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Terrorism and health 1

Terrorism and post-traumatic stress disorder: a historical review

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Terror is a psychological state. Historically, most studies of terrorism focused on its societal purpose and structural consequences rather than mental health effects. That emphasis began to change shortly before the Sept 11, 2001, terrorist attacks. A vast expansion of research into post-traumatic stress disorder accompanied revisions to the classification of mental health disorders. The effect of terrorist incidents on those people now deemed vulnerable, both directly and indirectly, was actively sought. However, a review of more than 400 research articles (mostly published after Sept 11) on the association between terrorism and mental health reached the largely overlooked conclusion that terrorism is not terrorising—at least not in a way that causes a greater than expected frequency of post-traumatic stress disorder than other traumatic events. This conclusion is surprising given the emphasis on the psychological effects of terrorism in political discourse, media commentary, contemporary culture, and academic inquiry. Authorities might prefer to encourage an interpretation of terrorist incidents that highlights fortitude and courage rather than psychological vulnerability.

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Introduction

From a contemporary perspective, it seems inevitable that the events of Sept 11, 2001, would come to be viewed in the context of not just their political, social, and economic effects but also their effect on health, at both an individual and collective level. Almost 3000 people were killed and more than 6000 people were injured. The Office of Emergency Management, established to address such major emergencies, was also directly hit.[1] Countless office workers, emergency responders, and their families were caught up in the events directly. Many more were presumed to have been exposed and affected indirectly, primarily through media coverage across the USA and beyond.

What might seem surprising, however, is that academic interest in the association between terrorism and health, particularly mental health, only came to the fore at around this time. This growth in interest was not caused by the events of September 11, but had emerged before then. For example, a related volume edited by Silke,[2] although published in 2003, was started in 1998.

Although the published literature reviewed by us expanded substantially in 2001, peaking in 2002, when 57 articles were published on related areas, not all pieces from this time related to September 11, because this occurred relatively late in the year (figure). Rather, they referred to earlier incidents, including those in Oklahoma (1995) and Omagh (1998), as well as Israel during and after the first Gulf War (1991). This field of research was, therefore, already burgeoning, irrespective of the attacks in New York, NY, USA, and Washington, DC, USA.

Accordingly, we need to explain both the apparent lack of interest in mental health effects before this period and what the eventual drivers for this new attention were. In this Series article, we focus not on biological, medical, or psychological matters, but on the emergence and effects of a new cultural script that highlights people's presumed vulnerabilities. We provide a narrative review based on a substantial engagement with the literature, rather than a systematic or comprehensive one. We start with a historical and contextual overview to outline the position of the dominant literature regarding the association between terrorism and mental health before September 11. We then examine new trends revealed through our sources.

Historical context

Attempts to understand the association between terrorism and mental health are recent. In his compilation of psychological perspectives on the matter, Silke[2] noted that "the literature of terrorism is still young: almost all of the books on the topic have been written since 1968". As late as 1988, Schmid and Jongman[3] would describe much of this literature as "impressionistic, superficial, and at the same time often also pretentious, venturing far-reaching generalisations on the basis of episodal evidence".

Examining earlier conflicts for evidence relating to terrorism and mental health requires caution. Aside from debates over the proper meaning of terrorism (often used as a pejorative term rather than to provide analytical insight), related studies could only emerge with a proper appreciation of the evolving concepts of health, public health, and mental health.[4–6]

Crenshaw[7] noted that it would be "difficult to understand terrorism without psychological theory" through which to analyse intentions and emotional reactions. However, as late as 1991, Merari[8] could not find references to terrorism or related phrases in the *Psychological Abstracts*, despite terrorism having become headline news from the 1970s onwards.

From a sociological perspective, Furedi[9] proposed that it is not stress, violence, or disasters alone that shape our experience of adversity today, so much as their occurring within the context of a community response "more likely to be defined by its vulnerability than its resilience". A shift

