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CHILD AND FAMILY DISASTER PSYCHIATRY (B PFEFFERBAUM, SECTION EDITOR)

Depression in Youth Exposed to Disasters, Terrorism and Political Violence

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Abstract

Purpose of Review This paper reviews recent research on the depression in young people following exposure to catastrophic stresses such as disasters, terrorism and political violence.

Recent Findings Depression is one of the commonest outcomes following mass trauma, for all ages including children and adolescents. Recent articles continue to report high prevalence of depression which often continues for years. It is often comorbid with other psychiatric disorders, especially PTSD. Post-traumatic depression in children and adolescence affects purpose of life, impairs scholastic achievements, increases suicidality and has extensive comorbidity. Besides the trauma, individual constructs, personality factors, social support, exposure to other traumatic events are some of the predicting factors. Biological and genetic basis of post-traumatic depression has been reported. Studies suggest some benefit to psychotherapeutic interventions such as trauma-focussed cognitive behavioural therapy and web-based therapy.

Summary A considerable proportion of youths develop depression following mass traumatic events. More research is required regarding the effectiveness of interventions in this population.

Keywords Adolescent · Armed conflicts · Depression · Disaster · Terrorism · Violence · Youth

Introduction

Depression in young people has many concerns; it has far reaching lifelong impact, high suicide rate and negative impact on achieving lifegoals [1, 2]. The association of depression and stressful events mostly as precipitating or contributing factor is well known; and it is one of the most common post-trauma symptoms. In this context, children and adolescents are particularly more vulnerable to catastrophic traumatic events like disasters, terrorism and political violence [2]. It cannot be overemphasised that in most cases, the young people are the usual victims of these events.

Number of young people affected by these events is increasing worldwide and may rise further as these events are becoming commonplace; for example, natural disasters linked to climate change [3], rise of religious extremism, terrorism and political violence [4–6].

Specific vulnerability of children and adolescents for the traumatic events is due to the fact that they are in a developmental stage of their life when the brain is still maturing; when the psychological and personal strengths are not crystallised; and robust individual coping strategies and socioeconomic stabilities may not have been attained. In this context, depression secondary to extreme traumatic events negatively affects the purpose of life [7] and brings in existential anxiety [2]. It is an extremely pertinent area to study which is often overshadowed by more commonly studied post-traumatic stress disorder (PTSD).

In this report, recent observations related to depression in children and adolescents secondary to catastrophic traumatic events like disasters, terrorism and violence are reviewed to reflect the recent advances in the area. It may be highlighted that traumatic events lead to a range of mental health outcomes; however, this review is focussed only on depression.

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Disasters

Current articles continue to report high prevalence of depression among young victims of disasters (Table 1). Reported prevalence rates of post disaster depression in adolescents vary widely from 2 to 71.2% [16•, 17•, 24]. In comparative studies, higher prevalence of depression has been reported among disaster-affected youth versus controls. Illustratively, following 2016 Fort McMurray wild fire, depression prevalence in victims and controls was 31% vs 17% and moderate to severe depression was 17% vs 9%, respectively [8••].

Variations of prevalence have been reported even following same disaster; e.g. studies conducted 1 year after the 2015 Nepal earthquake reported prevalence of 3.23% in one study [9] and 38.1% in another study [10•], which contrasts to 34.3% in adults (16 and above) 4 months after earthquake [25]. These variations can be secondary to various factors including, e.g. intensity of trauma exposure, support received and research methodology.

Similarly following the 2010 Haitian earthquake, almost half (46.2%) of child and adolescent victims had depression [11]; and 40.9% of relocated school age children had severe level of depression [12]. High level of depression based on GHQ-28 was reported in 22% adolescent survivors of the 2011 Tohoku Earthquake [13]. Three years after the Wenchuan earthquake in China, 44.8% junior high school students in the worst-hit areas had depression [14].

Following Sewol Ferry Disaster, psychiatrists supporting the students of the affected high school reported that depressive mood was reported by 51.4% which was second most common symptom following anxiety (76.9%); however, only 3.3% had major depressive disorder as clinical diagnosis, as the stress-related disorders predominated [23].

