Systematic review of the psychological consequences of terrorism among child victims

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Abstract

Terrorist acts have an enormous potential to produce trauma, especially in vulnerable groups such as children and adolescents. However, few studies have analysed the potentially adverse effects of terrorism on child victims. The present paper systematically reviews the literature on the psychological consequences which exposure to acts of terrorism can have for children. A total of 54 publications were reviewed, the majority originating from the USA (72.22%) and linked to the 9/11 attacks in New York (50%). Most of the studies analysed post-traumatic symptoms (64.81%) in children who were indirect victims through exposure to media reports about the attack (33.33%). There is a need for trained professionals to work with child victims of terrorism; they must be able to recognize the symptoms associated with these experiences, as well as the damaging effects they may have on children.

Key words: children, terrorism, effects, victimology, development

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From the perspective of victimology, acts of terrorism can be considered as a form of interpersonal victimization, one that has an enormous potential to produce trauma due to the interaction between various aspects of the experience, i.e. its malevolence, the feeling of having been betrayed by another human being, the very injustice of the act, and the fact that it goes against socially established norms, i.e. it is immoral (Finkelhor, 2007).

With this in mind the aim of the present study was to conduct a critical analysis of published studies concerning the psychological effects which acts of terrorism may, directly or indirectly, have on children. Although a number of theoretical reviews have been published in English on war, terrorism and political violence (notably the recent paper by Comer & Kendall, 2007) there has been no systematic review focused exclusively on the possible effects which terrorism can have on children. Thus, the aim of this review is presenting the main results of published studies in this frequently neglected area, hence becoming a useful contribution to the field of children and terrorist violence.

Terrorism, violence and their effects on victims

Terrorism shares certain characteristics with other forms of interpersonal violence such as acts of war or assaults, and in fact much of our knowledge about the effects of terrorism comes from studies of those events. However, terrorist acts are more unpredictable and episodic, and imply an undefined threat. Furthermore, they have a profound and lasting effect on the community as they are the manifestation of an ideological conviction that violence can and should be used to threaten and intimidate a much larger group than that which is directly affected (Shaw, 2003). The choice of

victims is another distinctive element, and forms part of the terrorist tactic. Indeed, the aim is rarely the act in itself, but rather to terrorize and intimidate the population as far as possible (Comer & Kendall, 2007; Yehuda & Hyman, 2005), creating a climate of fear, uncertainty and vulnerability, mainly through the dimension of communication or propaganda (De la Corte et al., 2008; Silke, 2005).

Terrorists tend to use violence as a way of influencing, persuading or intimidating, and seek to have an effect beyond those who are directly affected. Indeed, victims are chosen for their propaganda value, whether this be their relevance within the social group that is the target of the terrorist act (focused terrorism), or precisely because they have no direct relationship with that group's interests (indiscriminate terrorism). Terrorists frequently use non-conventional military tactics such as sneak attacks or the specific choice of innocent targets, such as children. It should also be noted that the members of terrorist groups usually show absolute loyalty to their organization, which leads them to avoid considering the consequences of their acts and to justify them as necessary (Hills, 2002).

In terms of victimology, terrorism combines two threats to the individual which produce deep feelings of insecurity and terror, and it are these threats which distinguish terrorism from other acts of interpersonal violence. Terrorism is both an act of intentional violence against the community, with all the harm that this can cause, and also an example of random violence, something unexpected that could happen at any time, and which could therefore affect oneself and one's family (Pine et al., 2005). As a result, both those who are physically present in the attack and the wider community in which it occurs become victims of terror. Given this, it has been argued that terrorist acts are the purest way of producing trauma, since they combine the perception among

victims of malevolent intent with the threat or real existence of extreme physical and/or psychological harm. Consequently, victims develop a genuine fear of the future, and the basic human assumption of safety is violated (Echeburúa, Corral, & Amor, 1998).

Comer and Kendall (2007) consider the different ways in which children and adolescents may be exposed to terrorism. *Direct exposure* is when they are the actual victims of a terrorist attack or live in an area where such acts occur. *Interpersonal exposure* refers to the loss of a loved one or acquaintance in an attack, what Baca, Cabanas, and Baca-García (2003) refer to as the victim's relatives. Exposure may also occur *through the media*, whereby children witness terrorist acts and their devastating consequences by watching television, etc. Finally, there is exposure to the climate of threat*,* expectation and the state of alert (sometimes referred to as *second-hand terrorism*) that these acts produce within the child's community, school and family, and which may generate or exacerbate a wide range of psychological problems and hinder the child's development.