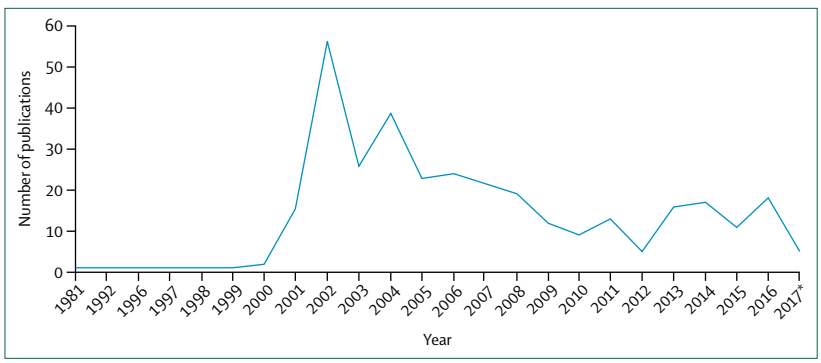

Figure: **Publications on terrorism and mental health, 1981–2017**
*Includes only those articles published between Jan 1, 2017, and May 31, 2017.

to a more deterministic and less autonomous outlook might explain why we conceive of and experience events and adversity differently to people in the past, thereby resulting in quite distinct expectations as well as altering what we investigate and how we interpret outcomes.

The earliest works linking health effects to what we might retrospectively consider to be acts associated with terrorism appear to be those by Murney (1864) and Foy (1886) concerning sectarian riots in Belfast.[10] These works were primarily statistical or surgical reports, and Lyons' work a century later,[10] and that of Fraser,[11] focused on recording physician visits and the use of medication rather than an analysis of possible pathways to ill health or attempts to mitigate their effects.

Murney did observe, however, that "great alarm and anxiety in delicate people produced a loss of sleep, strength, and appetite, which, in many cases, terminated in low forms of disease",[10] becoming one of the first to record psychological effects leading to somatic illnesses, as well as how they affected particular types of individual. Soon after, Legrand du Saulle (1871), studying the psychological response of Parisians to the hardships of the Franco-Prussian War, noted that admissions to asylums declined at such times.[10] This effect was further corroborated by Smith (1916) during World War 1 in response to aerial bombing.[10]

Psychiatric support for soldiers only began in World War 1.[12,13] Responses focused primarily on what were deemed to be physical ailments (eg, palpitation, irritable heart, battle fatigue, and shell-shock) or collective failings (eg, lack of moral fibre and degeneracy).

Writing in 1942 and commenting on reports from various cities in England during World War 2, Lewis at the Maudsley Hospital, London, UK, concluded to the effect "that a severe neurosis seldom occurs as a war phenomenon in civilians, except in people who had been neurotic before the war".[10] Lyons discusses the particular stressors in Belfast, Northern Ireland, in 1969 (that saw neighbours pitted against one another, unlike a war, which might bring people together) and speculates how active engagement might be beneficial. Few children were included in his survey, and the three he did see all had a parent who exhibited adverse symptoms to stressor events, suggesting the possible importance of communicated anxiety.[10]

Those critical of Lyons' methods and interpretations, such as Heskin[14] or Cairns and Wilson[15] writing over a decade later, were nevertheless broadly in agreement with his evidence. Cairns and Wilson[15] noted "that it is unlikely that the political violence caused any marked increase in serious psychiatric illnesses but rather stimulated an increase in normal anxiety, particularly among the more vulnerable and especially those with a previous history", and sought to understand coping mechanisms. While also researching reponses, Jones and colleagues[16] concluded that "civilians proved more resilient than planners had predicted" in the response to the aerial bombardments of World War 2.

Therefore, by the early 1970s, it was known that most people exposed to traumatic events appeared largely unaffected, and that any distress-related symptoms (which could often be physical as well as psychological) soon abated. Overall numbers of individuals seeking support, or falling ill—and even dying by suicide[17]—seemed to decline after such events.[18] Individuals with long-lasting psychological injuries were a minority, disproportionately represented by those with a history of mental illness and often women (the assumption being that they were less involved than men). Robustness was believed to derive in part from being actively engaged or ideologically committed,[19] and children were perceived as mostly being affected through their parents, if seen at all.

With the transformation of the conflict in Northern Ireland through the peace talks that led to the abandonment of the armed struggle, terrorism (in developed countries) appeared to all but cease. Occasional isolated incidents, such as the Tokyo subway sarin gas attack in Japan and the Oklahoma City bombing in the USA in 1995, and the Omagh car bomb in Northern Ireland in 1998, served to rekindle interest in the field. The events of September 11 were still a surprise to many, even though a resurgence of attacks had been occurring for some time, particularly across the Middle East, Africa, and Asia.