Terrorism

Exposure to terrorism leads to depression in young people [26]. Besides direct exposure, there is a pervading fear of terrorism in sensitive areas around the world, which is affecting people of all ages. There are many recent studies about the mental health effects of terrorism on young victims (Table 1).

In the immediate aftermath of terrorism, depressive symptoms were one of many mental health presentations observed along with anxiety, acute stress reactions, dissociation, derealisation, depersonalisation, amnesia and somatic symptoms observed following terror attacks in 2016 Nice, France [27••].

All the Yazidi Kurd refugee children and adolescents who migrated following ISIS terror attack and were living in camps had mental health problems; depression (36.8%) was second most common after sleep disturbance [18•].

Following 2011 terrorist attack on Utoya Island, in Norway, impaired academic performance observed 14–15 months after the attack was associated with depression [28]. This finding suggests that exposure to terror attacks can lead to deterioration in the school performance, impaired well-being and poor health. The impact of terror attack continues into adulthood with an increased risk of depression. Adolescents with behavioural problems after 9/11 were 6 times more likely to have depression as an adult [29••].

Table 1 Prevalence of depression following traumatic events

Traumatic event	Prevalence (%)	Comment
2016 Fort McMurray wild fire [8••]	31.0	Control 17%; moderate to severe depression: 17% vs 9% (control)
2015 Nepal earthquake [9]	3.2	After 1 year of earthquake
2015 Nepal earthquake [10•]	38.1	After 1 year of earthquake
2010 Haitian earthquake [11]	46.2	Children and adolescents
2010 Haitian earthquake [12]	40.9	Relocated children had severe level of depression
2011 Tohoku earthquake [13]	22.0	High level of depression
2008 Wenchuan earthquake, China [14]	44.8	Three years after the earthquake.
2013 Ya'an earthquake [15]	20.9	At 12 months, 21.6% at 30 months
2008 Wenchuan earthquake, China [16•]	27.3–61.9	Males and females at 6, 12 and 18 months were 27.3% vs 42.9%, 42.9% vs 61.9% and 33.3% vs 53.4%, respectively
2011 Great East Japan Earthquake [17•]	15.5–11.6	1-, 2- and 3-year prevalence of moderate to severe depression were 15.5%, 12.9%, 11.6%, respectively
2014 ISIS terror attack [18•]	36.8	Yazidi Kurd children and adolescents living in refugee camps in Turkey
Political violence, Palestine [19•]	30.1	Severe symptoms of depression
Asylum-seeking children, Norway [20]	20.0	Experienced death, violence and war
Urban violence, Sao Paulo, Brazil [21]	4.7	Major depressive disorder was associated to assaultive violence
2010 Eyjafjallajökull volcanic eruption [22]	18.2–27.6	Depressed mood based on exposure: Low 18.2%, medium 23.8%, high 27.6%
2014 Sewol Ferry Disaster [23]	3.3	Major depressive disorder

Considering the frequency of recent incidences of terrorism in the world, the studies on depression in affected children and adolescents are comparatively low. More studies are required to evaluate the extent of the psychiatric morbidity in this vulnerable age group.

Radicalisation and Young People

Terrorism often involves adolescents and young people. Compared to other age groups, young people are vulnerable for violent radicalisation, and depression has been found as one of the components in the process [30, 31]. Besides depression, pre-existing psychological distress, traumatic experience in childhood and related PTSD, attention deficit hyperactivity disorder, conduct disorder, personality disorder, narcissism and even psychotic disorders have been found associated with radicalisation. In addition, fragile family dynamics and parental dysfunction are commonly observed. This suggests a need for psychiatric evaluation of adolescents who have been radicalised or at the risk of it [31].

Political Violence

There are many regions in the world affected by political violence, riots, violent community clashes, related threats and even ethnic cleansing, guerrilla warfare and war. Often, these armed conflicts happen at a regular basis. Many recent reports suggest that the violence in communities affect the young people in various ways, and depression has been one of the major manifestations (Table 1). The reported range of prevalence of depression in young survivors of mass violence in low- and middle-income countries has been 21% to 80% [32].

Depression has been reported in Palestinian adolescents exposed to the political violence in the region [33]. In a study involving Palestinian adolescents and young adults with prolonged exposure to violence, severe symptoms of depression were reported in 30.1% [19•].

