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## Long-term Impact of Terrorist Attack Experience on Survivors Emotional State and Basic Beliefs

Ludmila Chaiguerova<sup>a\*</sup>, Galina Soldatova<sup>a</sup>

<sup>a</sup>*Lomonosov Moscow State University, Faculty of Psychology, Moscow, 125009, Russia*

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### Abstract

Research conducted in Beslan one year after a terrorist attack showed that extreme situations of this kind had deep impact not only on direct victims - people who were in the epicenter of the situation and their relatives, but also on the other residents of the town who were not touched directly by this tragic event. At the same time, long-term influence on affective state and cognitive structures varies in different categories of inhabitants of Beslan depending on the involvement in the situation.

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### 1. Introduction

A steady growth in the number of life- and health-threatening situations in the contemporary society requires a more careful study of their consequences and influence on a person and a society. In the recent decades, “the psychology of extreme situations” has started to separate into a special field, and the object of this field continues to be refined [1], [2].

In Russian psychology traditionally this field was associated with the study of professional activity in the situations related with high risk and high responsibility of a person (professions of an aircraft pilot, cosmonaut, rescuer, etc). Later the accent has displaced to the study of situations, caused by natural disasters [3], [4], participation in military operations [5], [6] and technogenic and anthropogenic catastrophes [7], [8].

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\* Corresponding author. Tel. +7-985-290-03-96.

E-mail address: [ludmila\\_chaiguerova@hotmail.com](mailto:ludmila_chaiguerova@hotmail.com)

At the beginning of the 21<sup>st</sup> century, terrorist attacks became one of the most horrifying types of extreme situations. Although any extreme situations cause similar psychological reactions in people, the situations of intentional violence of a man or a group of individuals that harm other people, damage health and cause physical destruction, have the strongest effect on victims [9], [10].

In the last decades, psychologists in Russia and abroad have accumulated some valuable experience in the treatment of extreme situations victims, which allows them to predict long-term impact of traumas on mental health and life as whole and foresee rehabilitation outcome. However, every new research in this field helps to elaborate methods of psychological response diagnostics and to develop effective methods of treatment of victims.

On September 1, 2004 a group of armed Chechen separatists seized a school in the Russian town of Beslan and took over 1,100 people (children, parents and teachers) as hostages. The Beslan school hostage crisis lasted for three days. At least 334 hostages, including 186 children, were killed. This terrorist attack was one of the most frightful and inhuman acts and had grave consequences for Beslan inhabitants. The study was conducted in Beslan one year after the tragedy with the participation of local psychologists who had helped the victims to cope with psychological reactions to the traumatic event.

## 2. Research objectives

We supposed that all the residents of Beslan, which is a small town, psychologically suffered from the terrorist attack and became its victims. That is why we included into a study not only hostages and their relatives, but also those residents who were not personally touched by this tragic event. At the same time, we believed that impact of a traumatic event on emotional state and cognitive structure would vary between different categories of Beslan inhabitants. Thus, the current study had two objectives. The first objective was to discover whether the tragic event in the small town influenced its whole population. The second objective was to compare psychological reactions in different groups of Beslan residents.

## 3. Subjects

A total of 282 Beslan residents aged from 9 to 65 years old took part in the study: 107 adults (75 females and 32 males) and 175 children (93 females and 82 males). There were three groups of residents: 112 respondents had been held as hostages, 85 - had lost their relatives during the terrorist attack, and the other 85 had not been personally touched by the terrorist attack (Table 1). As control groups we took two groups of Moscow inhabitants who had not experienced extremely traumatic situations in their life (60 adults and 45 children)

Table 1. Categories of respondents

	Adults (19-65)		Children (9-18)	
	number	%	number	%
Hostages	36	33.6	76	43.5
People who lost relatives	36	33.6	49	28
Other local residents	35	32.7	50	28.5
Total	107	100	175	100

#### 4. Research methods

The program of the study aimed to reveal specificity of affective and cognitive structures of respondents and consisted of series of questionnaires: Differential Emotions Scale [11], Buss-Durkee Hostility Inventory [12], Spielberger's State-Trait Anxiety Inventory [13], Zung Self-Rating Depression Scale [14], and Janoff-Bulman's World Assumptions Scale (WAS) [15]. The program of the study for adults and children slightly differed (Table 2).

