Commentary on "Understanding Mass Panic and Other Collective Responses to Threat and Disaster"

Crowds and Other Collectives: Complexities of Human Behaviors in Mass Emergencies

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Mawson's valuable review (2005) adds to the growing body of literature highlighting the adaptive and positive responses of individuals and populations in response to threat, disaster, and terrorism, (e.g., Perry and Lindell, 2003). Responses to the threat of combat, to a wide range of disasters, and even more recently in terms of September 11, are encompassed. Contrary to popular belief, mass panic is rare, and in terms of collective behaviors most people behave positively, helping others, not giving way to fear, but rather dealing with their circumstances adaptively. These concepts are drawn together in the framework of "social attachment" as the driver for such behaviors. Mawson further hypothesizes four quadrants of reaction, depending on predisposing valuables, such as preexisting social groupings, and precipitating variables, such as level of perceived physical threat or damage. These do not, however, fully encompass some of the variables, such as the primary attachments of family, as compared to broad social attachments; the non-adaptive behaviors identified in some significant studies; the other drivers for collective behavior in such circumstances; the response to uncertain and invisible threat, or prolonged threat; and the relationship or lack of relationship between the behaviors at the time and subsequent adaptations and outcomes. Nor are crowd behaviors and "crowd disasters," as forms of collective response, dealt with in depth. These issues will be further addressed in this commentary.

It is very important that positive and adaptive responses are recognized, mobilized, and strengthened. They constitute an invaluable resource from a public health point of view. When disasters, by definition, may exceed a community's capacity to deal with the threat and destruction, and terrorism may constitute a similar or even greater challenge, all resources need to be understood and brought to bear, to deal with what has happened. To do this, the complex issues involved in collective behaviors, both positive and negative, need to be analyzed and understood, both in terms of emergency response and the longer-term aftermath (Fullerton, Ursano, & Norwood, 2004).

A full picture shows that not all respond positively, and that some responses are dysfunctional, both for individuals and populations. Tyhurst's (1951) original report on disaster behavior suggested that 12 to 25% of adults responded by flight when threatened by fire or flood, but that up to 75% engaged in aimless or irrelevant movements, which may or may not have been problematic. This aimless and stunned wandering, perhaps in a dissociated state, meant that people might place themselves or others at risk, for instance those trying to rescue them. Of particular interest is Weisath's (1989a) detailed study of

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behaviors in response to a paint factory explosion and fire in Norway. He examined a range of behavioral responses which were grouped into Maladaptive Disaster Behaviors, shown by 29% of those exposed to the highest level of stress, Adaptive Disaster Behavior which occurred in 34%, and Optimal Disaster Behavior in 37%. Optimal Disaster Behavior correlated with high levels of disaster training and experience, a higher level of intelligence, and a lack of history of mental health problems. The most powerful predictor in terms of specificity and sensitivity was previous disaster training and experience. These findings suggest important directions for strengthening and mobilizing positive capacities in the population generally. It should be noted too that while many of those with high exposure showed major impact on cognitive functioning, severe levels of inadequate behavior were not reported. This gives support to the hypothesis that most will behave well, but with the proviso that some, perhaps those dissociated to the level of what has been known as the "disaster syndrome," may have their safety and functioning significantly impaired. Thus, it is important that strengths are recognized and utilized, that myths of mass panic and flight are not supported, and that the complexity of behaviors for both survival and vulnerability are taken into account.

As is well described by Mawson, powerful affiliative behaviors appear in response to threats like disaster and terrorism. These may lead to intense attachments among people who have not previously had any relationship with one another, but who become "bonded" by having "been through the same thing" together. For some, these form a supportive network that will help them to overcome possible longer-term mental health impacts of such adversity. These bonds may also lead to more formal self-help and advocacy groups, perhaps united to change laws, pursue justice against perpetrators, or gain resources through litigation or other means to compensate for what has happened. Special bonds may, in a few instances, become so powerful that those of ordinary relationships, even those of family, may pale by comparison, and even be set aside, for this special relationship. The bonds between rescuer and rescued, particularly if there has been a intense and prolonged one-to-one period of rescue, may also continue in a special way, well beyond any period of physical recovery.