The direct exposure of children to a terrorist attack produces terror and confusion and disturbs the daily routines and stability that are essential for their development. Indeed, children who have been directly exposed to terrorism are at very high risk of developing various psychological disorders (Comer & Kendall, 2007). It should be noted, however, that even if children were not present during the actual attack, the unexpected death of a loved one (especially one of their main carers) as a result of a terrorist act can have an enormous emotional impact. This may then trigger a pathological mourning process or lead to various disorders, mainly those related to a depressed mood and symptoms of anxiety, although it can also take the form of confrontational and disruptive behaviour, or externalizing behaviour problems,

especially among boys. These gender differences in internalizing and externalizing symptoms have been demonstrated in studies of developmental psychopathology with community samples (Leadbeter, Kuperminc, Blatt, & Hertzog, 1999), and children and adolescents victims of trauma (Pine & Cohen, 2002).

All these kinds of disturbances can have serious long-term consequences (Dowdney, 2000). It is therefore important to analyse the impact which traumatic events may have on children, whether this is via the mass media or through the indirect influence of the event's effect on their family and community. Indeed, what has been referred to as distant trauma may generate the same adverse symptoms as a directly experienced trauma (Terr et al., 1999).

Following the 9/11 attacks on the World Trade Centre in New York there developed a wider interest in acts of terrorist violence and their effect on children, one which went beyond classical studies of the effects of family violence on a child (Prinz & Feerick, 2003). Nevertheless, this remains a new focus of research and relatively few studies have been published in this regard.

Process of selection and coding of the studies

a) Selection of studies

The principal criterion for selection was journal articles (not doctoral theses or book chapters) that described an empirical study of the psychological consequences of terrorism for children who have been the direct or indirect victims of an attack. The search was conducted via the most relevant databases in the field of health sciences (*Medline*, *Scopus, Psycinfo* of the Web of Science) and used the following search terms: *(terrorism)* AND *(*"*baby" OR "childhood" OR "child" OR "children" OR "infancy" OR "infant" OR "toddler" OR "adolescence" OR "adolescent" OR "youth" OR*

"teenager" OR "youngster" OR "minor) AND *("victimization" OR "victimology" OR "victim" OR "violence"*) AND (*"consequences"* OR *"effects"*). The *SciELO* database and any relevant publications included in *Latindex* were also reviewed. As a complement to the above the reference lists of previously published reviews, such as those of Comer and Kendall (2007) and Freemont (2004), were examined in order to locate any other relevant papers not already included. Articles were excluded if their abstract did not include the established review topics, or if they only made reference to topics that were related but not directly linked to the focus of the present review, for example, the consequences of war, community violence or refugee children.

Following the initial search (which yielded 267 potential publications) any duplicate or irrelevant papers were eliminated, leaving a total of 104 abstracts to be read. This process resulted in 54 articles being included in the review.

b) Coding of studies

The articles were coded according to a series of variables related to the study characteristics, design and methodology: (a) year of publication; (b) country in which the study was conducted; (c) number of participants; (d) whether the study was descriptive only or included a comparison/control group; (e) informant (parent, child, other); (f) method used to assess the child (questionnaire, interview, etc.); and (g) time of assessment (days, months, years after the attack). Variables related to the children and the terrorist act were also coded: (a) sex of the participating children (boys, girls, both); (b) range or mean age of the sample (in years); (c) ethnic group of the participants; (d) type of victimization (direct, interpersonal or indirect, i.e. via the media or second-hand terrorism); and (e) description of the terrorist attack. Finally, the analysis considered the psychological consequences that were assessed and which were

associated with the terrorist act (e.g. post-traumatic stress disorder, depression, behavioural problems, among others).

The studies included

Table 1 lists the 54 empirical studies of the psychological consequences of terrorism for children, the large majority of which (72.22%) were conducted in the USA, followed at a considerable distance by Israel (20.37%). The sample size differed widely among studies, ranging from 22 to 8,236 participants (M=952.52, SD=1532.03).

Insert Table 1 around here

The act of terrorism that featured most frequently in the studies was the 9/11 attack on the World Trade Centre in New York in 2001 (50.00%), followed by the 1995 attack on the Alfred P. Murrah Federal Building in Oklahoma City (14.81%). In the majority of cases the children analysed were indirect victims, through exposure to information about the attack in the media (33.33%). However, some studies were conducted with direct victims, i.e. children who were actually present during the attack (14.81%), or those who had been the victim of interpersonal terrorism through the death of a loved one or acquaintance (7.41%). The point at which the study was carried out varied widely, from two days after the attack (e.g. Bar-Tal & Labin, 2001) to 17 years later (Desivilya et al. 1996a, 1996b).

Except for one study that focussed exclusively on boys (Trappler & Friedman, 1996), the children analysed were of both sexes, and in comparable proportions. Most of the study samples involved children aged ten or over, although in one study (Basu & Dutta, 2010) children as young as one and a half years were included. Overall, the studies cover a range of ethnic groups, due principally to the demographics of the country in which they were conducted, although participants were most commonly

Caucasian (42.59%), with the remainder being distributed among a number of ethnic and religious groups (for example, Jews, Sephardic Jews, Arabs, Muslims, Hindus, Africans, Afro-Americans, Latinos and Asian-Americans; 37.04%). Ethnicity was not recorded in 20.37% of the studies reviewed.