By then, however, a new term had entered the lexicon of the psychiatric profession—post-traumatic stress disorder. Its inclusion in the third edition of the DSM-III of the American Psychiatric Association (APA) in 1980,[20] was hailed as "a paradigm shift in the conceptualisation of post-trauma illness".[21] It resulted not from medical advances, but primarily from a political process, including demands for greater recognition and compensation to American service personnel deemed to have been victims of the war in Vietnam.[22,23]

The category was augmented in scope in revised and subsequent editions (DSM-III-R[24] and DSM-IV[25]), in 1987 and 1994.[26] Cumulatively, these criteria represented a change in the priority previously afforded to the role of personal predisposition in post-traumatic stress disorder towards the characteristics of the traumatic event itself

having a possibly universal response. This process has not been without criticism from those who view post-traumatic stress disorder primarily as an invention or social construct.[27,28] Regardless, the influence of culture is widely recognised,[29] and it was largely through the framework of post-traumatic stress disorder that much of the ensuing research came to be interpreted, as well as a new, though a much less frequent, focus on resilience.

Contemporary literature

After September 11, health effects were sought among every conceivable group and community, including individuals immediately affected, such as emergency responders and their families and friends, as well as individuals affected more remotely on the basis of their proximity and mode of exposure, and even journalists and researchers,[30] individuals who simply participated in surveys,[31] and the therapists themselves.[32] These groups were further segmented by gender, ethnicity, income, and age, and many, both individuals and institutions, were presumed as having a role in their recovery.[33]

Substantial sums of money were provided by the US Government (and others) to assess the effects of September 11. Inevitably, researchers focused their efforts on the latest concerns, including the environmental effects of the smoke and debris, as well as possible mental health consequences.[34–36] However, mental health effects were investigated, almost invariably, with reference to some aspect of the DSM-IV definition of post-traumatic stress disorder.

Aside from media commentary on events, the first health-related research during the aftermath of September 11 was done by a team at the RAND Corporation in California,[37] who interviewed "a nationally representative sample of 560 US adults" a few days after the attacks. Their work appeared as a Special Report in the *New England Journal of Medicine* and, given that it was the first study published after the event, has been cited over 1600 times. It is worth examining this study and its sources because of this prominence, even though aspects have subsequently been criticised by others (eg, Catalano and colleagues[38] and Druss and Marcus[39]).

Several of the sources in the RAND report refer to post-traumatic stress disorder, including one that proposed related symptoms affecting children who witnessed a televised tragedy (the Space Shuttle *Challenger* disaster).[40] Another investigated the emotional response of parents and children to media coverage of conflict.[41] But, apart from these, the team drew on just one previous terrorist incident to inform the core of their work. Unsurprisingly (given its provenance), this was the Oklahoma City bombing of 1995, in relation to which they cite works by North and colleagues[42] to align symptom selection and Pfefferbaum and colleagues[43,44] for corroboration regarding the possible role of media coverage at a distance.

Accordingly, in addition to the post-traumatic stress disorder framework, the most striking new aspect of the discussion of terrorism and mental health at this time was the indirect effects presumed to come primarily through the medium of television, with a particular focus on children.

One of the papers by Pfefferbaum[43] and her team suggested that media exposure was a significant predictor of symptoms, and "important in the post-traumatic response of youth", even proposing that viewing and coverage should be monitored both quantitatively and qualitatively. As late as 2014, Holman and colleagues[45] concurred, suggesting that viewers should be warned before distressing images are shown, despite recognising that their own work could not "establish a definitive causal relationship" between exposure and effects.

Calls for warnings are not without their critics in other contexts.[46] These warnings might serve to protect the privacy of those affected (as well as not promoting the perpetrators or encouraging voyeurism), more than protecting the mental health of viewers as proposed. Excessive viewing of media might best be avoided—the routine advice now given to parents at such times—but so too should censorship, especially as it might preclude the development of a more positive sense of indignation and resistance.