The intense affiliative behaviors among those directly affected, those who come to rescue, and others involved cut across normal social boundaries, with what is seen as lowered psychological defensiveness, openness, and perhaps also some of the euphoria at surviving and defeating death—this time. This is often spoken of as the "honeymoon period" because of the positive responses that occur at every level in the immediate aftermath, and the coming together of government and other agencies to try to "make things better" for those affected (Raphael, 1986).

The honeymoon phase gives way after the initial days to the "disillusionment" phase. This is when the reality of the death and destruction, of what has been lost, and what cannot be undone starts to impact. This period brings grief for the loss of what has been familiar, of home, place, and community. It brings the grief of dislocation where there is destruction of home and neighborhood. It also brings many more prolonged stressors such as inadequate shelter, repeated moves, and lack of physical and other resources. As indicated by Mawson, the social attachments that sustain people through such prolonged adversities may be reconstituted as old neighborhoods and families draw together, or these attachments may be developed anew through shared suffering and shared solutions. Nevertheless, this is also a period of conflict and pressures on relationships when people may be unable to sustain their own needs, let alone the needs of others.

Those directly affected by disaster or terrorist incidents are likely to also be among the *first responders*. They help one another and take part in rescue, often in situations which constitute ongoing threat. They may be magnifically brave, but may remember only the horror and those they were unable to save, as they deal with the psychological aftermath that may follow. While formal rescue organi-

zations may have systems in place to assist should psychological reactions or symptoms persist, those who have been informally involved in rescue may not be identified as having needs in the period after, perhaps because they are seen as having coped so well in terms of assisting others. These first responders may be sustained by their achievements, by their active role in confronting the threat, and by the sense of mastery so generated. They may also be a group with vulnerabilities that appear in the weeks and months that follow and which they may not reveal for fear they are signs of weakness, rather than strength.

When there are multiple deaths due to disaster or terrorist incidents, the recognition of grief has often been overshadowed by an excessive preoccupation with psychological trauma and posttraumatic stress disorder (PTSD) as the lens through which psychological reactions and mental health consequences are viewed. Multiple, gruesome, and mutilating deaths and injuries are a frequent aftermath, and the nature of the deaths may be untimely, such as the deaths of school children in the Breslan school seige in Russia, or unexpected, as with September 11 or the bombings as in Bali and Madrid. Such circumstances mean that many are confronted with horror, shock, and personal life threat, as well as the gruesome images of body parts, the severely burnt, and unrecognizable human remains. These confrontations will lead to traumatic stress reactions for many of those exposed: although some, indeed the majority, will settle down, some people's reactions will be so severe as to lead to significant psychiatric morbidity, such as PTSD. This type of morbidity occurred and was prolonged for more than 30% of the survivors of the paint factory explosion and fire, studied by Weisath (1989b) as noted above. These problems were, like the maladaptive responses, most frequent in the high-exposure subgroup, highlighting the vulnerabilities that may occur both in the emergency and subsequently.

The primary attachments of those exposed to such incidents constitute much more powerful bonds than the social attachments into which they are grouped by Mawson. These are the bonds of parent and child, and the adult pair bonds of marriage and partners. These intense attachments drive people to put their own lives at risk as they seek to protect and find their loved ones. There may be conflict when one can be saved or protected and another not, or desparation when the whereabouts and safety of loved ones cannot be established. These attachments generate intense searching behaviors which may affect response, rescue, and recovery. This is form of collective behavior may occur in situations when large numbers of parents are desperate to find their children, as in a school-based disaster.