The assessment was mainly based on the children themselves (64.81%), followed by a multi-informant method involving both children and parents (22.22%). The most widely used instruments for obtaining this information were pencil-and-paper questionnaires (62.96%) and interviews (25.92%). There were only five cases in which both these techniques were used (9.26%). One study involved the use of an online questionnaire (1.85%). In addition to evaluating the extent to which the child had been exposed to the terrorist attack (59.25%), the most common psychological variable analysed was symptoms of post-traumatic stress (64.81%), followed by other general psychological disorders (11.11%).

Results of the review

This paper presents a systematic review of the literature on the psychosocial impact of terrorism on children, doing so from the perspective of developmental victimology or the comprehensive study of childhood victimizations (Finkelhor, 2007).

In general, the children analysed were most likely to present internalizing symptoms, principally those characteristic of post-traumatic stress disorder. It should be noted, however, that this finding could be due to the fact that this is also the kind of symptomatology which is most often assessed (Comer & Kendall, 2007). On a broader spectrum the children also reported symptoms of depression, generalized anxiety, separation anxiety and agoraphobia (Hock et al., 2004; Hoven et al., 2004; Hoven et al., 2005). Only a few studies (e.g. Hoven et al., 2005; Lengua et al., 2005; Wu et al., 2006)

examined the presence of externalizing symptoms, such as behavioural disorders or substance abuse, among child victims of terrorism, and this prevents any reliable conclusions from being drawn in this regard. With respect to the overall prevalence of psychological disorders, both internalizing and externalizing, victims of terrorism present more symptoms on all the problems assessed when compared with matched controls -i.e., children with similar sociodemographic characteristics who have not been victims of terrorism- (Basu & Dutta, 2010; Desivilya et al., 1996a, 1996b).

Gender differences showed that girls present more internalizing symptoms and disorders (in North-American samples: Hoven et al., 2004; Hoven et al., 2005; Pfefferbaum et al., 2003a; Stein et al., 2004; but also in Israeli and Palestinian studies: Cohen y Eid, 2007; Elbedour et al., 1999; Laufer y Solomon, 2009; Raviv et al., 2000; Zeidner, 2005); while boys develop more behavioural disorders (Hoven et al., 2005; Lengua et al., 2005), hostility (Elbedour et al., 1999) and impulsivity (Wadsworth et al., 2004), although these differences were not found in all the studies (Phillips et al., 2004; Ronen et al., 2003).

Most of the reviewed papers focused on assessing disorders that are included in clinical manuals, especially post-traumatic stress disorder (Hoven et al., 2009), and avoided carrying out a broader analysis of the psychological consequences of terrorism for children (Comer & Kendall, 2007; Pfefferbaum et al., 2005). Indeed, very few studies have considered this broader perspective, although those that have (e.g. Hoven et al., 2005) have shown that child victims of terrorism present a high prevalence of various psychological difficulties, not simply those included in classical assessment manuals; examples of such difficulties include functioning at home and problems with the peer group or at school (e.g. Pfefferbaum et al., 2003d).

In light of the above it is necessary to distinguish between pathological reactions to a terrorist act and what could be considered a normal response to an abnormal event (Pynoos, Steinberg, & Piacentini, 1999). This requires that any assessment takes into account not only symptomatology but also the extent to which the child's usual functioning is affected in all his or her developmental contexts (La Greca, 2007). Indeed, children can present a range of normal reactions to an act of terrorist violence (see Joshi & Lewin, 2004; or Williams, 2007), and these should not be confused with psychopathological problems because, in the majority of cases, the children will recover from their exposure to terror once they have had enough time to readapt. In fact, those studies which do assess the effects on children's everyday functioning conclude that, in most cases, and depending on certain factors which will be discussed below, the impact of terror is minimal, transitory and does not become generalized (Pfefferbaum et al., 2003a, 2003b).

a) Consequences of exposure to terrorism through the mass media

Research has demonstrated a dose-response effect on children who have been exposed to terrorism, i.e. the greater the child's direct experience of the attack the greater the symptomatology, whether internalizing (e.g. Baca, Baca-García, Pérez-Rodríguez, & Cabanas, 2005; Hoven et al., 2004; Koplewicz et al., 2002; Lengua et al., 2005; Pine et al., 2005) or externalizing (Solomon Even-Chen & Itzhaky, 2007; Wu et al., 2006). However, one of the limitations of this research is that most of the studies describe the psychological consequences in children who have been indirect victims, through media exposure to material concerning a terrorist attack (Pfefferbaum et al., 2005). Nonetheless, and as Pfefferbaum and co-workers point out (2003b), it is worthwhile investigating the effects on children of indirect exposure to terrorism

because one of the objectives of terrorist violence is to provoke fear within the wider community.

