



## The effects of terrorism on adult mental health: a public health preparedness approach

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### ABSTRACT

Terrorism is a disruptive man-made disaster event challenging human health and wellbeing. It is a hostile activity which brings about much casualty, even death. It not only causes physical casualties but also brings about psychological morbidity and can lead to long term mental disorders. The effects of terrorist attacks on people's psychological health covers a wide range such as acute stress symptoms to long term disorders like Post-traumatic Stress Disorder (PTSD). The psychological disorder due to traumatic distress is treated with psychotherapies such as psychosocial intervention, psychological debriefing, psychological first aid care, psychological counseling services, and psychoeducation. Government is supporting state and local public health departments to develop efficient public health preparedness planning programs in case of emergency situations. There are some newer approaches working towards enhancing health security and managing responses to a psychological impact of a disaster event like a terrorist attack.

**Keywords:** terrorism, mental health, psychological disorders, preparedness planning

### INTRODUCTION

'Terrorism', the word itself, sounds terror in the minds of people. Terrorism is a disruptive event. It is one form of man-made disaster which has become one of the important issues challenging human health and wellbeing. Disaster is defined as 'any destructive event that disrupts the normal functioning of a community'<sup>1</sup>. Terrorism is a hostile activity which brings about much casualty, even death. It not only causes physical casualties but also brings about psychological morbidity and can lead to long term mental disorders<sup>2</sup>. It is mostly targeted towards bringing about fear among civilians to fulfill the motto by creating fear or forward certain agendas. This stressful event affects the individual and the community equally causing a sense of terror and can lead to psychological morbidity<sup>2</sup>. It

annihilates the sense of security and comfort of the people. People and communities who are victim to the horrors of terrorism suffer together and they jointly feel the event to be unjust and unfortunate. The effects of terrorism can lead to feelings of stress, helplessness, fear, anger and a desire for revenge.

Past research has shown that many survivors who are directly or indirectly affected by the act of terrorism recover from the traumatic experience of stress, fear, and anxiety extremely slowly. For some individuals, especially those who have lost the loved ones, the trauma may sink in to manifest as long term psychological disorders such as Posttraumatic Stress Disorder (PTSD). The long term effects of these stressful events are not only seen among civilians, but are also seen among emergency management



workers<sup>3</sup>. The case of September 11<sup>th</sup>, 2001 the attacks in New York City exemplify the effect of terrorism on people who were victims to these ghastly events. The victims' initial reaction to the event was that of distress and fear, which was termed as 'normal reaction' due to the stress they experienced. Past research suggests that the statistical data explained the magnitude of the mental effect this disrupting event had on the psychological health of people<sup>2</sup>.

### **Explanation about terrorism**

Terrorism is defined as contained in title 22 of the US Code, Section 2656f (d): "The term "terrorism" means premeditated, politically motivated violence perpetrated against noncombatant targets by subnational groups or clandestine agents." "The attacks of September 11<sup>th</sup>, 2001 were examples of a terrorist activity. These terror attacks caused much casualty, deaths and disrupted the people's sense of security. Terrorism is known to have various short term and long term psychological effects along with the casualties it brings about. Another example of a terrorist attack, is the Oklahoma City bombing which lead to various casualties including psychological problems like anxiety and depression<sup>3</sup>. Terrorism as explained as a hostile event is especially targeted at civilians to annihilate the sense of safety by causing fear and distress. This category of man-made disaster is planned and executed to forward certain agendas by causing a sense of terror.<sup>2</sup>

### **Explanation about mental health**

Mental health means emotional, psychological and social wellbeing of an individual<sup>5</sup>. Positive mental health is very crucial, as it determines how we react to certain situations and handle stressful events and make choices. Having good mental health is important right from childhood to adult life. It influences your thinking and can be affected by various biological factors, life experiences, family environments, community interactions and traumatic events.<sup>5</sup>