Similarly, Israeli adolescents who experienced repeated rocket attacks had depression [34]. In a longitudinal study, adolescents from southern Israel were assessed annually for 4 years. The average depression score (Center for Epidemiological Studies–Child Depression Scale) at each assessment was at or above the clinical cut-off. Adolescents who reported greater exposure to rocket attacks in the past several months were more depressed [35]. However, another study from Israel conducted 10 years after the traumatic experience on individuals who experienced terror as adolescents reported that those who lived in Jerusalem under threat of unpredictable and indefensible terror attacks did not differ significantly in depression from adolescents who lived in a predictable traumatic environment or non-traumatic environment [36].

Linked to the political violence, armed conflicts and instability, currently many people are being forced to abandon their homes and communities and migrate. Reportedly, the migrant crisis is at an extreme level which is particularly affecting the more vulnerable groups of children and adolescents [37]. In Norway, 20% of unaccompanied asylum-seeking children aged 10–16 years who have experienced death of a close person, witnessed violence and war had depressive symptoms [20]. In Burundi, a country in Central Africa affected by war and political violence, adolescents who experienced more types of maltreatment had higher symptoms of depression [38].

Following the Egyptian political conflict, children attending schools near Tahrir Square showed high rates of depression along with PTSD and anxiety symptoms. Prevalence of depressive symptoms included depressed mood 62%, anhedonia 49.3% and somatic complaints 54.9%. Almost one third (32.5%) had academic deterioration [39•].

A comparative study from Sao Paulo involving young people (age 15 to 24 years) and adults reported that exposure to traumatic events was higher in the young compared with adults; but depression was more common (9.0%) among adults than young people (4.7%) [21].

Many of these armed political conflicts involve children and youth as soldiers. A study in Northern Uganda involving war-affected, internally displaced persons aged between 12 and 25, living in camps, reported suicidal ideation rates of 34% (16% with high risk) for former child soldiers with history of abduction, 19% (6% with high risk) for non-abducted individuals and 25% for the total sample (10% with high risk) [40].

Longitudinal Studies

Many studies have assessed same population longitudinally following disasters and reported that negative psychological impact continues for years. There are instances the prevalence of depression has come down, remained same or even worsened over time.

For example, following 2013 Ya'an earthquake, 12-month prevalence of depression was 20.9%, whereas at 30 months, it was 21.6% [15]. Similarly, following Wenchuan earthquake in China, rates of depression among the adolescent males and females at 6, 12 and 18 months were 27.3% vs 42.9%, 42.9% vs 61.9% and 33.3% vs 53.4%, respectively [16•]. The fluctuations have been found to be unpredictable in a study of school girls following 2011 Japan earthquake and tsunami [41].

Based on the grade of exposure, depressed mood was observed in 18.2% of low, 23.8% of medium and 27.6% of high exposure after 2010 Eyjafjallajökull volcanic eruption in Iceland compared to 22.0% in non-exposed. The prevalence in 2010 was 24.3% which was maintained at 25.2% ever after 3 years in 2013 [22].

Following 2011 Great East Japan Earthquake, although there were improvements following school-based interventions, the 1-, 2- and 3-year prevalence of moderate to severe depression were 15.5%, 12.9%, 11.6%, respectively, which were still considerable [17•].

The prevalence of depression varies widely following disasters, secondary to various factors such as trauma intensity, personal meaning of the trauma and loss, pre and post-disaster circumstances, support available, associated secondary stress and even the research methodology. Most of the studies suggest that the higher prevalence of depression is maintained for many years. Time does not appear to heal the impact of traumatic experience.

Suicide Risk

Suicidality is reportedly increased in post-disaster situation [8••, 42, 43]. Following 2013 Ya'an earthquake, 29.5% of adolescents experienced suicidal ideation within 1 year [44]. Suicidality was associated with depression among the disaster-affected young people in China [45]. After the 2008 Wenchuan earthquake in China, the rates of suicidal ideation among the adolescents at 6, 12 and 18 months were 35.6%, 35.6% and 30.7%, respectively, which were linked to depression but not PTSD [46•]. Suicidality remains increased even years after exposure to disaster; 6 years after Wenchuan earthquake in China, adolescents with 2 or more traumatic experiences had almost 2-fold increased risk of suicidal ideation and more than 3-fold risk of attempt [43].