Children are clearly affected by the images they see in the media following an act of terrorism, and this accounts for the emotional distress reported by children and adolescents who were physically distant from the actual attack (e.g. Fairbrother et al., 2003; Gil-Rivas et al., 2004; Mijanovich & Weitzman, 2010; Pfefferbaum et al., 2000b; Pfefferbaum et al., 2001; Pfefferbaum et al., 2003d; Schuster et al., 2001). Studies of children who have been indirect victims of terrorism have found symptoms of post-traumatic stress, anxiety, sadness, isolation and general psychological distress (e.g. Barnes et al., 2005; Fairbrother et al., 2003; Gil-Rivas et al., 2004; Hock et al, 2004; Lengua et al., 2005; Mijanovich & Weitzman, 2010; Otto et al., 2007; Pfefferbaum, 2003d; Schuster et al., 2001; Stein et al., 2004; Whalen et al., 2004), as well as a tendency to see the world as a more dangerous place (Halpern-Felsher & Millstein, 2002; Phillips et al., 2004b), an altered view of the future (Fairbrother et al., 2003) and a heightened sense of the risk of death (Halpern-Felsher & Millstein, 2002), concern for one's own safety and changes in everyday activities (Becker-Blease et al., 2008; Pfefferbaum et al., 2003c), and problems of an externalizing nature (Lengua et al., 2005).

Furthermore, exposure of children who were directly affected by an attack to subsequent news reports about it can lead to a serious deterioration in their emotional state. These children are more likely to suffer post-traumatic symptoms, mainly of the intrusive kind such as nightmares or recurrent flashbacks (Pfefferbaum et al., 2001); this was the case following the bomb at the Alfred P. Murrah Federal Building in Oklahoma City in 1995 (Pfefferbaum et al., 1999a; Pfefferbaum et al., 2000a; Pfefferbaum et al.,

2003d) and after the 9/11 attacks on the World Trade Centre in New York in 2001 (Saylor et al., 2003).

According to the study by Saylor and co-workers (2003), in which the parents of primary school children were asked about the degree to which their sons and daughters had been exposed, either via the internet or on television, to explicit images of the 9/11 attacks (for example, the planes crashing into their targets, wounded people or people jumping from the towers), only 15% of children had not had access to these images. Furthermore, even what were regarded as positive images, such as the President addressing the nation, the altruism of ordinary citizens or the help and rescue efforts, produced an increase in the number of post-traumatic symptoms. Given the negative effects that this exposure seems to have on children it is noteworthy that in the studies reviewed, parents did not restrict access to these stimuli, this being especially the case with older children (e.g. Becker-Blease et al., 2008; Lengua et al., 2005; Phillips et al., 2004b; Schuster et al., 2001). Moreover, on occasions it was the school that did not restrict access. For example, the study by Saylor et al. (2003) found that 50% of the children surveyed reported having seen images of the attacks while at school.

In the only study to have compared the differential effects on children of exposure to radio, television and the printed press, it was the latter which was most associated with a longer duration of post-traumatic symptomatology (Pfefferbaum et al., 2003d). The authors suggest that this finding could indicate that those children who are most affected by an attack show greater interest in it, seeking out more information; alternatively, it may be that the reading and retention of static images, which are perhaps the most striking, has a more profound effect as it involves the processing of a different kind of information to the dynamic images which are broadcast on television.

Similar results were obtained when analysing the use of internet as a source of information about the 9/11 attacks, with more post-traumatic symptoms being reported among children who used this form of media (Saylor et al., 2003).

It should be noted that research in this area is limited by the difficulty of assessing subsequent to the event how much access children had to images of a terrorist attack. Nevertheless, the findings to date, which are consistent across the studies reviewed, suggest that families and public authorities should be aware of the risks involved in exposing children and adolescents to this kind of material, regardless of whether they have been direct victims of the attack or were physically far removed from it (Comer & Kendall, 2007; Pfefferbaum et al., 2003d; Phillips et al., 2004b; Pine et al., 2005; Schuster et al., 2001).

b) Consequences of interpersonal exposure to terrorism

Another common focus of analysis concerns children who are relatives of victims or who experience interpersonal exposure through their relationship to someone who has been directly affected by the attack. In this regard, research in the US (Pfefferbaum et al., 1999a, 1999b; Pfefferbaum et al., 2003d; Pine & Cohen, 2002) and research carried out with Palestinian and Israeli children (Cohen & Eid, 2007; Elbedour et al., 1999; Ronen et al., 2003) have documented the serious psychological repercussions which these forms of exposure may have for children. The findings are consistent with the effects reported in adult victims in Spain (Baca et al., 2003). Indeed, high rates of post-traumatic stress disorder are found among children who have suffered the death of a parent due to terrorism, with one study reporting that 50% of girls and 33.1% of boys who lost a parent in the attack on the Hebron mosque in 1994 were subsequently diagnosed with this disorder (Elbedour et al., 1999).

A study by Pfefferbaum and co-workers (2000b) analysed symptoms of post-traumatic stress among children who were indirectly affected by the 1995 Oklahoma City bombing, i.e. children who reported a friend or acquaintance was killed in the attack. The authors found that even this kind of indirect interpersonal relationship was associated with more symptoms than were observed among children who were not exposed in this way.

