

## **The Influence of Terrorist Attacks on the Psychological Wellbeing of Children: A Review of Results from Beslan and the United States**

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### **Abstract**

This article will review research conducted regarding the psychological effects on children exposed to the terrorist attacks of 9/11 and the children held hostage in Beslan, Russia in 2004. Symptoms of post-traumatic stress disorder, depression, sleeping problems, and anxiety were found among both groups. Factors that mediate the association between a terrorist attack and the consequences for children will be discussed. These factors include: degree of exposure, loss of loved ones, parent response, age, and pre-existing vulnerabilities. The results of studies of surviving children in the two groups will be compared.

**Keywords:** terrorism, psychological wellbeing, children, United States, Beslan.

### **Introduction**

“Terrorism” is a broad term, and can be defined in several ways. The fomenting of anxiety within a society through the use of violence is often identified as characteristic of terrorism (Fremont, 2004; Pine, Costello, & Masten, 2005; Scrimin, Moscardino, Capello, Altoè, & Axia, 2009). Pine et al. (2005) elaborate on this by stating that terrorism consists of unannounced attacks, organized by small groups and directed toward civilians. Because terrorism targets civilians, children are commonly victims of attacks. It is important to examine the effects of terrorist attacks on children in order to improve treatment options for this group (Fremont, 2004). This article will provide a short overview of the effects of terrorist attacks on children ranging in age from two to fourteen years, specifically survivors of the attack on the World Trade Center in 2001 and of the Beslan school hostage crisis of 2004.

On September 11, 2001, the United States was attacked by terrorists who hijacked planes and directed them towards the World Trade Center and Washington. Although this attack was not specifically directed against children, many children witnessed the

disaster in real life or saw it on television (Klein, Devoe, Miranda-Julian, & Linas, 2009). In this regard, the terrorist attack in Beslan differs from the attack in the United States. In Beslan, terrorists took hostage over 1300 children and adults in a school on September 1, 2004 (Moscardino, Axia, Scrimin, & Capello, 2007). For two days, children were locked up in an overcrowded gymnasium without any water or food at their disposal, and were confronted with terrorists equipped with explosives. The siege was ended when Russian security forces set fire to the facility and its roof collapsed. A total of 186 children were killed and more than 700 people were wounded.

These two settings are being compared here because the attacks in question differ in terms of their nature and setting. A comparison of results may help understand if children involved in different kinds of terrorist attacks show similar or different reactions.

This article will provide a brief overview of the influence of terrorist attacks on children from a psychological point of view. Findings with respect to the different kind of reactions displayed by children

following an attack will first be examined. Next, factors that mediate the relationship between an attack and the reactions of children will be discussed. Each paragraph will start with a brief discussion of findings regarding the effects of terrorism on the psychological wellbeing of children, and will be followed by a description of findings in Beslan and the United States. Some comparisons will be made between results obtained in Beslan and the United States, as these two contexts differ in important ways.

### **The influence of terrorism on children's psychological well-being**

Among the consequences of a terrorist attack on children that researchers have found are symptoms of post-traumatic stress disorder (PTSD) (Fremont, 2004; Joshi & O'Donnell, 2003; Pine et al., 2005). This syndrome is described as consisting of four categories: Exposure to a traumatic event, re-experience of the traumatic event, persistent avoidance of trauma-related stimuli, psychic numbing, and persistent symptoms of increased arousal (DSM-IV-TR, 2000). Other effects of exposure to terrorist events on the wellbeing of children include: signs of depression, anxiety, an activation of dissociative mechanisms (which can be understood as staring off into space and "freezing-up" in reaction to certain stimuli), aggression, and abuse of substances (Fremont, 2004; Joshi and O'Donnell, 2003).

In the context of the United States, Klein et al. (2009) obtained descriptions of parents about the reactions of their toddlers who witnessed the attack in real life. These children showed reactions on the day itself that can be grouped into three categories. These are: calm and cooperative; difficult and anxious; and sleep and regularity difficulties. Over

time, these children showed behaviors reflecting sadness and loss, separation issues, new anxieties (e.g., about planes), sleep and regularity problems (e.g. being more irritable than normal), and a desire to return to routine.