### **The effects of terrorism on psychological health**

Terrorist attacks are the means for causing mentally traumatic situations which can be a factor to alter the mental health of an individual. In an adult population,

terrorist attacks can lead to myriad of mental health symptoms which fall in the wide range of psychological disorders. Existing research points to the fact that terrorist attacks have increased over a period of time and have become one of the prime public health concerns. It is observed that these attacks not only affect the attack victims but also affect the general population, by causing destruction to the property, loved ones, community along with disrupting the sense of security. Research studies explain that a terrorist attack causes much psychopathological disorders than other forms of disasters<sup>6</sup>. These terrorist attacks injure the mental health and wellbeing of the people, who are directly and indirectly affected by the attacks. The example provided earlier of September 11, 2001 attacks explain the impact of these traumatic events on people who were directly affected by these attacks along with the general population. They caused some of the acute stress symptoms like feelings of fear, horror, helplessness, and hyper arousal. Additional symptoms seen were avoidance, anxiety about future terrorist activities, and future risk, leading to global distress. The mental health outcome for these people affected by the terror attacks, reported within hours of crisis event, showed that these attacks had annihilated the sense of security and safety for the people.

Other post-traumatic symptoms reported after the attacks were work-related, such as affecting individual's capacity to perform their duties, and difficulty building social relationships<sup>7</sup>. These symptoms of anger and fear can lead to increased desire for revenge. Research studies show that many of these acute stress symptoms like fear, anxiety, and avoidance experienced by the people and their communities decreased over the period. It is seen that some of these acute stress symptoms can turn into more severe psychopathological disorders depending upon the severity of the trauma experienced during these disturbing attack events.

The victims of the terrorist attack and their families especially are the population at risk of suffering from severe Post-traumatic Stress Disorder (PTSD). The September 11, 2001 attack crisis showed higher risk of PTSD among the victims and their families and



some of the emergency management rescue workers<sup>3</sup>. Hence, the effects of terrorist attacks on people's psychological health covers a wide range from acute stress symptoms to long term disorders like Post-traumatic Stress Disorder (PTSD).

#### **Case study of a terrorist attack-epidemiological data**

The terrorist attack of September 11, 2001, in New York was one of the biggest terrorist attacks the country had to face. Many people were directly and indirectly affected due to these terrorist activities. The research conducted among national sample in the U.S. reported that three to four days after the terrorist attack of September 11, 2001, 44% of Americans showed at least one symptom of PTSD.<sup>3</sup> Within one to two months from the incidence of attack, 4 % of people showed PTSD symptoms nationwide and the research reported the prevalence of PTSD to be 11% among New York residents. In two months after the terrorist event, the cities affected by attack reported the prevalence of PTSD to be 8%. The prevalence of depression among these cities attacked by the terrorist was 10%. The prevalence of PTSD symptoms was reported to be higher in those people who were closer to the scene of terrorist attack (14- 20%) and those people who were in the building attacked by the terrorist or injured in the attack (30%). Over the next 6 months after the terrorist attack of 9/11 the prevalence of PTSD was reported to be decreased but alcohol and substance abuse was reported on the higher side. The symptoms of depression persisted due to the use of alcohol <sup>3</sup>. Research data further reported that terrorist attacks of 9/11 projected symptoms of PTSD which prevailed for longer duration affecting people's sense of well-being and security.

#### **Communication issues related to man-made disaster-terrorist attack**

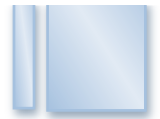
Communication that is 'sharing the information' is one of the challenges in a disaster planning process.<sup>1</sup> In cases of casualties, communication is important to gain appropriate information and update about a disaster and to connect people in a disaster situation with various emergency management teams. The standard communication system can be damaged and fails to function in disaster situations.<sup>1</sup>The radio

complication created confusion and also contributed to some of the casualties during the attacks of 9/11. The analysis of the situation during 9/11 attacks reported that there was radio transmission problem between New York Fire Department, Police Department and even the 911 dispatchers. These communication problems were due to radio frequency issues related to the tall buildings in which the attacks occurred. As the officers climbed up the buildings, their ability to communicate with the other officials diminished, thus complicating the emergency management of the situation. This communication problem caused complications, as the dispatchers were unaware of the accurate situation inside the terrorist attack building. This complicated the entire scene of emergency management, thus causing medical care delays, in turn causing casualties and stress among people.<sup>8</sup>