It should be noted that a child's adaptation in the aftermath of a terrorist attack will largely depend on the degree of adaptation present in his or her immediate environment (mainly the family and school), as well as the child's perceived degree of social support (Basu & Dutta, 2010; Gil-Rivas et al., 2004). Indeed, children process traumatic events in relation to the reactions of those around them, searching for signs and indicators that enable them to interpret the event and react in a socially expected way (Yehuda & Hyman, 2005).

Despite this, no published studies have yet analysed specifically the effect of distress among educational staff on the emotional state of children in the aftermath of a terrorist attack (Comer & Kendall, 2007), although reactions of fear among teachers during an attack have been related to more post-traumatic symptoms in the children they are responsible for (Pfefferbaum et al., 2003c).

As regards the family, research has shown that the sons and daughters of adults who have been highly exposed to terrorism (e.g. evacuees from the World Trade Centre during 9/11 and professionals involved in rescue efforts) report more psychological problems (mainly post-traumatic stress disorder) than do children whose parents were less exposed, this being the case even if the children themselves were not present during the attack. This effect was especially evident when both parents and children were

highly exposed (see Hoven et al., 2004; Hoven et al., 2005), and in the case of adolescents, who are sufficiently mature to understand the danger which their parents had been in (Stuber et al., 2005). Studies have also shown that parental expressions of suffering following the 9/11 attacks, for example, crying or the presence of post-traumatic symptoms, were associated with the development of more symptoms of this kind in their sons and daughters (Fairbrother et al., 2003), as well as with other disorders and difficulties (Stuber et al., 2005). Although there is empirical evidence to suggest that family communication in the aftermath of a terrorist attack acts as a buffer against the development of psychological problems in children (Stuber et al., 2005), longer discussions with parents about the attack have also been associated with greater emotional and behavioural maladjustment in children (Stein et al., 2004). This same pattern was observed in a study conducted with Israeli Jewish and Arab families, whereby the highest levels of post-traumatic symptoms were found among those adolescents whose parents shared more information and feelings about terrorism with them (Cohen & Eid, 2007). Taken together, these results suggest that adults should reflect carefully before expressing certain negative emotions in front of children, especially if the latter have yet to develop a level of understanding that would enable them to take on board a subsequent explanation that was given to reassure them.

The dose-response effect can also be observed in these studies, such that the nature of the relationship with a direct victim of an attack influences the degree of psychological problems presented by a child. Specifically, the closer the relationship the greater the number of symptoms (Pfefferbaum et al., 2000a; Pfefferbaum et al., 2006), and this is especially the case when the victim is a parent of a child of pre-school age (Basu & Dutta, 2010). It is worth noting, however, that in the study by Pfefferbaum and

co-workers (1999a) of 10-16 year olds the highest levels of post-traumatic symptoms were reported by those who had lost a sibling in a terrorist attack, followed by those who had lost a parent.

The possible presence of pathological grief is only considered in two of the studies reviewed (Brown & Goodman, 2005; Pfefferbaum et al., 2006). As such, it is a topic that requires further analysis, not least when one considers the large numbers of children and adolescents who lose a loved one in this kind of violent act (La Greca, 2007) and the adverse effects which are known to be associated with pathological mourning, for example, an increased rate of post-traumatic symptoms (Brown & Goodman, 2005; Dowdney, 2000; Pfefferbaum et al., 1999b; Pfefferbaum et al., 2006).

c) Consequences of direct exposure to terrorism

Studies that focus on children who have been the direct victims of a terrorist attack (e.g. Koplewicz et al., 2002) tend to be based on small samples and often lack a comparison/control group. While this limits the results obtained in these studies, they nonetheless provide an initial approach to this important topic (Comer & Kendall, 2007; Pfefferbaum et al., 2005).

There are a number of studies which are based on the reports of parents of affected children (e.g. Fairbrother et al., 2003; Phillips et al., 2004b; Schuster et al., 2001), although it needs to be acknowledged that this form of assessment can be problematic. Adults tend to underestimate the psychological distress experienced by children, and often consider that any distress which is present will, in time, disappear of its own accord (see, for example, the study by Koplewicz et al., 2002). The appraisal of anxiety disorders, which are the most common among victims of violence, provides a case in point: adults tend to underplay the presence of symptoms in children, and thus false

negatives are common in studies that only take into account the view of parents (Kendall & Flannery-Schroeder, 1998). A further point is that parents who themselves have an intense emotional reaction to a terrorist attack tend to regard their children as having been more affected by it (Hock et al., 2004; Phillips et al., 2004b; Schuster et al., 2001), this being an aspect that should be taken into account when contemplating treatment (Stuber et al., 2002). It is worth noting, however, that children's distress also has a negative influence on the psychological state of their parents or carers, there being a feedback loop between the two that can heighten any psychopathology that is present (Phillips et al., 2004a). For example, three months after the 2004 attack on School Number 1 in Beslan (Russia), 95% of main carers and 77.3% of children (appraised by their carers) had a diagnosis of post-traumatic stress disorder (Scrimin et al., 2006).