Research in Beslan, Russia, also found symptoms of PTSD among child survivors of the school hostage crisis (Moscardino et al., 2007; Scrimin et al., 2009; Scrimin et al., 2011). In addition, feelings of insecurity, loneliness and guilt, physical complaints, anxiety, depression, and cognitive dysfunctions (e.g., memory and attention impairment) were found (Scrimin et al., 2009; Scrimin et al., 2011). A qualitative description of reactions of children based upon interviews with their caretakers revealed that 88% of the children showed behavioral problems, increased irritability, aggression, sleep disorders, lack of appetite, separation anxiety, and regressive behavior (Moscardino et al., 2007). Acute stress reactions (ASR) were also found (Portnova, 2005). These reactions include: disturbed consciousness, psychomotor disorders, and emotional disorders. In addition, repeated experience of the trauma, avoidance, dissociation, regressive symptoms, hallucinations, and delusions were observed. It was also found that children often expressed anxiety, fear, and sleep disorders.

When comparing results obtained in Beslan and the United States, it seems that symptoms of PTSD, depression, anxiety, problems with sleep, and behavioral problems all occurred in children exposed to either attack. The severity of these reactions generally differs according to whether the child was directly involved in the attack (as was the case in Beslan) or if the child was indirectly exposed (as was mostly the case in the United States). The following section will

describe the influence of degree of exposure on the severity of the reactions. Other mediating factors will also be identified.

### **Mediating factors**

#### *1. Degree of exposure to the attack*

Degree of exposure mediates the relationship between an attack and the reaction of children to it. Pine et al. (2005) describe a dose-response reaction with regard to symptoms of PTSD. According to this model, the more directly a child is exposed to terrorist violence, the more serious the effects of PTSD are. Thus Pine et al. (2005) found that children who were indirectly exposed to terrorism (for example through television) had low symptoms of PTSD, which for the most part did not seriously impair their functioning.

Most children in the United States were not directly exposed to the 9/11 terrorist attack. In contrast, the child survivors of the Beslan school hostage crisis experienced the attack in real life. Because of these differences, it is interesting to examine the kind of reactions of the children in the two settings according to degree of exposure. The results from research in Beslan and the United States will also be compared here with regard to the role of other mediating factors in the two attacks.

In the United States, the degree of exposure to the 9/11 attacks was positively associated with more stress-symptoms among children (Fremont, 2004). However, in research among adults and children who were not directly exposed to the attacks, 35% of the parents said their children had experienced at least one of five stress symptoms (Schuster et al., 2001). These were defined as: avoiding talking or hearing about the event, concentration difficulties, sleeping problems, increased irritability, and

nightmares. Also, 47% of parents reported that their children had been worrying about their own safety or the safety of loved ones. This shows that even children who are not directly involved in terrorist attacks can show reactions to such events.

Research in Beslan, revealed that 29.3% of the children experienced PTSD. Of these, 15 children were directly and 2 children were indirectly involved in the siege (Scrimin et al., 2011). In this study, children were interviewed in groups of ten about their psychological stress symptoms and the kind of reminders of the trauma they experienced. Answers of directly and indirectly exposed children were compared. It was found that the groups showed no difference in the sort of reminders of the trauma they experienced. The most frequent experienced reminders were situational (53.8%) and internal affective state (29.6%). However, directly exposed children experienced more trauma reminders, more stress during a reminder, needed more time to recover from exposure to a reminder, and felt guiltier, more unsafe, and more scared in reaction to a reminder, than non-directly exposed children. In another study conducted by Scrimin et al., (2009) photos of mixed-emotion facial expressions were shown to children; children had to choose from multiple options which emotional label they would ascribe to pictured faces. It appeared that directly exposed children more often detected danger-related expressions, like anger, than indirectly exposed children in the mixed facial expressions containing anger and sadness (Scrimin et al., 2009).

It appears that, although not directly exposed to a terrorist attack, children still can experience various stress-symptoms. However, research in Beslan shows that the more a child is exposed, the more severe his or her

reactions are. This supports the existence of a dose-response relationship. Children in Beslan would thus be expected to display more severe reactions than children in the United States, as this group was more directly exposed to a terrorist attack. However, it is not possible to draw any definitive conclusions about this variable, due to the fact that no systematic survey has been done to compare results obtained in Beslan and the United States.

### *II. Loss of loved ones*

In general, after a trauma, the loss of a loved one increases the risk for the expression of symptoms of PTSD (Fremont, 2004). With regard to child survivors of 9/11, it was noted that, in cases in which parents' bodies could not be identified, it was even harder for children to cope with the trauma (Joshi & O'Donnell, 2003). In Beslan, it was found that when a child lost someone close as a result of the attack, he or she had a higher chance of developing mental disorders (Portnova, 2005).