After a major wildfire in Fort McMurray, a comparative study reported suicidal thinking in 16% disaster affected adolescents compared with 4% of controls [8••]. Approximately 5% adolescents had suicidal ideations following 2011 tornadoes in Alabama and those with prior interpersonal violence history were particularly vulnerable [47].

Swedish children and adolescents exposed to 2004 Sumatra-Andaman earthquake and repatriated from southeast Asia had a higher risk for suicide attempts with uncertain intent compared with a control group of native, unexposed children in Sweden matched for sex, age and socioeconomic status. In this study, there was no difference in psychiatric diagnoses in these two groups except stress-related disorder that too was restricted to first 3 months post-disaster. Interestingly, tsunami exposure was linked to a lower risk of anxiety disorders and unipolar depression. Suicide attempts with uncertain intent were increased specifically among boys and included injuries from accidents, self-inflicted injuries and assaults. These behaviours suggested impulsivity and risk-taking behaviour which are known responses to trauma and are reported as symptoms of PTSD in adolescents [48•].

Non-suicidal self-injury has been reported in 13.8% of the Palestinian adolescents and young adults who had prolonged exposure to violence, which was significantly associated with male gender and depression [19•].

Comorbidity

Relationship with PTSD

Although depression can be a sole manifestation of disaster trauma, it is often comorbid with various other disorders [49], especially PTSD, which is well reported [10•, 50, 51]. Recent articles have investigated the relationship beyond the comorbidity. Observations suggest that PTSD symptoms correlate significantly with depressive symptoms [19•]. PTSD can also predict future depression as observed in a study 3 years after the Ya'an earthquake [52•].

A study following 2015 industrial disaster in China explored latent dimensions of PTSD symptoms in a sample of adolescents, using PTSD checklist and Depression Anxiety Stress Scale. Higher correlation with depression measure was reported with the depression-related PTSD construct such as anhedonia compared with the anxiety measure. This provided an external validity for the depressive factor in the model of PTSD [53].

More studies exploring the relationship of these often comorbid disorders are needed, especially about their aetiology and management perspectives.

Contributing Factors for Post-trauma Depression in Youth

There are a few studies reflecting the possible role of various factors in the manifestation of post-traumatic depression. In fact, many variables have been identified as potential risk factors or that can precipitate or predict depression in post-disaster situations (Table 2).

Individual Risk Factors

Individual constructs have been reported to predict the risk of depression more than the disaster-related factors. In an interesting study, adolescents who had experienced 2 or more traumatic incidence prior to the natural disaster or had at least two symptoms of PTSD in the past had 2-fold increase risk of post-disaster depression. Similarly, impaired post-disaster social support was a strong indicator of depression in adolescents, following natural disaster [54•].

Resource loss and individual meaning of the loss have been important factors linked to depression. Besides these, some of the examples of risk factors for post-disaster depression are

Table 2 Risk factors for post-trauma depression in children and adolescents

Individual factors
• Female gender
• Low socioeconomic status
• Early depressive symptoms
• PTSD symptoms
• Fear of non-dangerous stimuli
• Individual meaning of loss
• Low perceived social support
• Personality factors: introversion and psychoticism
• Low level distress tolerance
Trauma-related factors
• Nature of trauma
• Intensity of trauma
• Prior exposure to trauma
• Assaultive violence
• Pre-disaster interpersonal violence
• Victimisation
• Negative life events
• Resource loss
• Damaged home
• Displacement
• Greater exposure to traumatic incidence through media

female gender [35, 40], comparatively older adolescents [35], and post-traumatic stress symptoms [24]. The risk factors identified for developing psychiatric symptoms in children who experienced political conflict in Egypt were a negative perception of the effect of the revolution, knowing someone exposed to trauma during the events, female gender and low socio-economic class [39•].

Experience of a terror attack may lead to fearfulness amongst the survivors. Around 5 months after the 2011 terrorist attack on Utoya Island, Norway, fear of non-dangerous stimuli, described as 'extended fear', was observed to be a risk factor for depression in adolescent and young adult survivors [55•].

Personality factors also play a major role for post disaster depression. In a study following Wenchuan earthquake in China, introversion and psychoticism were observed to be risk factors, whereas extraversion was a protective factor [56]. It has been reported that low perceived social support and low levels of distress tolerance are associated with elevated symptoms of depression [57]. A study from Israel reported that perceived family social support was protective against the effect of rocket attacks on depression [58].