Some studies have based their assessment of symptomatology on the child victims themselves. For example, one study of children who had been directly affected by the 9/11 attacks found that two-and-a-half years later, 35% of them had been diagnosed with post-traumatic stress disorder, while around half had difficulties with everyday functioning (Mullett-Hume et al., 2008). Similarly, 28% of children involved in the Brooklyn Bridge shooting in 1994 suffered from post-traumatic stress disorder two months after the event, as well as symptoms of anxiety and depression (Trappler & Friedman, 1996). These findings highlight the need for multi-informant appraisal of pathological symptoms in children, in line with what is already recommended in the field of child psychological assessment (Achenbach et al., 1987). This is particularly relevant in relation to the assessment of internalizing symptoms, where consistency between informants is minimal (Kendall & Flannery-Schroeder, 1998).

Social and professional implications

To conclude, the present study provides a systematic and rigorous review of the psychological symptoms and disorders that are most commonly found among children who have been victims of terrorism. This information is of fundamental importance in terms of designing specific and effective treatment programmes and interventions, ones that are sensitive to the needs of the population and which need to be based on empirical evidence drawn from the study of thousands of children and adolescents around the world. Only thus will these programmes be able to be effectively implemented in the event of future terrorist attacks.

Although few reports have examined the issue of mental health programmes for children after a terrorist attack, the ones that have focused on this topic have shown the effectiveness of short counselling and interventions when delivered in school settings (Stuber et al., 2002). The school context is easily accessible, normalizes the terror experience the child has to cope with, and reduces the stigma associated with the use of mental health services (Pfefferbaum et al., 2003b). However, since multiple negative consequences related to terrorist attacks affect children, multimodal trauma-loss treatment approaches are still needed (La Greca, 2007).

As members of society we can choose to despair in the face of such acts of extreme violence or to take action so as to eradicate their consequences (Myers-Walls, 2004). One such form of action is to conduct research that increases our knowledge of terrorism and its effects on victims (for guidelines about what makes a good study of the psychological effects of terrorism on children, see North & Pfefferbaum, 2002; or Kazdin, 2007). This is especially relevant in relation to the most vulnerable victims, i.e. children, with whom will lie the responsibility of building a less violent society in the future.

In the field of developmental victimology (Finkelhor, 2007) there is a need for trained professionals who can work with children who have experienced a terrorist act, and who are able to recognize not only the symptoms associated with such experiences but also the harmful physical, psychological and social effects they may have in both the short and long term, not least because the ultimate aim of terrorism is to produce these negative effects in the community (Myers-Walls, 2004). It is particularly important to be able to help children and adolescents who have been the indirect victims of a terrorist attack, whether via the media or through what is termed second-hand terrorism, because it is precisely in this form that terrorism most often leaves its mark on society and its future generations. There is therefore a need for community interventions that can prevent children from developing distorted views about the future, about safety and about violence (Pfefferbaum et al., 2003b). In this sense, education and counsel for parents regarding what type of behaviours to expect from their children after a terrorist attack and the effect that their own reactions can have on the psychological well-being of children is essential. Also, guidelines for professionals, like the one presented by Hagan and the Committee on Psychosocial Aspects of Child and Family Health, and the Task Force on Terrorism (2005) for paediatricians, are a very useful initiative.

Although terrorism and its effects on childhood constitutes a recent area of research (La Greca, 2007), one which has yet to receive the attention that a topic of such contemporary relevance merits (Kazdin, 2007), a considerable body of descriptive information has already been compiled. This work, mainly conducted in the USA over the last ten years, provides the foundation for a new and promising field of investigation for professionals who work with victims of terrorism, whether as researchers or in

healthcare settings.

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Descriptive summary of the studies reviewed.

	Authors and year	Country	Attack	Type of victimization	N	Informant	Form of assessment	Psychological variables
1	Baca et al. (2005)	Spain	Various	D, INT, IND	2,998	Adult and child	INT-P	Exposure to terror, perceived social support, general psychopathology
2	Basu & Dutta (2010)	India	n.s.	D	131	Carer	Q	General psychopathology
3	Scrimin et al. (2006)	Russia	2004 Beslan	D	42	Carer and child	INT-P, Q	Post-traumatic stress disorder, memory and attention span
4	Elbedour et al. (1999)	Palestine	1994 Hebron	INT	61	Carer and child	INT-P	Post-traumatic symptoms, guilt, depression, disappointment, despair, helplessness, memory loss
5	Desivilya et al. (1996a)	Israel	1974 Ma'alot	D	59	Child victim in adulthood	INT-P	Severity of the victimization, post-traumatic symptoms
6	Desivilya et al. (1996b)	Israel	1974 Ma'alot	D	59	Child victim in adulthood	INT-P, Q	General psychopathology, interpersonal and family adjustment
7	Raviv et al. (2000)	Israel	Assassination of Yitzhak Rabin	IND	477	Child	Q	Change of political attitudes after the attack, various emotional reactions
8	Bar-Tal & Labin (2001)	Israel	n.s.	n.s.	119	Child	Q	Stereotypical views and attitudes towards three cultural groups Palestinians, Jordanians and Arabs.
9	Solomon & Lavi (2005)	Israel	n.s.	D, IND	740	Child	Q	Exposure to terror, post-traumatic symptoms, future orientation, perception of future conflict
10	Ronen et al. (2003)	Israel	n.s. Tel Aviv attack	IND	154	Child	Q	Anxiety symptoms, fear, behaviour problems, proximity to the attack
11	Zeidner (2005)	Israel	n.s.	INT	227	Child	Q	Stress linked to political violence, trait anxiety, coping strategies, negative mood, somatic symptoms, post-traumatic symptoms
12	Laufer & Solomon (2006)	Israel	n.s.	D, INT	2,999	Child	Q	Exposure to terror, post-traumatic symptoms and post-trauma growth

