, which mirror popular social and cultural preoccupations that define each era and reflect unique social beliefs about the nature of the world.

Wessely (1987) identifies two types of mass sociogenic illness – 'mass anxiety hysteria' and 'mass motor hysteria'. The former is of shorter duration, typically one day, and involves sudden, extreme anxiety following the perception of a false threat. The second category is typified by the slow accumulation of pent-up stress, is confined to an intolerable social setting and is characterised by dissociation, histrionics and alterations in psychomotor activity (e.g. shaking, twitching, contractures), usually persisting for weeks or months.

THE MIDDLE AGES

Prior to the 20th century, most reports of mass sociogenic illness involved motor hysteria incubated by exposure to long-standing religious, academic or capitalist discipline. Between the 15th and 19th centuries, exceedingly strict Christian religious orders appeared in some European convents. Coupled with a popular belief in witches and demons, this situation triggered dozens of epidemic motor hysteria outbreaks among nuns, who were widely believed to have been demonically possessed. Episodes typically lasted months and in several instances were endured in a waxing and waning fashion for years. Histrionics and role-playing were a significant part of the syndrome. Young girls typically were coerced by elders into joining these socially isolating religious orders, practising rigid discipline in confined, all-female living quarters. Their plight included forced vows of chastity and poverty. Many endured bland near-starvation diets, repetitious prayer rituals and lengthy fasting intervals. Punishment for even minor transgression included flogging and incarceration. The hysterical fits appeared under the strictest administrators. Priests were summoned to exorcise the demons, and disliked individuals often were accused of casting spells and were banished, imprisoned or burned at the stake. Witchcraft accusations also were a way to settle social and political scores under the guise of religion and justice. These rebellious nuns used foul and blasphemous language and engaged in lewd behaviour: exposing genitalia, rubbing private parts or thrusting hips to denote mock intercourse (Calmeil, 1845; Garnier,

1895; Loredan, 1912). Community members often attended the spectacles in a daily theatre-like atmosphere while priests would try to exorcise the demons. An outbreak was recorded in the USA at an Ohio convent as recently as 1880 (Davy, 1880).

The number and descriptions of these complex episodes of demon possession in nunneries are remarkable. There are more than 100 books alone on the outbreaks at Loudun, France, between 1632 and 1634, where Father Urbain Grandier purportedly bewitched a convent into hysterical fits and was burned alive (Huxley, 1952; de Certeau, 1970). On rare occasions, nuns were executed for bewitching other members of their religious orders. In 1749, in one of the last recorded cases of its kind, abnormal movements and trance states affected the Unterzell convent near Würzburg, Germany. Suspicion of witchcraft fell on a Sister Maria von Mossau who was beheaded (Robbins, 1966). Major convent outbreaks were recorded in Lyons in 1526, Wertet in 1550, Kintorp in 1552, Cologne and Flanders in 1560, Oderheim in 1577, Mons in 1585, Milan in 1590, Aix in 1609, Lille in 1613, Madrid in 1628, Chinon in 1640, Louviers in 1642, Auxonne in 1662 and Toulouse in 1681 (Calmeil, 1845; Madden 1857; Robbins, 1966). At Cambrai, France, in 1491 a group of nuns exhibited fits, yelped like dogs and foretold the future, and in Xante, Spain, in 1560 nuns 'bleated like sheep, tore off their veils [and] had convulsions in church' (Robbins, 1966: p. 393). At one French convent, 'the nuns meowed together every day at a certain time for several hours together' (Hecker, 1844: p. 127). During this period it was widely believed that humans could be possessed by certain animals considered to be potential demonic familiars, and in France cats were despised for this reason (Darnton, 1984), possibly explaining the 'meowing nuns'. The recipe for these outbreaks seems to have been long-standing anxiety, which engendered dissociation and hypersuggestibility – with the content of their delusions reflecting the *Zeitgeist*.