### *III. Parents*

Fremont (2004) proposed that, because a terrorist attack also influences adults, it is possible that parents and teachers cannot provide the kind of support to children that would protect them from long-term emotional damage. Similar phenomena have been proven right. It was found that the reaction of parents and their anxieties after a trauma mediate the experience of anxiety in children (Pine et al., 2005). Another review found that the wellbeing of children over time, following a traumatic experience, depends on the wellbeing of others in the family (Joshi & O'Donnell, 2003).

In the aftermath of 9/11, the appearance of stress symptoms in parents was related to stress-symptoms in children (Schuster et al., 2001).

Parents were responsive to their children, both on the day of the attack and in the days following the attack (Klein et al., 2009). Eisenberg and Cohen Silver (2011), in line with Fremont (2004), describe a relationship in which the mother was poorly adapted after the 9/11 attack, resulting in her being less involved with her child and using less effective discipline measures. This had negative effects on the child.

In Beslan, parents noted a sense of guilt and failure in protecting their children from the events (Moscardino et al., 2007). This is consistent with the findings of Fremont (2004) and Eisenberg and Cohen Silver (2011), in that parents sometimes had difficulty reassuring their children because they were distressed themselves (Moscardino et al., 2007).

Thus, the findings from results from both Beslan and the United States confirm the important role parents play in influencing the reaction of children after a terrorist attack.

### *IV. Age*

Because of differences in their susceptibility to fear and depression, children of different ages can differ in symptoms they display following a trauma (Eisenberg & Cohen Silver, 2011; Fremont, 2004). A description based on the study of Joshi and O'Donnell (2003) of possible reactions of children from different age groups will follow. Preschool children can think of the trauma as their fault, and they don't understand death as a permanent event. Children in this age group can reveal some of the following symptoms: sleeping problems, clinging behavior, scared to leave their caretaker, and worrying something bad will happen to their caretaker. This is comparable to results from Klein et al. (2009), who found that toddlers in the United States after 9/11 sometimes

have had trouble with sleep and separation from their caretaker. Children in the 7-11 age group still think concretely, which makes it hard for them to understand traumatic experiences. These children can look frightened, disorganized, and fearful after a trauma (Joshi & O'Donnell, 2003). Teenage children (i.e., above the age of 12) can show symptoms of irritability and avoidance. After experiencing a trauma, these children also are at increased risk for depression, as they keep feelings about the trauma inside (Joshi & O'Donnell, 2003). Findings from Beslan, conducted on children during their teenage years, also report depression following a traumatic event (Scrimin et al., 2011).

Consistent with the previously reported findings, Eisenberg and Cohen Silver (2011), who studied children after 9/11, state that young children may be more vulnerable to anxiety-related reactions when they are repeatedly exposed to terrorist attacks through television. This vulnerability is attributed to their underdeveloped cognitive abilities, which makes them think that experiences of the attack are still occurring. Furthermore, it is claimed that older children think more realistically, which helps explain why they are less irrational in their thinking about possible harm coming to themselves or others. In Beslan, it was found that younger children showed a higher frequency and a longer duration of disturbed consciousness (Portnova, 2005).

It seems that, in both the attacks of Beslan and the United States, the age of the child influenced the kind and severity of reactions following the traumatic event.

#### *V. Pre-existing vulnerability*

It seems intuitive that children who are vulnerable before terrorist attacks will

have an increased risk for negative outcomes following an attack, in comparison to children who do not exhibit this pre-existing vulnerability (Pine et al., 2005). Joshi and O'Donnell (2003) state a comparable view, but in terms of *invulnerability*. Their research found that children, who are extraverted, take social risks, have good impulse control, reach out to others for support, and express their own ideas, will experience more successful recovery, with respect to their psychosocial functioning, after a trauma like a terrorist attack.

Research conducted in the United States similarly found that differences in self-regulation of emotions and behavior, cognitive processing, and social abilities, can influence the degree to which children felt threatened and vulnerable (Eisenberg & Cohen Silver, 2011). Also, having experienced several traumas before the terrorist attack increased stress-symptoms following the attack (Fremont, 2004). No data have been found about this variable in the Beslan children.