When deaths occur in such circumstances, grief is profound but may be subsumed in the demands of survival, at least initially. Or it may be that culturally influenced behaviors predominate, as in the wailing of the grief-stricken as a collective response. These bereavements are likely to be complex and may become pathological, as the survivors struggle with the complex interplay of trauma and grief, the challenges of identifying their loved ones, and in some instances the lack of a body or identified remains to put to rest (Singh & Raphael, 1981; Raphael, Martinek, & Wooding, 2004). The spontaneous behaviors of the bereaved as individuals, or collectively, are usually positive, as with the grieving rituals of placing candles, photos, and memorabilia at the sites of such incidents. But these positive adaptive strategies do not mean that the mourners are protected from adverse mental health impacts; here too, a significant proportion are vulnerable. Their needs for mental health intervention for coping with grief have not always been well recognized, or have been encompassed in a global trauma response, which may not be appropriate for their specific stressor experiences and outcomes.

The positive responses to the emergency that the majority make have been well established as have some of the positive outcomes. For instance, in the study of emergency responders in a rail disaster, a significant proportion viewed their experience positively, in that they had reevaluated their lives and relationships as a consequence (Raphael, Singh, Bradbury, & Lambert, 1983–1984). More re-

cent studies, such as those of Tedeschi, Park, & Calhourn (1998) have highlighted the concept of posttraumatic growth. Even with September 11, there are reports of those vicariously exposed reevaluating life positively (Linley & Joseph, 2004). These studies, reviewed by Mawson and substantiated by many workers in the field, make very clear the strengths of individuals and populations to handle even apparently overwhelming catastrophe. It is also clear that it is inappropriate to see everyone as at risk of psychiatric disorder, particularly PTSD, as a consequence. McNally, Bryant, and Ehlers (2003) highlighted the fact that while initial surveys after September 11 showed high levels of traumatic stress symptoms for the majority of people, these levels settled over time and did not constitute ongoing psychopathology. Furthermore, the large numbers of "trauma counsellors" who converged on New York to respond to these stress victims were not needed. However, compassion, support, and psychological first aid, as it is often called, appear to have been what was required at that stage. Interventions at this early time should be only on an as-needed basis and should not do harm, as agreed upon at the U.S. Consensus Workshop on Mass Violence and Early Intervention (2001, http://www.nimh.nih.gov/research/massviolence.pdf). These findings speak to the importance of not pathologizing population responses, of doing no harm, yet balancing this with specific targeted programs for those at heightened risk. This vulnerability may be either through the level and severity of exposure to traumatically stressful experiences and reactions to them (Bryant & Harvey, 2000) or the severity of grief reactions or other stressors of a more protracted kind. Hopeful and positive expectations can inform follow-up, but it would be wishful thinking to imagine that there would be no adverse psychiatric consequences.

Convergence to the scene of an incident is another form of collective behavior that occurs and is beyond the attachment conceptualization. People converge for multiple reasons, and these have not been well studied. Overtly, reasons include the wish to help others, to offer assistance, and it is true that altruism acts as one of the drivers. But it is also true that the wish to see, confront, and overcome death and destruction (by being alive and unaffected) may be another, less obvious motivation. There is also the excitement, the "high" of experiencing events so out of the ordinary, that people and places are defined by having been touched by them. People may wish to share the spotlight, to be part of what is happening. Curiosity, fear, concern for others, and many of the motivaters noted above may come into play. This convergence may at times be so great as to interfere with rescue operations. Volunteers may be greater in number than can be accommodated and may themselves become affected, and thus may add to the casualties. Management of such mass behaviors is a critical element of response to disaster and terrorism.

While disasters are typified by images of chaos, it is clear that even in the worst circumstances both spontaneous informal and formal response systems rapidly come into play. The spontaneous response is often called the "emergency organization," which develops among those affected and those surrounding them who immediately come to their aid, before formal organizations take over. Natural leaders arise in such circumstances and may coordinate the effective response described by Mawson or other strategies to protect life and help people survive. Natural leaders may or may not have previously been in leadership roles. They may relinquish their roles later and return to their normal places in the community. In the recovery phase, similar spontaneous "recovery organizations" may develop in affected communities and run alongside formal aid systems. These spontaneous groupings are important components of collective response and represent significant and frequently reported behavioral patterns, although they have not been systematically researched.