Table 2. Program of the research

Indices	Method	
	Adults	Children
Emotion states	Differential Emotions Scale	
Aggressiveness	Buss-Darkee Hostility Inventory	
Anxiety	Spielberger's State Trait Anxiety Inventory	-----
Depression	Zung Self-Rating Depression Scale	-----
Basic beliefs	Janoff-Bulman World Assumption Scale	-----

#### 5. Results

##### 5.1. Emotions

The results of Differential Emotions Scale revealed the differences between the groups of adults in negative ( $F(2.89)=3.887$ ,  $p<0.01$ ) and anxious-depressive states ( $F(2.96)=2.132$ ,  $p<0.1$ ). These types of emotions were more often experienced by former hostages and respondents whose relatives had been killed in the terrorist attack than by the other respondents. Especially, it concerns emotions like anger ( $F(2.93)=2.199$ ,  $p<0.1$ ), disgust ( $F(2.94)=2.972$ ,  $p<0.01$ ), contempt ( $F(2.94)=2.971$ ,  $p<0.05$ ) and fear ( $F(2.98)=2.268$ ,  $p<0.1$ ). Among three groups of children, those who lost their relatives experience negative emotions the most. In comparison with other groups they were more likely to manifest anger ( $F(2.189)=2.856$ ,  $p<0.05$ ), disgust ( $F(2.190)=1.702$ ,  $p<0.1$ ) and contempt ( $F(2.189)=1.844$ ,  $p<0.1$ ).

##### 5.2. State and trait anxiety

The results of Spielberger's State-Trait Anxiety Inventory showed that the whole adult sample had higher level of anxiety compared to the control group for state anxiety ( $t(67)$  of  $=2.69$ ,  $p<0.01$ ) as well as for trait anxiety ( $t(67)$  of  $=3.25$ ,  $p<0.01$ ). As far as state anxiety concerns, the significant differences were revealed also between the groups of Beslan inhabitants ( $F(2.37)$  of  $=3.576$ ,  $p<0.05$ ). The highest level of situational anxiety was observed in the former hostages, followed by the group of people who had lost their relatives, while the lowest level of state anxiety was observed in those, who did not suffer from the terrorist attack directly (see Fig. 1). Differences in the level of trait anxiety between the groups of respondents from Beslan did not reach

significance level, although a similar tendency was observed – the former hostages had the highest level of state anxiety.

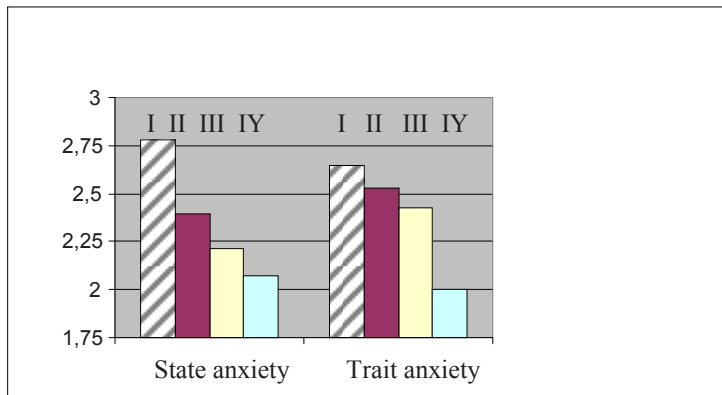


Fig. 1. Average level of situational and personal anxiety (adult sample)

I – Hostages, II - People who lost their relatives, III - Other residents of Beslan, IV - Control group

### 5.3. Depression and Aggressiveness

Comparison of the results of Buss-Durkee Hostility Inventory and Zung Self-Rating Depression Scale with the control sample revealed higher average level of depression ( $t(117) = 3.984, p < 0.01$ ) as well as higher level of aggressiveness ( $t(60) = 2.904, p < 0.05$ ) in Beslan inhabitants (Fig. 2,3). Among Beslan inhabitants the group of former hostages showed the highest level of aggressiveness ( $F(2.34) = 4.521, p < 0.01$ ), while those who lost their relatives showed the highest level of depression ( $F(2.89) = 3.455, p < 0.05$ ). In the group of Beslan inhabitants who were not touched directly by the terrorist attack, the level of depression is lower than in two other groups, but the level of aggressiveness is higher compared to those who lost their relatives and the control group.