#### **Medical response in a disaster**

People who face disaster of any form suffer short term or long term effects of trauma. Intentional man-made disasters like terrorism create atmosphere of terror and fear. Some people or survivors who experience these disasters fall prey to post-disaster mental disorders, or exacerbation of pre-existing psychological illnesses, which lead to mental distress. Emergency medical response should apply systematic approach to identify these cases requiring psychological intervention, and provide timely medical triage and appropriate mental health care intervention services. The medical intervention should be case appropriate and should be tailored to the need of the patient. Those individuals who have suffered mental trauma should be referred to the mental health services. The psychological disorder due to traumatic distress is treated with psychotherapies like psychosocial interventions, psychological debriefing, psychological first aid care, psychological counseling services, and psychoeducation. Another form of standard treatment for psychological distress is pharmacotherapy.<sup>9</sup>

The mental health intervention in the aftermath of a disaster event is a crucial psychological first aid (PFA) which is an evidence based approach used to help and support the disaster victims. The mental health



services teams help individuals who have experienced disaster by identifying the people who need psychological intervention, providing then counseling and education about coping strategies to manage stress.<sup>10</sup> They also help them by providing appropriate referrals and follow-up advices. Not all the people who experience disaster need psychological intervention. Many people face the first reaction of acute stress but recover from that phase but many experience the stress that overwhelms their ability to self-cope.

Crisis intervention is one of the effective techniques used by counselors for people who are overwhelmed by the stress they are experiencing which may hamper their stress coping ability. The mental health service team uses active listening and problem solving techniques to mitigate psychological problems of people. Providing social support from the family, friends, and peers of the disaster survivors helps them to cope with stress. This social support intervention is helpful in the aftermath of a disaster and encourages people to cope with the stress. Psychological triage plays an important role in the aftermath of a disaster situation as the mental health professionals identify people who need psychological intervention and provide referrals according to the individual needs<sup>10</sup>. The experience and research from the terrorist attacks of 9/11 provided information that psychological first aid is the primary model used to manage psychological stress of the people who have experienced terrorist attack or disaster. Psychological first aid helps to provide people or victims with the resources they need.

Psychological debriefing is a group discussion and counseling pattern of psychological treatment effective for post-traumatic and post-disaster treatment<sup>11</sup>. This method of group support mental health intervention is focused on providing information and brings about interaction in a systematic way to educate and help people to emotionally express themselves and share common experiences<sup>10</sup>. In the aftermath of 9/11, peer programs were conducted providing psychological treatment and intervention through social support to emergency management workers. Due to a big community in New York, there were trauma experts

who were providing training and education to help people reduce stress. Terrorism is an unpredictable event and causes mass fear and anxiety among the people. Hence, to provide appropriate medical care to those in need and support them with appropriate resources in a timely manner is crucial.

### **Public health preparedness planning**

Public health preparedness planning process has strengthened and is developing progressively over the last few years. The terrorist attacks and the threat of bioterrorism have made the national government to invest in the infrastructure of public health to build up effective state and local responses to these disaster emergencies. The legislation has recognized the importance of health security to be included so as to have good public health system to support health security. The threat of terrorist events and emergence of new infectious diseases as the threat from bioterrorism has made the Pandemic and all- Hazards Preparedness Act of 2006 to consider health security aspect of the public health.<sup>12</sup> The US Department of Health and Human Services has developed a strategy for National Health Security.

Funding for the health security programs has improved over the years. Many funding sources are investing in the development of epidemiological capacity at the state and local levels and improving and increasing the national medical stockpile. The sources are funding for advancement and improvement of diagnostic laboratories for health security. The health department is now being considered as one of the emergency resources support agency along with the fire, police and Emergency Management System (EMS). The National Response Framework and the National Incident Management System has recognized the support of public health in managing the emergency at state, local and national level and are interacting with other emergency agencies and resources so that they can bring about coordination and manage the situation well.<sup>12</sup>

The state and local public health preparedness planning has been receiving adequate funding to develop an efficient plan for health security. The US Department of Health and Human Services has



formed a US Public Health Services team that can assist the state to manage the disaster situation. The National Disaster Medical System has been pursuing the focus of providing medical care to the people after a disaster emergency, like terrorist attacks. These efforts to boost up the health security have been also supported with using advanced technology for conducting research to manage emergency situations by increasing protection and security efforts.<sup>12</sup>