In modern-day Malaysia, under similar conditions, outbreaks of motor hysteria affect adolescent Muslims sent by their parents or guardians to socially isolated all-female religious boarding schools. One episode in the remote state of Kedah affected 36 girls over a period of 5 years. Native healers (*bomohs*) were summoned intermittently to exorcise demons. Symptoms included crying fits, screaming, abnormal movements, possession states and histrionics. The battle with autocratic administrators climaxed in 1987 when, during an outbreak, the desperate girls took hostages at knife-point and demanded changes. No one was hurt and the girls, claiming impunity through possession, were not held legally accountable. The episode ended after an ex-Prime Minister met with the girls and oversaw their transfer to a liberal school (Bartholomew, 2000: pp. 192–193).

THE 18th TO THE EARLY 20th CENTURY

During the 18th, 19th and early 20th centuries and the realisation of the industrial revolution, harsh working conditions and weak or non-existent labour unions led to mass motor hysteria outbreaks in oppressive Western job settings, typically factories. Episodes were recorded in England, France, Germany, Italy and Russia and included convulsions (Franchini, 1947), abnormal movements (Bouzol, 1884) and neurological complaints (Schatalow, 1891; Bekhtereff, 1914). The industrial revolution was notorious for child labour, low wages and appalling conditions. The first recorded outbreak in a job setting occurred in England at a Lancashire cotton mill in February 1787, involving violent convulsions and sensations of suffocation among one male and 23 female workers (St Clare, 1787). The episode occurred 2 years after Edmund Cartwright invented the power-loom, revolutionising the textile industry (Sirois, 1982). The absence of similar motor hysteria reports in Western countries during the second half of the 20th century may result from union gains and more rigorous occupational health and safety regulations. The disappearance of reports in the former Soviet Union may reflect the rise of anti-capitalist and, more recently, Western-type political systems (Bartholomew & Sirois, 2000).

During this same period strict academic discipline in many European schools, especially Germany, Switzerland and France, triggered outbreaks of motor hysteria involving convulsions (Armainguad, 1879; Hagenbach, 1893), contractures (Regnard & Simon, 1887), trembling (Laquer, 1888; Wichmann, 1890) and laughing (Rembold, 1893). In 1893, a girls' school in Basel, Switzerland, was affected by contagious shaking and convulsions involving female students who were unable to complete in-school written assignments. Symptoms subsided after school hours, relapsing only upon re-entering school grounds (Aemmer, 1893). In 1904, the same school reported a similar outbreak (Zollinger, 1906). At Gross-tinz, Germany, between 28 June and mid-October 1892, hand tremors affected the entire body and 8/20 victims exhibited altered consciousness and amnesia (Hirt, 1893). At a school in Chemnitz, Germany, in February 1906, arm and hand tremors in female elementary students appeared during their writing exercise hour. The symptoms began in two pupils but gradually spread to 21 females over 4 weeks (Schoedel, 1906). The pupils performed all other manual tasks normally, including gymnastics class. Electric shocks were administered to those affected, and during their writing period demanding drills in mental arithmetic were given; the symptoms ceased soon after.

Some school episodes during this period appear to have been relatively minor, short-lived and unrelated to academic discipline (Small, 1896), such as left arm paralysis in four girls at a London school in February 1907. A girl with infantile palsy of the left arm fractured her right arm. She returned to class several weeks later and 'within a few days three children had lost the use of their left arms, and a fourth . . . had such severe pains in her left arm that she held it to the side and could not be persuaded to use it' (Kerr, 1907: p. 32).