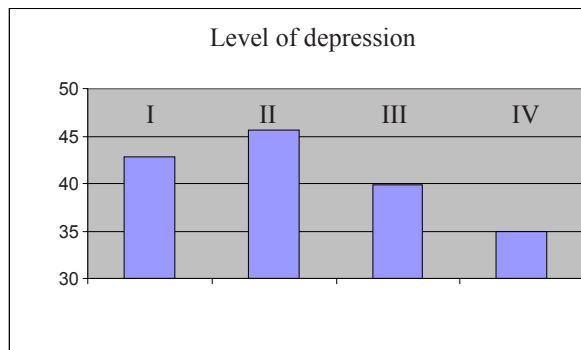


Fig. 2. Average level of depression in the groups of adults

I – Hostages, II - People who lost their relatives, III - Other residents of Beslan, IV - Control group

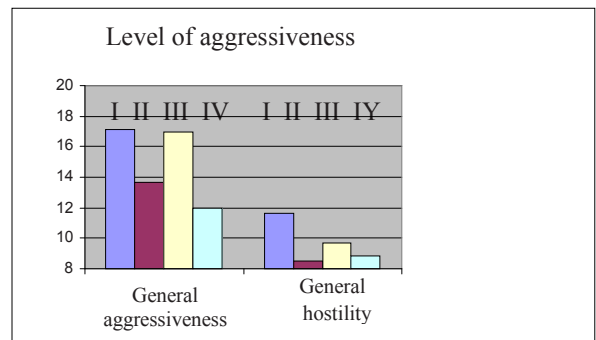


Fig. 3. Average level of aggressiveness in the groups of adults

As to children, there were no differences between the subgroups of Beslan children in the level of aggressiveness or in the level of hostility ( $F(2.76) = 0.407, p < 0.50$ ). However, comparison with the control group revealed that level of aggressiveness ( $t(78) = 7.110, p < 0.01$ ) and hostility ( $t(78) = 8.536, p < 0.01$ ) is higher in Beslan children group than in the control group of children from Moscow (Fig.4).

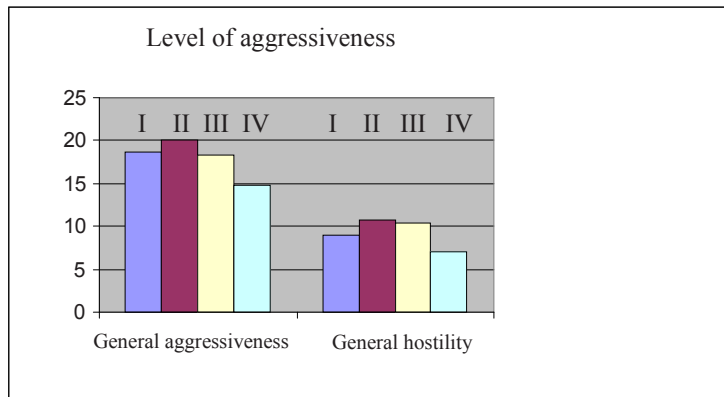


Fig. 4. Average level of aggressiveness in the groups of children

I – Hostages, II – People who lost their relatives, III – Other residents of Beslan, IV – Control group

#### 5.4. Basic beliefs

The results of Janoff-Bulman's World Assumptions Scale (WAS) were analyzed with the purpose of studying the long-term influence of the extreme situation on cognitive aspects of psychological state of Beslan residents. The method measures vulnerability-related beliefs about the benevolence and meaningfulness of the world and one's own self-worth. Extremely negative experience received by survivors of traumatic situations causes serious and prolonged shifts in their basic beliefs [16; 17]. The result of WAS showed that all groups of respondents from Beslan had a similar cognitive response to the terrorist attack a year after the tragic event. There were no significant differences between the responses of former hostages, those who lost their relatives and the group of people who were not touched directly by the terrorist attack.