Nevertheless, another of the publications cited by Schuster and colleagues[37] asserted that there was "an overwhelming consensus in the scientific literature about the unhealthy effects of media violence",[47] suggesting any difference of opinion was caused by "the limitations of the public's current understanding" and proposing education as a remedy. It is beyond the scope of this Series article to examine the literature and debate on media effects theories, although we do suggest that assessing the consequences of television viewing as being so direct ignores a multitude of other social, cultural, and contextual variables, which include presuming that the media pose a unique threat, and posits a low view of the public's ability to think critically.[48–51]

In the period after September 11, Pfefferbaum and colleagues[52] modified their views, emphasising the need to be cautious about statistical associations, and recognising it as doubtful that media coverage alone could "qualify as a stressor for the purpose of a post-traumatic stress disorder diagnosis".[53] Indeed, others have noted that watching the news might be an attempt to cope or assuage distress by being connected and searching for an explanation to events.[54]

Wessely and colleagues[55] reiterated that, aside from the practical difficulties of restricting coverage, "correlation… does not equal causation". In relation to children they stated that, although unable to "pretend that nothing has happened", parents ought to suggest when their children have viewed enough. An inability to do so points to cultural challenges regarding parental authority today,[56] rather than medical effects of watching disturbing footage or images.

However, the assumption of a connection between televised trauma and emotional wellbeing continues to be

Panel: **Data overview**

When analysed for content, more than three-quarters (76·5%) of our core of 217 searchable documents were found to mention post-traumatic stress disorder, and most actively sought it (though, as discussed further, they were rarely able to diagnose it in full). Over a third (36·4%) referred to conducting assessments through telephone surveys, and 59·0% alluded to the role of the media or indirect effects of terrorism on mental health. Over a half (55·3%) identified children as being of concern or mentioned the issue of vulnerability (51·6%). Although 39·6% spoke of resilience (compared with 30·4% mentioning anger), it was largely assumed or mentioned in a perfunctory way. Of course, the literature on resilience might exist primarily beyond the mental health literature, although that too could be worthy of note. 71·4% did address the role of families in coping and recovery. These data, matched according to each publication, are also available from the corresponding author.

made, with the RAND study[37] and Pfefferbaum and colleagues'[45,57–60] earlier work on the Oklahoma bombing often used as presumed evidence. Some even seemed concerned that, with the publication of DSM-5 in 2013,[61] "media exposure no longer meets stressor criterion for a traumatic event".[60] Although conceding that their own data "rendered it impossible to evaluate" any such link, they concluded that it still showed an "excessive demand" and "further emphasised the magnitude of the… problem".

Accordingly, rather than the health effects of exposure to media, one area for future research to address will be the contemporary culture that is revealed through the media and concerns regarding its presumed effects. Researchers should be particularly careful not to conflate measuring incidence of exposure or symptoms with explaining their origin. For example, one research team found that an increase in psychiatric referrals in the aftermath of September 11 was not caused by events, but reflected "the increased presence of public and private security personnel and reduced community tolerance for deviance" in relation to those with existing mental illnesses.[38]

Methods and definitions

In the research on the mental health effects of September 11, data were often gathered through telephone surveys (more than a third of our sample mention them; panel). These surveys were typically done by volunteers with just a few hours training (up to 2 days on occasion),[62–64] and lasted 15–45 min. Such techniques are screening tools and do not allow for definitive estimates of prevalence.

While noting the benefits of obtaining data quickly, one team,[65] writing after the London attacks in 2007, nevertheless suggested that "the social and political context in which a questionnaire is administered can drastically alter the perceived meaning of the individual questions contained within it". A US study,[66] published soon after September 11, noted how "the use of screening measures rather than comprehensive clinical assessments…increases the likelihood of misclassification".

Because different research teams used distinct symptom checklists in their surveys, rarely using structured diagnostic interviews, comparison of their results and conclusions was difficult.[52] Hoven and colleagues[57] lamented differences in study methods, exposure criteria, and comparisons pursued, in addition to unstated operational differences, in their work covering the Oklahoma bombing.

Much of the literature we examined refers to assessing post-traumatic stress disorder (cited in more than three-quarters of our core literature; panel), while describing what was actually recorded as pre-post-traumatic stress disorder, partial post-traumatic stress disorder, sub-threshold post-traumatic stress disorder, spectrum post-traumatic stress disorder, likely post-traumatic stress disorder, post-traumatic stress disorder reactions, or post-traumatic stress disorder-related symptoms, among many others. We suggest that labelling any recognised symptom (such as trouble falling asleep) in this way (alone, or in combination), could serve to confuse and confound, as well as inflate concerns, rather than clarifying matters. The move from specific symptom to generalised label is unwarranted.