13	Cohen & Eid (2007)	Israel	n.s.	D, INT, IND	346	Child	Q	Exposure to terror, avoidance of public places, sharing feelings with loved ones, symptoms of stress
14	Solomon Even-Chen & Itzhaky (2007)	Israel	n.s.	D, IND	254	Child	Q	Exposure to family and community violence, degree of exposure to terror, social and family support; ability to face life, change the environment, influence the future (mastery); hope; life satisfaction; violent behaviour
15	Laufer & Solomon (2009)	Israel	n.s.	D	2,999	Child	Q	Objective and subjective exposure to terror, ideological commitment, religious orientation, social support, post-traumatic symptoms
16	Trappler & Friedman (1996)	USA	1994 Brooklyn	D	22	Child	Q	Post-traumatic symptoms, depression, anxiety
17	Pfefferbaum et al. (1999a)	USA	1995 Oklahoma	INT, IND	3,218	Child	Q	Exposure to terror, peritraumatic response, post-traumatic symptoms
18	Pfefferbaum et al. (1999b)	USA	1995 Oklahoma	IND	3,218	Child	Q	Exposure to terror, peritraumatic response, post-traumatic symptoms
19	Pfefferbaum et al. (2000a)	USA	1995 Oklahoma	INT, IND	54	Child	Q	Exposure to terror, post-traumatic symptoms
20	Pfefferbaum et al. (2000b)	USA	1995 Oklahoma	IND	69	Child	Q	Exposure to terror, post-traumatic symptoms, daily functioning
21	Pfefferbaum et al. (2001)	USA	1995 Oklahoma	D, INT, IND	2,381	Child	Q	Exposure to terror, post-traumatic symptoms
22	Schuster et al. (2001)	USA	9/11/2001	IND	170	Carer	INT-T	Exposure to terror on television, post-traumatic symptoms, proximity to the attack
23	Beauchesne, Kelley, Patsdaughter, & Pickard (2002)	USA	9/11/2001	IND	139	Carer and child	INT-P	Knowledge about the attack, various emotional reactions
24	Koplewicz et al. (2002)	USA	1993 New York	D	49	Carer and child	INT-P, Q	Post-traumatic symptoms, fears, psychopathological symptoms
25	Halpern-Felsher & Millstein (2002)	USA	9/11/2001	IND	362	Child	Q	Perceived risk of death
26	Pfefferbaum et al. (2002)	USA	1995 Oklahoma	D, INT, IND	2,381	Child	Q	Exposure to terror, safety, worry and post-traumatic symptoms

27	Fairbrother et al. (2003)	USA	9/11/2001	IND	434	Carer	INT-T	Exposure to terror on television, post-traumatic symptoms
28	Fischhoff, González, Small, & Lerner (2003)	USA	9/11/2001	n.s.	973	Adult and child	Q	Perceived risk linked to terrorist attacks
29	Pfefferbaum et al. (2003a)	USA	1998 Nairobi	D, INT, IND	562	Child	Q	Exposure to terror, peritraumatic reaction, post-traumatic symptoms and difficulties functioning
30	Pfefferbaum et al. (2003c)	USA	1995 Oklahoma	IND	2,720	Child	Q	Exposure to terror, post-traumatic symptoms, worries about safety, problems with daily functioning, seeking counselling
31	Pfefferbaum et al. (2003d)	USA	1995 Oklahoma	INT, IND	88	Child	Q	Exposure to terror, post-traumatic symptoms
32	Saylor et al. (2003)	USA	9/11/2001	IND	179	Carer and child	Q	Post-traumatic symptoms and behaviour problems
33	Aber, Gershoff, Ware, & Kotler (2004)	USA	9/11/2001	D, INT, IND	768	Child	INT-P, Q	Exposure to terror, exposure to community violence, psychological disorders, symptoms of depression, anxiety and behaviour problems, hostile attribution bias, prejudice against immigrants, social mistrust
34	Gould et al. (2004)	USA	9/11/2001	INT	791	Child	Q	Exposure to terror, peritraumatic response, despair and pessimism about the future, functional disability, mood disorders, anxiety disorders, substance abuse, post-traumatic stress disorder, suicidal ideation and suicide attempts
35	Gil-Rivas et al. (2004)	USA	9/11/2001	IND	284	Carer and children	Q-INT	Exposure to terror on television, symptoms of acute stress, post-traumatic symptoms, psychological distress, functional disability, positive affect, perceived parental support, conflict with parents
36	Henry, Tolan, & Gorman-Smith (2004)	USA	9/11/2001	n.s.	281	Carer and children	INT-P	Depression, anxiety, feeling of safety, supervision of children
37	Hock et al. (2004)	USA	9/11/2001	n.s.	104	Carer and children	INT-P, Q	General psychopathology, separation anxiety, post-attack worries in mothers and children