During the 20th century, epidemic hysteria episodes were dominated by environmental concerns over food, air and water quality, especially exaggerated or imaginary fears involving mysterious odours. Outbreaks had a rapid onset and recovery and involved anxiety hysteria. Unsubstantiated claims of strange odours and gassings were a common contemporary trigger of MSI outbreaks in schools (Philen *et al*, 1989; Selden, 1989; Cole, 1990; Krug, 1992; Taylor & Werbicki, 1993; Small *et al*, 1994). A typical incident occurred in August 1985, when 65 students and a teacher at a Singaporean secondary school were suddenly stricken with chills, headaches, nausea and breathlessness. A battery of environmental and medical tests were negative. The episode began when several pupils detected an unusual smell, and occurred amid a preexisting rumour that a gas had infiltrated the school from a nearby construction site. Investigators

found 'that those who accepted the idea succumbed, and those who were indifferent to it were immune' (Goh, 1987: p. 269). This report is similar to a mystery gas at a Hong Kong school a few years earlier, affecting over 355 students aged 6–14 years. Before the outbreak there were rumours of a recent toxic gas scare at a nearby school. Several teachers had even discussed the incident with their pupils – some to the point of advising them on what action to take if it should hit their school (Tam *et al*, 1982).

On 8 July 1972 in Hazelrigg, England, stench from a pigsty may have triggered an outbreak of stomach pain, nausea, faintness and headache at a schoolchildren's gala (Smith & Eastham, 1973). That same year, headache and overbreathing affecting 16 pupils at a school in Tokyo, Japan, was traced to a pungent smog (Araki & Honma, 1986). A 1994 episode of breathing problems among 23 students in a female dormitory at an Arab school in the United Arab Emirates was triggered by a 'toxic fire' that turned out to be the harmless smell of incense (Amin *et al*, 1997). The perceived threatening agent must be seen as credible to the affected group. On any given school day, a fainting student would not be expected to trigger mass sociogenic illness. Yet, if this occurred during the 1991 Persian Gulf war, and it coincided with the detection of a strange odour in the building, many of the native schoolchildren might exhibit sudden, extreme anxiety after assuming that it was an Iraqi poison gas attack. A similar episode was reported at a Rhode Island elementary school during the Gulf War, coinciding with intense publicity about chemical weapons attacks on Israel and the possibility of terrorist attacks on the USA (Rockney & Lemke, 1992).

Strange odours also were a common 20th century trigger of epidemic anxiety hysteria in job settings (Colligan & Murphy, 1979; Boxer *et al*, 1984; Boxer, 1985), with environmental pollutant fears leading to lost productivity time from data processing centres (Stahl & Lebedun, 1974; Stahl, 1982) to telephone offices (Alexander & Fedoruk, 1986), electronic assembly plants (Colligan *et al*, 1979) and a compressor factory (Sinks *et al*, 1989). An outbreak of breathing problems in male military recruits at their California army barracks in 1988 happened when the air was laden with a heavy odour from brush fires and mistaken for toxic fumes. A chance event combined to worsen the situation. Some recruits were 'resuscitated' in the early confusion because medics had wrongly assessed their conditions to have been more serious. These factors created more anxiety and further breathing problems. A study of the incident showed that those seeing the 'resuscitations' or witnessing others exhibit symptoms were three times more likely to report symptoms (Struewing & Gray, 1990).