Numerous metrics were used in the literature we examined, with most relying on an incomplete set of criteria B, C, and D.[67] Criterion A, which requires a life-threatening experience and an intense response and is described by McGarvey and Collins[68] as the gatekeeper to the diagnosis of post-traumatic stress disorder, was often absent from these articles (most evidently those that sought media or indirect effects—around 60% of articles). In a different context, Coyne[69] had previously noted how the Post-traumatic Stress Diagnostic Scale can "overestimate both the number of clinical diagnoses of depression and post-traumatic stress disorder".

What is interesting from a cultural perspective is the tendency to adapt and restrict the full definitions of the APA, or make these more accessible and achievable to the researchers using them. The elasticity of what is itself a loosely-defined category ought not to surprise sociologists. The American scholar, Joel Best,[70] has noted how "once a problem gains widespread recognition and acceptance, there is a tendency…to expand the problem's domain". This process is driven by social, rather than medical, forces and can have a determining effect on how we view the available evidence, as well as what we consider to be evidence in the first place, including how we go about looking for and measuring it.

Post-traumatic stress disorder cannot be diagnosed remotely, nor within the first month after an incident, precluding its identification in many of the studies we

examined. The events associated with a diagnosis of post-traumatic stress disorder should ideally "be securely in the past"[69] so that any ongoing hypervigilance, flashbacks, nightmares, and avoidance be clearly incongruent with contemporary experience (such as veterans reacting to the word jungle). Accordingly, aside from the expansive use of this category, others researched different, if related, ailments such as acute stress disorder—a category first introduced into DSM-IV in 1994, and held to be akin to combat stress reaction.

North[71] notes that "the diagnosis of acute stress disorder was developed to permit diagnosis during the first month before post-traumatic stress disorder may be invoked, but the validity of this diagnosis is not established". Nevertheless, the assessment of acute stress disorder in various studies, and expansion of the category (as previously described for post-traumatic stress disorder) through terms such as acute stress symptoms,[45] allowed, in some instances, a circular argument to emerge whereby extreme stress was considered to precipitate physiological ailments that, together with presumed psychological effects, acted as risk factors for post-traumatic stress disorder.[72]

Avoiding the full DSM criteria and combining response categories can give the impression of more noticeable effects than might truly have ensued. For instance, Schuster and colleagues[37] defined being "bothered" to any extent above average by September 11 as substantial stress. Furthermore, in relation to the mass shootings by Anders Breivik in Norway in 2011, Aakvaag and colleagues[73] merged the responses from "sometimes" or "more" with "often" and "almost always" to compensate for a small number of individuals reporting particular emotions. Accordingly, Adams and colleagues[74] were not alone when examining what they defined as "subsyndromal or partial-post-traumatic stress disorder" due to the "relatively few respondents who met the full DSM-IV criteria".

Adams and colleagues[74] were surprised by their data, which showed that "increases in alcohol use seem related to better physical health". These and other researchers appeared not to see benefits when confronted by outcomes that did not conform to expected cultural norms. Polatin and colleagues[58] went as far as citing media-induced post-traumatic stress disorder from the RAND study, although it made no mention of post-traumatic stress disorder, because it was done just a few days after the events. There are plenty of other examples of evidence that ran against expectations, or the then dominant narrative of trauma and the concomitant need for professional support, being overlooked.

The use of clinics or medication did not increase in the aftermath of September 11,[75–77] even among veterans who might have been presumed to be more susceptible.[78] Even if there had been, North[79] reminds us of the need to distinguish use from abuse, dependence, and disorder. "It does not benefit people without psychiatric illnesses to have their distress pathologised with incorrect diagnostic labels, because distress not reaching the level of a psychiatric disorder requires interventions different from those appropriate for psychiatric illness", she added.

Likewise, data suggesting pre-existing challenges and frustrations as being more likely correlates of stress (such as low income or having children) in this and other situations were largely overlooked.[80–82] That women continue to be the group most susceptible to stress was still noted but left with little explanation.[83,84] Norris and colleagues,[85] in their comprehensive meta-analysis of the then existing studies, attributed this trend to women's "subjective interpretation of events rather than…objective exposure to disaster stressors".