In Beslan residents, in comparison with the control group, from the three primary categories of basic assumptions, Meaningfulness of the World suffered most of all ( $t(123)=-1.713$ ,  $p<0.05$ ), followed by Benevolence of the World ( $t(123)=-2.565$ ,  $p<0.01$ ) (Fig. 5,6). The third primary category, Worthiness of Self, did not change or had already re-established a year after traumatic situation.

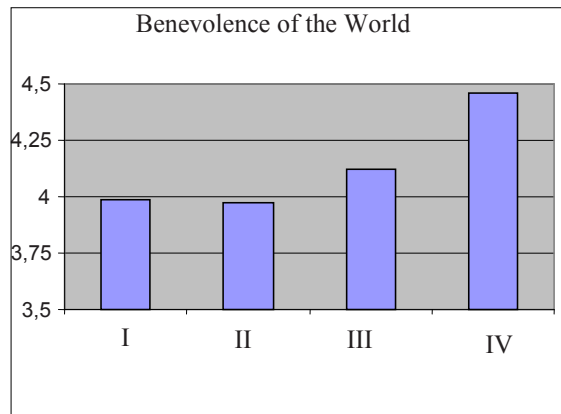


Fig. 5. Benevolence of the World in different groups of adults

I – Hostages, II – People who lost their relatives, III – Other residents of Beslan, IV – Control group

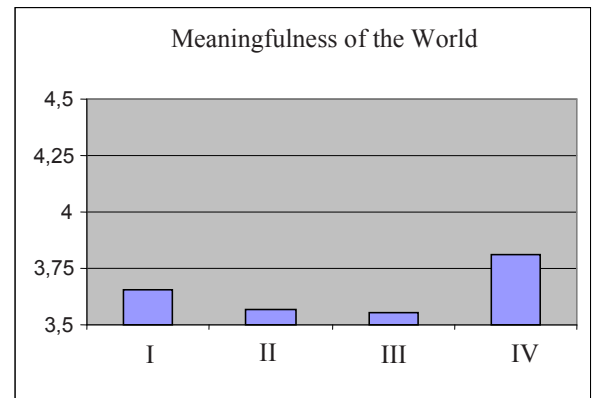


Fig. 6. Meaningfulness of the World in different groups of adults

Therefore, it was much more difficult for Beslan residents to re-establish the trust in the world than the belief in the self after the traumatic situation. Extreme situation, especially with the negative consequence, reduces the

faith of victims in the fact that they can control the world and events by their own behaviour. In their eyes, the world is no more a safe and controllable place and everybody could turn out to be victim.

## 6. Conclusions

The research showed that the terrorist attack had impact on emotional state as well as basic beliefs of all Beslan residents regardless of whether they had been directly involved in the extreme situation or not. Both emotional state of Beslan residents and cognitive aspects of their psychological state were worse compared to the control group. As regards to cognitive aspects of psychological state, the results of all three groups of adult respondents were similar: beliefs in meaningfulness and benevolence of the world were destroyed. Emotional response to the traumatic event varied in the different groups of adult respondents: emotional state of the former hostages and those who had lost their relatives was affected by the tragic event most of all. These groups of respondents had higher level of negative and anxious-depressive emotions and higher level of situational anxiety in comparison with the other Beslan residents. Besides, the former hostages demonstrated the highest level of aggressiveness, while those who had lost their relatives - the highest level of depression.

Differences between the groups of Beslan children were less pronounced than differences between the adult groups. The only difference concerned emotional state: negative emotions (anger, disgust, and contempt) were more typical for those children who had lost their relatives than for the others.

The study results can be useful for conducting timely psychological assessments and diagnostics as well as for developing more effective psychotherapy plan and goals for extreme situations victims.

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