CHEMICAL AND BIOLOGICAL WARFARE

During the 20th century, strange odours and the presumed presence of toxic gases also were commonly blamed in episodes of mass hysteria that spread to communities (Johnson, 1945; McLeod, 1975; Christophers, 1982; Gamino *et al*, 1989; David & Wessely, 1995; Radovanovic, 1995), occasionally involving the fear of chemical and biological weapons. On 22 April 1915, German soldiers released chlorine gas near Ypres, Belgium, killing 5000 allied troops and injuring 10 000. Before the First World War ended 90 000 people on both sides were killed by poison gases and over one million were injured (Harris & Paxman, 1991). The psychological effects of what historian Elvira Fradkin (1934) termed 'the poison gas scare' would haunt the American psyche for the next three decades and trigger several prominent episodes of mass sociogenic illness and related social delusions. In rural Virginia between 1933 and 1934 there were dozens of reported attacks involving someone spraying a noxious gas inside homes at night. After committing significant time and resources, authorities concluded that all cases had mundane origins – from backed up chimney flues to passing flatulence (Bartholomew & Wessely, 1999). Another 'mad gasser' scare occurred in Mattoon, Illinois, in 1944 and this also was attributed to anxiety and imagination (Johnson, 1945). Typical symptoms in both episodes included breathlessness, nausea, headache, dizziness and weakness. Even the famous Martian invasion scare on Halloween eve 1938 reflected the preoccupation with chemical and biological weapons. Of a survey of listeners who were frightened or panicked, 20% assumed that the Martian 'gas raids' were in fact a German gas attack on the USA. One typical respondent stated: 'The announcer said a meteor had fallen from Mars and I was sure that he thought that, but in the back of my head I had the idea that the meteor was just a camouflage . . . and the Germans were attacking us with gas bombs' (Cantril, 1947: p. 160).

There has been a recurrence of this trend since the early 1980s. In March and April 1983, 947 residents of the Jordan West Bank reported various psychogenic complaints: fainting, headache, abdominal pain, dizziness (Modan *et al*, 1983). The episode happened amid poison gas rumours and a long-standing Palestinian mistrust of Jews. Symptoms appeared over 15 days amid rumours and publicity that poison gas was being sporadically targeted at Palestinians. The outbreak began in, and was mainly confined to, schools in several adjacent villages. In one incident, 64 residents in Jenin were rushed to doctors after erroneously believing that they had been poisoned when thick smoke belched from an apparently faulty exhaust system on a passing car. Following negative medical tests, it was evident that no gassings had occurred, the hypothesis was discredited and the transient symptoms rapidly ceased. A similar episode occurred in Soviet Georgia during political unrest in 1989. Symptoms spread among 400 adolescent females at several nearby schools. The incident transpired after rumours that students were exposed to poison gas by Russian authorities who had recently used the chemical agent chloropicrin to disperse an opposition rally (Goldsmith, 1989). Intense media publicity surrounding the confirmed use of poison gases, and rumours that the students had been gassed, triggered the rapid spread of anxiety reactions. The transient complaints mimicked the poison gas symptoms: stomach ache, burning eyes, skin irritation and dry throat. Media coverage of this and the previous case were instrumental in spreading both episodes to the wider community. Mass sociogenic illness flourishes where the threat has a basis in reality. The 1995 terrorist attacks using sarin nerve gas on the Tokyo subway system by the Aum Shinrikyo sect triggered a series of MSI episodes involving benign odours (Wessely, 1995).

Although neither the Serbs nor the Israelis have used chemical and biological weapons, the bitter and radical nature of the conflicts means that the belief was congruent with the reality of the threat. Now that the American people have vivid proof that attacks with chemical and biological

weapons are not science fiction, we are recreating the exact situations that existed in Kosovo or on the West Bank.

THE 21st CENTURY

The psychological impact of terrorism involves the overexaggerated response to a real or perceived terrorist threat. The 11 September attacks on the USA and the subsequent use of anthrax as a weapon have created a heightened state of anxiety and alertness. At a time when we are understandably preoccupied with the threat from biological and chemical terrorism, an awareness of the acute physiological disturbances that are associated with, and sometimes hard to distinguish from, that threat is more needed than ever. For instance, during the Persian Gulf war the first missile attack on Israel by Iraq was widely feared to contain chemical weapons. Although such fears were unfounded, about 40% of civilians in the immediate vicinity of the attack reported breathing problems (Carmeli *et al*, 1991).