In the face of consistent evidence that most individuals affected by September 11 and similar events did not seek support[82,86–89] (some even regarding "their distress as a 'normal' reaction to these unprecedented events that was shared with their neighbours and communities rather than as a disorder needing care"[39]), the conclusion was still that health professionals had to reach out more to the public beause referrals and self-referrals were deemed insufficient.[90–92]

Active follow-up is now recommended precisely to avoid any rush to counsel that might have unintended and negative effects[93] (including the side-lining of psychiatry[94]). But under the circumstances, and despite the lack of evidence, it seemed impossible to preclude determined speculation about the prevalence of ailments, the need for better management, and demands for more intervention. Although concern and empathy for those caught up in incidents of terrorism is understandable, researchers ought to ward against outright advocacy.

Most would recognise post-traumatic stress disorder projections as high as 90% or more[57,95–97] (even if obtained in different contexts) as dubious, although the projections were still cited, including in relation to terrorist attacks, long after September 11.[32,98,99] The considered view is that most responses remained within the normal (1–5%) range for civilian post-traumatic stress disorder. Single symptoms of stress might reach 30–40% in the immediate aftermath but abated soon after.[100] Referring to those beyond immediately affected areas, North and Pfefferbaum[52] suggested that "symptoms and reactions to the September 11 attacks deserve recognition as psychological sequelae, but these responses are distinct from post-traumatic stress disorder".

A few noted how solely focusing on post-traumatic stress disorder or acute stress disorder might have underplayed or ignored other important effects, including physical ailments, depression, and behaviour modification.[101] For instance, Webber and colleagues[102] showed that 54·2% of the New York firefighters they surveyed reported frequent coughing in the year after September 11. This declined to 15·7% 3 years later, but had to be compared with just 4·1% before September 11. To such effects we should add consequences that were only indirectly related to health,

such as loss of property and income, as well as the aforementioned continuation of pre-existing social challenges and macro-level social stressors.[103]

Clearly, there are methodological and conceptual difficulties in applying the category of post-traumatic stress disorder to the emotional and psychological responses to terrorism, particularly for those not directly involved in a terrorist incident. So how and why did this become the diagnosis of choice, or "the most commonly researched phenomenon",[32] for those exploring the association between terrorism and mental health?

The pathologisation of emotions and the search for post-traumatic stress disorder

The extent to which our cultural script regarding the expression of emotions and pathologies in public as well as how their analysis and acceptance have been transformed over recent years, is widely recognised.[104–106] There was a tremendous surge of interest in emotional and psychological trauma from the late 1980s. This surge accelerated through the process of the erosion of the old, Cold War certainties with their associated ideologies and identities that impacted individuals from the end of 1989.[107]

McLaughlin[108] noted how "the concept of trauma no longer refers to extreme experiences but has become normalised". West[105] charts the rise of the empathy ribbon (one of the first being the red ribbon for AIDS introduced in 1991) worn ostensibly to raise awareness of particular issues, but equally, in his view, as a form of virtue signalling. Despite no clear connection to those who suffer loss in tragic circumstances, many now express their sorrows and solidarity more openly than in the past, occasionally through somewhat superficial, and potentially self-serving, new rituals.[109]

Self-restraint has increasingly been derided by some commentators and academics as old-fashioned and lacking in emotion, suggesting that only some emotions are deemed acceptable. Yet, as Pfefferbaum and colleagues[44] note in a passage from their paper published after the Oklahoma bomb, "overreporting of interpersonal exposure may represent a desire to belong to a greater community experience". This could point to why social media reports after terrorist (and other traumatic) incidents now also appear replete with inaccuracies, exaggerations, and falsehoods. At the same time, anger (referred to in almost a third of our core literature; panel) is described as a negative feeling in the post-traumatic stress disorder checklist.[110] However, when productively channelled, it might prompt positive action in response to events.[111]

Few were formally diagnosed with post-traumatic stress disorder in our survey of the literature. The advent of post-traumatic stress disorder certainly allowed acceptance that continued distress was not abnormal or shaped by moral failings, such as cowardice,[112] repressed trauma, or genetic predisposition. But we question whether using labels such as pre-post-traumatic stress disorder or post-traumatic stress disorder symptoms are helpful in this regard. The definition of post-traumatic stress disorder in DSM-IV clearly had a tremendous effect on research agendas, as well as shaping projections and funding, before September 11 and after.