38	Hoven et al. (2004)	USA	9/11/2001	D, INT, IND	8,236	Child	Q	Exposure to terror, separation anxiety and post-traumatic stress disorder
39	Phillips et al. (2004b)	USA	9/11/2001	INT, IND	223	Carer and children	Q	Exposure to the attack, symptoms of stress, behavioural and emotional problems, constructive actions, attempts by the parents to help the child cope with the attack
40	Stein et al. (2004)	USA	9/11/2001	IND	398	Carer	INT-T	Emotional and behavioural effects of the terrorist act, communication about the attack, worries about one's own safety and that of loved ones
41	Wadsworth et al. (2004)	USA	9/11/2001	IND	1,138	Child	Q	Responses to stress, coping strategies, anxiety symptoms
42	Whalen et al. (2004)	USA	9/11/2001	IND	171	Child	Q	Reactions to the attack, mood and physical state after the attack, change in routines, post-traumatic symptoms, benefits derived from the experience
43	Barnes et al. (2005)	USA	9/11/2001	IND	406	Child	Q	Social resources, post-traumatic symptoms, anger and hostility
44	Brown & Goodman (2005)	USA	9/11/2001	INT	128	Child	Q	Exposure to terror, symptoms of traumatic grief, post-traumatic symptoms, internalizing and externalizing symptoms, self-esteem
45	Hoven et al. (2005)	USA	9/11/2001	D, INT, IND	8,236	Child	INT-P	Exposure to terror, psychopathology
46	Lengua et al. (2005)	USA	9/11/2001	INT, IND	142	Child	INT-T	Exposure to terror, worries and distress related to the attack, post-traumatic symptoms, psychopathological symptoms, positive adjustment, temperament
47	Stuber et al. (2005)	USA	9/11/2001	D, INT, IND	443	Carer	INT-T	Exposure to terror, behaviour problems
48	Calderoni, Alderman, Silver, & Bauman (2006)	USA	9/11/2001	D, INT	1,214	Child	Q	Exposure to terror, post-traumatic symptoms, loss of psychological resources after the attack, feeling safe, faith in the government, psychiatric help, psychiatric medication
49	Pfefferbaum et al. (2006)	USA	1998 Nairobi	INT	156	Child	Q	Exposure to terror, acute emotional response to the attack, post-traumatic symptoms, grief
50	Otto et al. (2007)	USA	9/11/2001	IND	250	Carer and child aged 10 or more	INT-T	Exposure to terror, inhibited behaviour, family functioning, post-traumatic symptoms

51	Becker-Blease et al. (2008)	USA	Various	IND	2,030	Carer and child aged 10 or more	INT-T	Exposure to terror, previous victimizations, worries about one's own safety and that of loved ones, changes in everyday activities
52	Wu et al. (2006)	USA	9/11/2001	D, INT, IND	2,731	Child	Q	Exposure to terror, previous victimizations, use of alcohol and smoking, post-traumatic stress disorder
53	Mullett-Hume et al. (2008)	USA	9/11/2001	D	204	Child	Q	Exposure of terror, experience of other traumatic events, post-traumatic symptoms
54	Mijanovich & Weitzman (2010)	USA	9/11/2001	IND	5,120	Carer	INT-T	Sense of safety, worry

n.s.: not specified
1974 Ma'alot: Over 100 young students taken hostage in Ma'alot, Israel
1993 New York: Attack on the World Trade Centre in New York, USA
1995 Oklahoma: Attack on the Alfred P. Murrah Federal Building in Oklahoma City, USA
1994 Brooklyn: Van carrying Jewish students shot at on Brooklyn Bridge, USA
1994 Hebron: Attack on the mosque in Hebron, Palestine
1998 Nairobi: Bombing of the American Embassy
9/11/2001: Attack on the World Trade Centre in New York, USA
2004 Beslan: Attack on School No. 1 in Beslan, Russia
Type of victimization: D: direct, INT: interpersonal, IND: indirect
Form of assessment: INT-P: personal interview, INT-T: telephone interview, Q=questionnaire, Q-