Depression itself can be a risk factor for future depression. Early depressive symptoms in the post disaster period predict depression later as well; in a study, depressive symptoms, suicidal ideations and PTSD symptoms at 6 months predicted depression at 18 months [16•]. Similarly, post disaster depression predicts and significantly increases depression risk following subsequent exposure to disasters [59].

Trauma-Related Risk Factors

Nature and intensity of trauma exposure have been reported as risk factors for depression in children and adolescents [10•, 24, 40]. Witnessing someone seriously injured and feeling scared during the traumatic event have been reported to be significant predictor for depression [14]. Prior exposure to terror, and greater rocket attack exposure were significantly associated with higher level of depression in an Israeli study on adolescents exposed to rocket attacks [35].

Exposure to violence has specifically observed as a key contributor of post-trauma depression. Experience of pre-disaster interpersonal violence has been linked to post disaster depression [60•]. In case of exposure to urban violence, a study in Sao Paulo observed that assaultive violence was associated major depressive disorder in the young [21]. A study on adolescents in secondary schools in the Western Cape Province, South Africa, regarding effect of exposure to violence, found that victimisation in the community and indirect political victimisation consistently predicted adverse psychological functioning, and multiple exposures were associated with worse effect [61].

In general, negative life events have been associated with persistent depression in adolescents following Wenchuan Earthquake [62]. Besides these, damaged homes [22], displacement following disaster [63], abduction [40] etc. are some of the other reported risk factors for post-trauma depression.

Exposure to Media

Media influences young people and there is complex relationship between media coverage of traumatic events and adverse psychological outcome [64•]. Witnessing disasters can be sufficiently stressful to have negative impact on mental health. Nowadays, Internet provides almost real-time access to disasters and rescue operations. Potential harmful effects of secondary exposure to disasters via media coverage, mainly through television have been reported [65]. There are many studies about the impact of media coverage of terror attacks on adolescent mental health. Media exposure has been associated with prolonged grief among the bereaved parents and siblings following the 2011 Utoya Island terror attack [66]. Adverse outcomes have been linked with greater contact with terrorism coverage in studies especially following the 1995 Oklahoma City bombing, the September 11 attacks and the 2013 Boston Marathon bombing. However, current evidence base seems insufficient to consider a cause-effect relationship [64•].

Biological Factors

A study on salivary cortisol for screening mental states such as depression in adolescents following a natural disaster discriminated adolescents with and without depressive symptoms [13]. Some studies linked biological vulnerability to post-disaster depression, especially the genetic factors. A study in China implicated preproghrelin Leu72Met polymorphism with post disaster depression and its outcome over time [67]. Another study suggested interaction among Val66Met polymorphism at brain derived neurotrophic factor (BDNF) gene, gender and time course influences depression in the post disaster period [68].

In summary, individual factors including biological and psychological vulnerability, disaster-related factors highlighting prior exposure and high intense exposure, and support especially perceived support have been identified as contributors for post-traumatic depression in youth.

Management Issues

There are many recent studies exploring mode of provision and methods of intervention for children and adolescents following exposure to catastrophic mass trauma (Table 3). Management would include emergency care in the immediate aftermath of a traumatic event and continued care with specific need based support for recovery and rehabilitation.

Table 3 Examples of the type of interventions provided to children and adolescents following mass trauma

Bounce back now
Academic catch up and counselling
Cognitive Behavioural Therapy (CBT)
Classroom based intervention
Creative expressive elements (cooperative games, structured movement, music, drama and dance)
Creative play
Eye Movement Desensitization and Reprocessing (EMDR)
Emergency psychological care
Emotional writing
Erase-stress
Family-based preventive interventions
General support
Interpersonal psychotherapy
Massage therapy
Multidisciplinary treatment
Narrative exposure therapy
Play therapy
Resilience enhancement
School therapeutic enhancement program
Short-term CBT group intervention
Teaching recovery techniques
Trauma-focused cognitive-behavioural therapy
Trauma-focused group-psychotherapy
Web based interventions

List not exhaustive

Intervention Setting

There are examples that in highly organised settings, emergency care for the victims can be set up quickly. Following terror attacks in Nice, France emergency psychological care for children and adolescents could be setup in hospitals within the hour of attack, and the components of care included providing a secure environment, sharing accurate information, containing the distress and arranging early preventive interventions for post-traumatic reactions [27••].