Wessely[113] describes DSM classifications as a map "ready to be changed as the landscape changes". Although it is true, as he suggests, that psychiatrists ought to study the whole person in relation to society,[103] there is little evidence in the examined literature that broader social and cultural factors were considered, especially when working through truncated versions of a 17-point questionnaire with individuals over the phone. As Wessely noted with his collaborators elsewhere[65] "merely documenting transient increases of a large range of conventional psychiatric diagnoses in the immediate aftermath of an incident may not be particularly helpful".

The pathologisation of emotions is now widespread in the literature, and the social and cultural causes and consequences of this are often overlooked. The historian Christopher Lane[114] mapped out the consequences of these trends: a vast increase in people diagnosed with social phobia or avoidant personality disorder together with their treatment or medicalisation. Confirming Furedi's[9] analysis of how we increasingly view events through a prism of vulnerability, he also identified how "the normal emotional range of adolescence and adulthood have become problems we fear and expect drugs to fix".[114] He argues that, by eroding the distinction between normal emotional responses (including grief and anxiety) with severe disorders, it is those who are genuinely suffering who lose the most.

Cultural variations, children and community resilience

A cultural shift in expectations of resilience has also accompanied the advent of post-traumatic stress disorder. Although almost 40% of the literature we reviewed mentioned resilience in some way (panel), this was almost always assumed rather than investigated. One striking contrast in the published literature came from researchers in Israel,[115–120] who actively sought coping mechanisms and even post-traumatic growth, a concept also advanced elsewhere,[121] rather than solely assessing enduring stress disorders. Possick and colleagues[119] note a (welcome) tension between authorities offering psychotherapy and families who rejected it. They propose that North American and European societies, within which most of these therapeutic approaches arose and became prevalent, are too fixated on the self and identity, at the cost of a social understanding of the relational self that emerges and develops in a broader context.

The situation in Israel, of course, is very different. Citizens have had to habituate to years of terrorist related incidents rather than single attacks. Although the numbers of people affected in Israel are considerably less than those affected by September 11, given the much

smaller population, they represent a considerably larger percentage.[122]

Friedman-Peleg and Goodman[82] examined what they called the two paradoxes of psychologically focused approaches. First, that these approaches commend people's spirit in the face of adversity while insisting that they need help. And second, that, although claiming to support the community, these approaches necessarily target individuals. They also identified "a new social expansion of post-traumatic stress disorder", which they see shifting from clinical to preclinical assessment to anticipate future symptoms, and note how "post-traumatic stress disorder has become an important instrument for gaining recognition", leading to other ailments and broader sociopolitical drivers becoming marginalised. They point to how the language of psychological trauma and even "the new resilience program offered…by the post-traumatic stress disorder professionals" have simply become the latest vehicle to allow intervention into the lives of communities, particularly those deemed disadvantaged.

Friedman-Peleg and Goodman's[123–125] focus on family and community leads them to quite different conclusions from those who appear simply to assume or accept that children are particularly susceptible to psychological trauma. September 11 was "physically and emotionally devastating to children" asserted one.[126] But, as others note, even if there is "abundant evidence" to document "the adverse mental health consequences" of trauma on youth, the literature on the benefits of "psychosocial treatments…is very limited".[127]

The evidence presented in this Series article suggests that many studies on stress symptomology, media effects, and consequences for children are simply taken at face value. In fact, with possibly one limited exception,[128] "systematic assessment, using diagnostic-based measures in well-designed, longitudinal investigations of representative samples of children (in sufficient numbers) to allow for meaningful analyses" do not exist.[129] Rather the studies differed in terms of subject selection, developmental stages, contexts, and timings, as well as methods used to assess the effects of different exposures on a variety of factors.

Again, post-traumatic stress disorder remained the most explored outcome, despite its probable inappropriateness for children in these contexts. Likewise, few explored "the possible effects of familial exposure on children",[129] despite this being recognised as particularly relevant for children who tend to mirror their parents' distress.[85,130,131] "Parents' encouragement of positive reframing" of events was "associated with lower distress levels" in adolescents, whereas recommending they "seek help and advice from others" was associated with greater stress.[131]

The role of the family, rather than of professionals, in post-conflict healing has been noted elsewhere.[132,133] Stuber and colleagues[80] found that "parents' own level of post-traumatic stress was associated with whether their children received counselling related to the September 11 attacks",[80] suggesting a considerable degree of projection occurs, a result also found in an Irish context.[134] "Calm and functional parents…can be reassuring to children" note Pine and colleagues.[135]