#### **Conclusion/discussion**

In summary, it was found that reactions of children following a terrorist attack can include symptoms of PTSD, depression, anxiety, and sleeping problems (Fremont, 2004; Joshi & O'Donnell, 2003; Klein et al., 2009; Moscardino et al., 2007; Pine et al., 2005; Portnova, 2005; Scrimin et al., 2009; Scrimin et al., 2011).

These reactions can be mediated by several factors. Existing vulnerability depends on the self-regulation of emotion, social abilities, and reaching out for help. When children exhibit these characteristics, they are more likely to recover successfully from a terrorist attack (Eisenberg & Cohen Silver, 2011; Joshi & O'Donnell, 2003). No data

were found in Beslan regarding such a correlation. This is perhaps due to the fact that not many children could be examined, so no pre-existing data regarding the children specifically involved in the attack were available. In the United States, more children who were not specifically involved in the attack could be questioned, so pre-existing data from other research may have been used. More research is needed in this area in order to be better prepared to provide treatment to children exposed to terrorist violence in the future. By using pre-existing data about the vulnerability of children, the reactions of vulnerable and less vulnerable children can be compared following an attack. Looking at age, it seems that cognitive maturity is influential in the kind of reaction children show after terrorist events. The reactions of parents partly determine the degree of stress symptoms that children show. Parents can have trouble in responding appropriately to their children, as they experience high distress themselves following a terrorist attack. The loss of loved ones puts children at a higher risk for negative outcomes after a terrorist attack. Finally, the influence of the degree of exposure to the attack can be explained by a dose-response relationship. This means that the more directly a child is exposed to a terrorist attack, the more severe his or her reactions generally are. Additionally, children who were directly involved in the siege in Beslan showed anomalous processing of mixed emotional faces.

The children in both Beslan and the United States both experienced similar psychological consequences of terrorism. Symptoms of PTSD, anxiety, depression and sleeping problems were found in both settings. Also, the reaction of children in both settings depended on the same mediating factors. As explained above,

pre-existing vulnerability emerged as an important variable within the US setting, but could not be determined among the Beslan child survivors.

Taking into account the dose-response relationship, it can be hypothesized that children in Beslan showed more severe reactions than children in the United States. The former were more directly exposed to a terrorist attack. However, this hypothesis has not been systematically researched, and should be further studied in order to determine if different kinds of attacks might have different kinds of impact on children. With this knowledge, more appropriate treatment could possibly be developed.

Terrorist attacks may be hard to prevent. But accurate knowledge about the consequences of such attacks on children can be useful in developing effective treatments for children who have survived an attack, or for devising programs that enhance the resilience of children living under the threat of terrorism. Because of this, more research will be needed to discover other factors, and to refine the description of those already identified, that mediate the relationship between a terrorist attack and the psychological wellbeing of children.

### **Interdisciplinary view**

This review focused on the psychological impact of terrorism on children from a behavioral perspective. However, this view does not cover the totality of the subject of interest. Therefore, this section will discuss how the effect of terrorism on children can be described from a more sociological point of view.

Children from various parts of the world may display different reactions to a terrorist attack. This can be partly due to the fact that children grow up in a specific culture. This culture provides children with norms

and values considered appropriate for their behavior. These norms and values differ among cultures. Of interest in this respect are the subsequent findings. In the United States, avoidance was determined to be an ineffective coping strategy for dealing with terrorism (Eisenberg & Cohen Silver, 2011). However, in Beslan, avoidance was determined to be an effective coping strategy (Scrimin et al., 2011). In Russia it may be less common to talk about your feelings than in the United States. This is supported by the finding that, in Beslan, people did not want to talk about their emotions after the attack. By not doing so, they may have wanted to show how strong they emotionally were (Moscardino et al., 2007).

In this article, some comparisons have been made between results obtained in Beslan and the United States. However, in order to determine the extent to which the similarities and differences can be ascribed to the influence of culture was beyond the scope of this article, and is an issue not best examined from a psychological perspective. Such questions could best be examined from the point of view of cultural anthropology or sociology.

An interdisciplinary view is necessary to fully understand the reactions of children following a terrorist attack. Behavioral sciences, like psychology, and sociological sciences can complement one other in surveying the reactions of the individual child and specific mediating factors, while also taking into account the broader society and culture influencing these reactions, and determining which factors are most relevant.

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