The social, psychological and economic impact of mass sociogenic illness and associated anxiety may be as severe as that from confirmed attacks (Hyams *et al*, 2002). For instance, anthrax is not a very effective method for causing mass physical casualties, yet its mere presence can terrorise a nation and expend a high toll in human and financial resources. There have been reports of mass sociogenic illness related to such fears (Durbin & Vogt, 2001; Villanueva *et al*, 2001). In one incident a man sprayed a mysterious substance into a Maryland subway station, resulting in 35 persons being treated for nausea, headache and sore throats. The fluid later was identified as a relatively harmless window cleaner (Lellman, 2001). In the Los Angeles subway, a strange odour forced its temporary closure after many commuters reported feeling ill (Becerra & Malnic, 2001).

Over 2300 anthrax false alarms occurred during the first 2 weeks of October 2001 (Cable News Network special report, A. Brown, 16 October 2001), many involving sociogenic symptoms. In one case, a teacher and student reported minor forearm 'chemical burns' after opening a letter and discerning a powder in the air. Subsequent analysis revealed no foreign substance in the envelope (Lehman, 2001). There is a danger of responding to every incident in space suits and inadvertently amplifying psychological responses. Indeed, the US government may line the Washington, DC subway system with chemical warfare agent detectors, yet such devices tend to indicate false alarms. There were 4500 false positives in the Persian Gulf war – without a single confirmed attack. Installation of such alarms may cause disruptions to transport systems, creating more of an impact than an actual event (Wessely *et al*, 2001).

There is concern that after a chemical, biological or nuclear attack, public health facilities may be rapidly overwhelmed by the anxious and not just the medical and psychological casualties. Following the Brazilian 'Goiania' incident, where inadvertent exposure of radiation caused four deaths and several hundred casualties, about 10 000 people or 10% of the local population sought medical examinations (Petterson, 1998). Somatic symptoms are common in all populations and are more frequent under stressful conditions (Barsky & Borus, 1999). Although 39% of those exposed during the 1996 *Sea Empress* oil spill off Wales reported one or more symptoms, so also did 20% of the unexposed controls (Lyons *et al*, 1999). Uncertainty and fear after disasters commonly generate psychogenic symptoms such as hyperventilation, headache and nausea, which may be difficult to distinguish from the early stages of a chemical, biological or nuclear attack. About 4000 of a total 10 000 New York firefighters who have visited the site of the World Trade Center attacks have reported respiratory difficulties, dubbed 'World Trade Center syndrome'. Many others who live and work near ground zero in lower Manhattan are reporting similar symptoms (shortness of breath, chest pressure and pain, coughing and general anxiety), despite the New York Health Department's continuous monitoring of airborne contaminants by city, state and federal agencies, which continue to indicate contaminant levels below that which poses a public health threat (Price, 2001).

IS THERE A PREDISPOSITION TO MASS SOCIOGENIC ILLNESS

Scientists typically search for the causes of mass sociogenic illness by seeking abnormalities in those affected. Their conflicting and inconclusive findings are not surprising because episodes involve social realities and the consequences of beliefs. Investigators of modern-day outbreaks of mass sociogenic illness in school and job settings have used standardised personality tests to identify social, psychological and even physical characteristics, such as gender, in trying to tell why some members of the same group are affected whereas others are not. There is no consistent pattern. Thirty-five affected workers at a fish packaging plant scored higher than controls on the Eysenck Personality Inventory scale for extroversion (Smith *et al*, 1978), whereas 90 affected electronics assembly workers scored lower than those who were unaffected. Goldberg associated absenteeism and mass sociogenic illness (Goldberg, 1973), but Cole (1990) did not. Some results suggest that those affected score higher on scales for paranoia (Goldberg, 1973), neuroticism (McEvedy *et al*, 1966; Moss & McEvedy, 1966) and hysterical traits (Knight *et al*, 1965), whereas others found no correlations (Olson, 1928; Olczak *et al*, 1971; Teoh *et al*, 1975; Tam *et al*, 1982). Gary Small and his colleagues link academic performance and becoming ill (Small *et al*, 1991), whereas Goh (1987) found no association. Small also correlated the death of a significant other during early childhood and being stricken with epidemic hysteria (Small & Nicholi, 1982), and yet this observation was not confirmed in another study by the same researcher (Small & Borus, 1983). Some investigators report that those affected have below-average IQs (Knight *et al*, 1965), whereas opposite impressions were given by others (Olson, 1928; Schuler & Parenton, 1943). It seems clear that there is no particular predisposition to mass sociogenic illness and it is a behavioural reaction that anyone can show in the right circumstances.