Traditions and rituals,[136] as well as stories, even if they contain themes of vulnerability, are also important.[137] As another Israeli author noted, "it takes more than the agent (eg, threat to life) to provoke psychopathology".[138] Analyses informed by an appreciation of social and cultural change seem to have been replaced by a narrow empiricism promoting biological or technological vulnerability and concomitant long-term damage to the community.[9]

Conclusions

Our analysis of the evidence on the putative association between terrorism and mental health problems, particularly among those not directly involved in an incident, suggests that it has more to do with diminished expectations of human agency and the rise of a therapy culture,[107] than the objective effects of exposure to stressors. Post-traumatic stress disorder researchers have had a key role in promoting the possibility of widespread psychopathology among populations exposed to terrorism through the media, but have produced little valid and reliable evidence.

This is not to suggest that the widespread emotional response to terrorist incidents is insignificant or should be ignored, although whether the new traditions of vigils and peace rallies truly help to build resilient communities remains to be discovered. These sentiments and activities are certainly unable to explain or address terrorism itself. For individuals directly involved in incidents, a strategy of watchful waiting allows most to recover making use of their own networks, and a screen and treat programme a few weeks later can direct professional intervention to individuals with ongoing psychological problems; but the numbers involved remain a minority.

As discussed previously, "overreporting…may represent a desire to belong"—a social and cultural driver, rather than a medical one.[44] As early as 1984, the American historian, Christopher Lasch[139] suggested a survival mentality had emerged in society, whereby "everyday life has begun to pattern itself on the survival strategies forced on those exposed to extreme adversity", leading to "the normalisation of crisis".

With regards to Vietnam veterans, whose experiences helped to define post-traumatic stress disorder, one writer was left wondering "how much we are dealing with the sequelae of post-combat belief, expectation, explanation, and attribution rather than the sequelae of combat itself".[140] A singular focus on post-traumatic stress disorder in the ensuing period, then shaped much of the research conducted after September 11, as well as the interpretation of its findings. As we have seen, other drivers, consequences, and explanatory models were consequently overlooked.

Just as the consideration of post-traumatic stress disorder as a primary concern has been brought into

Search strategy and selection criteria

We searched the PsycINFO database from inception to May 31, 2017, for articles including both "terrorism" and "mental health" in their title or abstract with no language restrictions. The search yielded 441 journal articles and a book section. Our interest was in evidence concerning the association between mental health and terrorism, as well as broader discussion and theory pertaining to this association. After reviewing the abstracts, we excluded 104 articles because we considered them to be peripheral to our purpose (eg, the mental health of migrants fleeing terrorism). We read all the remaining articles (including 21 only available as titles and 98 as abstracts). After excluding an organisational handbook and a document available only as a photocopy, we were left with a core group of 217 complete and searchable PDF documents. We augmented this group by snowballing from their references and including other literature known to us that we considered relevant. Additionally, a PubMed search done in May, 2018, using the same method yielded 213 hits, which included 38 new papers after we crossmatched with the original list. Discarding the less relevant and those by authors already on our list, only a handful of these provided any fresh evidence for our review. All lists are available from the authors.

question, so too might other elements, including the effects of media exposure and the emphasis on the vulnerability of young people. Although well meaning, the latter in particular can act as a precursor to the treatment of all people, including adults, as though they are in need of mental health support.

Although governments make historical references and issue messages that seek to promote a sense of resilience, our Series article suggests that presumptions about their power, and that of the media, might be overstated. One of the more dominant narratives, promoted by politicians, analysts, and commentators alike, has been the assumption that terrorist acts will affect our mental wellbeing and sense of security.

Given the role attributed to social constructs and narratives in contemporary society, it might seem odd, though fortuitous, that repeated messages about the presumed effects of terrorism on our mental health have had little consequence to our wellbeing. That terrorism is not terrorising, beyond the amounts of post-traumatic stress disorder expected in any other emergency, ought to be cause for celebration as well as further inquiry. Authorities might prefer to encourage an analysis of terrorist incidents that highlights fortitude and courage rather than presumed psychological vulnerabilities.

Contributors

BD was the lead author, lead reviewer, and lead in data interpretation. DW was the second author (commenting on drafts and adding some material), conducted the literature search, and contributed to planning the structure and content of the article.

Declaration of interests

We declare no competing interests.

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