The Centers for Disease Control and Prevention (CDC) Strategic National Stockpile has increased its capacity to provide immunization to almost every American to prevent certain infectious diseases in the event of bioterrorism. The CDC's Strategic National Stockpile is also supporting plans to dispense the medical assets to the state to strengthen their health security. Many of the US Governmental programs like Department of Defense's Biological Threat Reduction Program, Department of State's Global Threat Reduction Programs, are helping support health security. CDC has been working with States to build their public health infrastructure by developing emergency response activities and providing then required medical assets to strengthen state and local public health response in the case of emergency situations. The public health departments in many states have been providing training to their employees regarding emergency management along with other important emergency resources.<sup>12</sup>

CDC has developed a secured web-based surveillance program (Epidemic Information Exchange (Epi-X)) to acquire health surveillance information. This effort by CDC has strengthened the communication of assessing the health threat. Hence, the government is supporting state and local public health departments to develop efficient public health preparedness planning programs in case of an emergency situation.<sup>12</sup>

The efforts from the national level has helped the state and local communities to develop and improve their public health preparedness programs but some communities still face the challenges of insufficient funding, budget deficits and staffing problems at the local level which need to be addressed.<sup>13</sup>

### **Pitfalls of preparedness planning**

The terrorist attack of September 11, 2001 in New York City was unpredictable and caused great casualties. These terrorist events exposed certain shortfalls of public health preparedness planning such as communication crisis, which lead to improper or unbalanced dissemination of information and caused difficulties to make appropriate security and rescue decisions. The command system was also affected due to lack of ability to communicate well. The event uncovered certain other points such as lack of proper training for first responders, and inadequate use of protective gears and other equipment by the health care workers.<sup>12</sup>

### **Innovative approaches to preparedness planning**

The public health preparedness planning has enhanced the infrastructure to support health security for the general population. The above section about public health preparedness planning discusses about some of the newer approaches undertaken at the federal, state and local levels to strengthen health security.<sup>12</sup>The National Center for Telehealth and Technology (T2) has used advanced technology to design psychological apps (applications) to assist public understanding and managing of psychological symptoms. They have developed a 'PTSD coach' app. that helps individuals to understand about PTSD and explains how to manage the symptoms. 'Breath 2 Relax' is another app. which assists people manage stress.<sup>10</sup>These new technologies are helping people to cope with the psychological symptoms caused due to disasters along with the actual mental health care intervention.

Another newer approach discussed is about the role of primary health care physician in combatting the psychological consequences of the terrorist attack. Inclusion of the primary health care physician in mental health care planning along with the mental health care experts and disaster management team is beneficial. The primary healthcare physicians can be trained to respond to the psychological needs of the people after the terrorist attack and can assist local, state and federal level efforts to overcome psychological distress. They can help the nation to respond and recover from the psychological effects





of terrorist events.<sup>14</sup> The Defense Threat Reduction Agency Advanced Systems and Concepts Office is working towards enhancing nations resilience to terrorist attack by focusing on two issues a) improving the communication for health security and b) increasing the public participation right from disaster planning to recovery. This new approach of engaging the general population can effectively impact the resilience strategies.<sup>15</sup> The 'PsySTART Rapid Mental Health Triage and Incident Management System' is a disaster mental health concept of operations (CONOPS). It is a site based operational system which provides individualized and rapid triage decisions to assist triage officers to provide mental health interventions. This system is developed for large areas, or states and the evidence based data analyses assists the emergency management team in disaster planning and response to a disaster. It works at the local level by helping in formulating disaster plan and building resilience. The triage focus of this system is crucial and helps to provide rapid mental health care with the help of information technology. 'Force Mental Health Protection' is a newer version of PsySTART and is

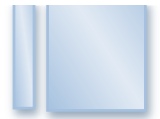
focused for disaster health care responders and providers.<sup>16</sup> These newer approaches are working towards enhancing health security and managing responses to a psychological impact of a disaster event like a terrorist attack.

## CONCLUSION

Terrorist attacks are targeted towards bringing about fear and distress among the public to achieve certain agendas. These attacks are destructive as they cause many physical and psychological casualties and death. The psychological impact of these terrorist attacks range from short term stress to long term psychological disorders. As discussed in the paper, there is a medical care health intervention to treat psychological impact of terrorist attacks. There is an emergent need to address the issue of developing the disaster mental health response and targeting the need of matching a specific intervention to a specific mental health problem. Assessing and evaluating the effectiveness of disaster mental health interventions is another important area which needs to be addressed in future research.<sup>9</sup>