CONCLUSIONS

A prompt diagnosis of mass sociogenic illness is problematic because controversy often surrounds outbreaks and time is needed to analyse environmental and medical test results. It has been argued that rapidly dissipating, volatile airborne organic compounds (Black & Murray, 2000; Goode, 2000; Miller & Ashford, 2000), or a mixture of low levels of

industrial air pollutants, coupled with incomplete environmental investigations (Faust & Brilliant, 1981), could have triggered short-lived symptoms erroneously attributed to mass sociogenic illness. Some researchers conclude that sick building syndrome is attributable, in whole or part, to polluted air (Bauer *et al*, 1992; Ryan & Morrow, 1992). Indeed, a cursory environmental probe leading to the diagnosis of mass sociogenic illness among a group of mostly female garment-makers in Puerto Rico was later traced to toxic fumes that had caused respiratory and degenerative diseases, and some deaths (Cruz, 1990). Hamilton concluded that 'epidemic hysteria' at a rayon plant in the 1930s was actually caused by carbon disulphide exposure (Hamilton, 1943). An outbreak of abdominal pain, nausea and vomiting at a British school in 1990 included classic features of mass sociogenic illness: a high female attack rate, rapid onset and recovery, hyperventilation and line of sight transmission. Tests later revealed cucumber pesticide contamination (Aldous *et al*, 1994).

It may be advisable to close the school or job site until negative results are returned. Closure also should assist in reducing anxiety levels, temporarily dispersing the group and limiting the potential spread of symptoms. This will allow time for investigators to determine, in depth, whether most or all of the eight characteristic features (a combination of symptoms and conditions) of mass sociogenic illness are present. These are: symptoms with no plausible organic basis; symptoms that are transient and benign; symptoms with rapid onset and recovery; occurrence in a segregated group; the presence of extraordinary anxiety; symptoms are spread via sight, sound or oral communication; this spread occurs down the age-scale, beginning in older or higher-status students; and there is a preponderance of female participants. The issue of diagnosis of mass sociogenic illness is contentious because it is often viewed as a diagnosis of exclusion. Yet mass sociogenic illness has distinct features, the confluence of which typically indicates the presence of psychogenic symptoms. Before air, food and water tests are returned, it is possible to make a preliminary diagnosis based on these eight criteria. Knowledge of the characteristic features of mass sociogenic illness, involving either motor or anxiety symptoms, appears useful in the rapid preliminary diagnosis and hence the potential treatment of outbreaks. Treatment of mass sociogenic illness involves identifying and eliminating or reducing the stress-related stimulus perceived.

No one is immune from mass sociogenic illness because humans continually construct reality and the perceived danger needs only to be plausible in order to gain acceptance within a particular group and generate anxiety. As we enter the 21st century, epidemic hysteria again will mirror the times, likely thriving on the fear and uncertainty from terrorist threats and environmental concerns. What new forms it will take and when these changes will appear are beyond our capacity to predict.

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CLINICAL IMPLICATIONS

- **There has been a significant historical shift in the presentation of mass sociogenic illness.**
- **Anxiety-related phenomena are now more common than motor phenomena.**
- **Recent experiences of chemical and biological terrorism, and our general environmental fears, suggest that such episodes will remain common.**

LIMITATIONS

- **Literature review only.**
- **Secondary analysis of articles from many disciplines and cultures.**
- **Organic factors may have been overlooked in any single episode.**

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(First received 13 November 2001, accepted 12 December, 2001)

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