Terrorism brings a new set of questions about collective behaviors (Levy & Sidel, 2003). First, there is the response to clearly defined attacks, such as bombings. While what has happened and why may be initially unclear, there is usually just a single incident and people respond as they have been shown to re-

spond in a number of different attacks—helping others, altruism-affiliative behaviors, and many of the patterns described after September 11 (Proulx, 2003). But when there is a chemical attack, both exposure and fear of exposure may generate high levels of anxiety, leading to large numbers of people presenting to emergency departments. As with the Sarin gas attack in Tokyo (Murakami, 2000), anxiety generated in such circumstances may constitute a form of panic at one extreme (McLeod, 1975). However, even without that level of acute response, anxiety may generate significant, problematic levels of collective behavior in terms of managing the incident (although presentation may seem highly relevant to individuals in terms of their health fears). Infection threat with biological terrorism could also potentially generate high levels of anxiety, perhaps even panic and mass behaviors to avoid contagion. A dirty bomb or other nuclear threat will also generate high levels of anxiety and potentially lead to excessive health system presentations. An important element leading to such behaviors is the uncertain and invisible nature of such threats. As with toxic waste (Dunne, Burnett, Lawton, & Raphael, 1990) and post-deployment syndromes, such as the Gulf War Syndrome (Pastel, 2001), perceptions of exposure and uncertainty about its harmful effects on the self and even future generations create strong background levels of anxiety that generate behavioral trajectories of help-seeking, advocacy, entitlement, and even victim status for populations so affected. Fears that the severity of the threat is being "covered up" leads to further uncertainty about both exposure and damage. Added to this is the uncertainty about future unpredictable threats and the ongoing arousal that may result—and the lack of closure for such incidents. Thus, while there is still support for the view that positive, altruistic affiliative human behaviors predominate in response to terrorist incidents, there are new challenges in terms of ongoing anxiety, the prolonged diffuse and uncertain threat, and the human malevolence that will inevitably be seen as part of such attacks.

The behaviors of crowds is a significant factor to be taken into account when considering issues of mass panic or flight and other collective behaviors. Crowds can be present at the time of a disaster, for instance when there is a fire or a failure of a man-made entertainment system at a night club. There are also disasters where crowd behaviors contribute, called "crowd disasters" by Fruin (2004). A well-known example of a crowd disaster took place at the Hillsborough Stadium in Sheffield in the United Kingdom, where 94 persons died by asphyxia and 174 were injured. The crush of fans caused those deaths, because people continued to enter a restricted space. Particularly at sporting events, other such deaths have also been reported. While it is recognised that crowd management is important in preventing such disasters, there is not always an adequate understanding of crowd behaviors to provide such management skills. Spontaneous behaviors in response to perceived failures or threats may lead to riots, as for example with the English and Italian soccer fans at the European club final in Brussels in 1983 when 38 people died from asphyxia and 437 were injured. Some people have the capacity to mobilize mass behaviors, both positively and negatively, even to the point of killing those who are seen as hated others.

With significant increases in population density, and diffuse and/or targeted threats, there is an urgent need to better understand crowd behavior and ways of managing it, including models suggested by Fruin (2004). Clearly, these issues are relevant to mass panic and collective responses to disaster and terrorism. It is clear that mass panic and flight as collective behaviors are relatively rare. Nevertheless, dysfunctional behaviors can occur.

The behavioral responses in situations of threat, disasters, and terrorism are complex, as are the mental health consequences of high levels of exposure, particularly to mass death and destruction. The potential for threats related to terrorism, particularly chemical, biological, and radiological threats, will require more sophisticated research and analysis of collective behaviors. It is of relevance to understand crowd behaviors, which may be spontaneous, positive or damaging, or mobilized for good or ill. Culturally sanctioned behav-

iors, the role of leaders in supporting adaptive responses, and the critical significance of educating and informing the public (Schoch-Spana, 2003) need to be further explored for their contributions in the management of collective responses in these circumstances. (Ursano, Norwood, & Fullerton, 2004). Nevertheless, it is clear that there is much good in people, and that collective responses reflect hopefulness for the human condition.

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