## REFERENCES

1. Veenema TG, Woolsey C. Essentials of Disaster Planning. In: Veenema, TG, Ed, *Disaster nursing and emergency preparedness for chemical, biological and radiological terrorism and other hazards*. New York, NY: Springer publication company; 2013:1-20.
2. Levav I. Terrorism and Its Effects on Mental Health. *World psychiatry*. 2006; 5: 35-36.
3. United States Department of Veterans Affairs, National Center for PTSD. Research Findings on the Traumatic Stress Effects of Terrorism. <http://www.ptsd.va.gov/professional/pages/research-findings-traumatic-stress-terrorism.asp>. Accessed Jan 20<sup>th</sup> 2014.
4. Central Intelligence Agency. News & information, terrorism FAQs. <https://www.cia.gov/news-information/cia-the-war-on-terrorism/terrorism-faqs.html>. Accessed Jan 25<sup>th</sup> 2014.
5. MentalHealth.gov. What is Mental Health? <http://www.mentalhealth.gov/basics/what-is-mental-health/index.html>. Accessed Jan 28<sup>th</sup> 2014.
6. Salguero JM, Fernández-Berrocal P, Iruarrizaga I, Cano-Vindel A, Galea S. Major Depressive Disorder Following Terrorist Attacks: A Systematic Review of Prevalence, Course and Correlates. *BMC Psychiatry*. 2011;11: 96. doi: 10.1186/1471-244X-11-96.
7. Silver RC, Holman A, McIntosh DN, Poulin M, Gil-Rivas V. 2002. Nationwide Longitudinal Study of Psychological Responses to September 11. *JAMA*. 2002; 288: 1235-1244. doi:10.1001/jama.288.10.1235.
8. Stegall A. Lessons learned from 9/11 communication problems evident in Bartow County. Daily Tribune News. October 19, 2011. [http://www.daily-tribune.com/view/full\\_story/15429218/article-Lessons-learned-from-9-11-communication-problems-evident-in-Bartow-County](http://www.daily-tribune.com/view/full_story/15429218/article-Lessons-learned-from-9-11-communication-problems-evident-in-Bartow-County). Accessed February 6, 2014.
9. JAMA Network. Research Examines Importance of Identifying Need, Providing Delivery of Mental Health Services Following Community Disasters. <http://media.jamanetwork.com/news-item/research-examines-importance-of-identifying-need-providing-delivery-of-mental-health-services-following-community-disasters/>. Accessed Jan 28<sup>th</sup> 2014.
10. Meekar EC, Plum KC, Veenema, TG. 2013. Management of the Psychological Effects of Disaster.



- In Veenema, TG, Ed, *Disaster nursing and emergency preparedness for chemical, biological, and radiological terrorism and other hazards*. New York, NY: Springer publication company; 2013.
11. Watson PJ, Cammarata C, Galea S, Silver RC. The psychology of 9/11, ten years later. NPR. 2011. Available at: <http://www.npr.org/2011/09/09/140337463/the-psychology-of-9-11-ten-years-later>. Accessed February 6, 2014.
  12. Khan, AS. Public Health Preparedness and Response in the USA since 9/11: A National Health Security Imperative. *Lancet*. 2011; 378: 953- 956.
  13. McHugh M, Staiti AB, Felland, LE. How Prepared Are Americans for Public Health Emergencies? Twelve Communities Weigh In. *Health Affairs*. 2004; 23: 201-209. doi:10.1377/hlthaff.23.3.201
  14. Eisenman DP, Stein BD, Tanielian TL, Pincus HA. Terrorism's Psychologic Effects and their Implications for Primary Care Policy, Research, and Education. *Journal of General Internal Medicine*. 2005; 20: 772–776. doi: 10.1111/j.1525-1497.2005.0192.
  15. Wood, JD. Review of Open Source Literature on Resilience to Terrorist Attack. (Report No. ASCO 2009 033). Ft. Belvoir, Virginia: Defense Threat Reduction Agency Advanced Systems and Concepts Office. 2009. Available at <http://www.hsdl.org/?view&did=716248>. Accessed Feb 2<sup>nd</sup> 2014.
  16. Schreiber, M. The PsySTART Rapid Mental Health Triage and Incident Management System. <http://www.cdms.uci.edu/pdf/psystart-cdms02142012.pdf>. Accessed Jan 30<sup>th</sup> 2014.