However, following large-scale disaster scenarios when the usual health care systems are overstretched, other social structures can support interventions for the disaster affected youth. School- or college-based assessment and intervention may be a preferred option for reaching out to a mass of young victims, and many studies have reported or suggested such methods of intervention [6, 28, 69•].

The facilities of educational institutions can help screening, triaging and group interventions in a more acceptable way [10•, 54] and can be resource centre for the young victims. Schools have been used as outreach centres for psychiatric assessments, psychological first aid and crisis counselling [23]. These settings can provide structure and activities which may help children and adolescents to cope and to return to routines quicker, and this may be therapeutic. However, sometime, these facilities are not available especially following large scale natural disasters in resource scant low and middle income (LAMI) countries; or following mass destruction after armed conflicts or terrorist attacks, or when people do not have access to these.

There are few examples of school-based interventions following natural and man-made disasters, although many of them are focussed on PTSD [70, 71]. Following Great East Japan Earthquake, school-based interventions involving psychological testing and interviews have been suggested to reduce rates of depression [17•]. The School Therapeutic Enhancement Program (STEP) reported clinically significant improvement in depression and other psychological consequences in students considered to have higher mental health needs following Katrina [69•].

Web-Based Interventions

Web-based interventions have been studied in post disaster situation [72], and it is of particular benefit of reaching a large number of affected individuals to access support round the clock. The

Internet resources are mainly self-help interventions for disaster-affected adolescents and their parents; however, most are at various stages of development related to their usability [73]. A modular intervention 'Bounce Back Now' (BBN) has been found to be feasible with some degree of efficacy [74•]. It is important to assess the effectiveness of online resources for the youth in various kinds of mass trauma situations.

Family-Based Support

Intervention with family as the focus is particularly important for younger victims. Often, the parents and adult carers are affected by the events and need help, which reflects in their increased health services utilisation [75]. Parents of young victims are specifically vulnerable for trauma related disorders. Compared to general population, parents of young survivors of 2011 terrorist attack on Utøya Island had three times higher anxiety and depression, and five times higher post-traumatic stress symptoms, with considerable distress and guilt related to their child's traumatic experience [76]. Family-based preventive interventions in violence prone areas has been advocated following the evidence that perceived family social support may ease the impact of exposure to trauma in adolescents [58].

The usual parental support system and ambience at home may be impaired following a traumatic experience. So, while dealing with the psychological issues of young people, parental mental state and wider needs of the family should be evaluated and supported.

Specific Types of Psychotherapies

There are a range of psychotherapeutic interventions considered for depression in children and adolescents following traumatic experience such as disasters, terrorism and mass violence (Table 3). It may be useful to reflect on some of the recent studies.

Trauma-focussed group psychotherapy has been evaluated and preliminary findings suggest effectiveness in decreasing depressive symptoms [77]. A randomised controlled trial (RCT) following Sichuan earthquake in China suggested that short-term CBT group intervention was better than general supportive interventions or no-treatment; it enhanced resilience and reduced depression and PTSD among adolescents who had lost their parents in the earthquake [78].

In a study involving adolescents exposed to the Mount Carmel Forest Fire Disaster, self-compassion has been found to be a protective factor for depression, suicidality and other trauma-related psychopathologies [79]. Self-compassion may be a factor to consider for resilience and recovery. Promoting resilience is an important aspect of managing adolescent depression. A study on adolescents from Palestine suggested that optimism, family sense of coherence, ethnic identity, self-regulation and coping skills are significant predictors of resilience [80]. These aspects can be included in supportive psychotherapeutic interventions in individual or group setting.

It may be better to support adolescents with effective coping strategies. In a study following Nepal earthquake, coping strategies of adolescents with or without depression were mostly comparable except those with depression were significantly less likely to participate in activities and most of them just hoped for the best [10•]. This suggests in post-traumatic situations, activity therapy may be considered and return to usual routines should be facilitated.

A study on EMDR on adolescent survivors of Typhoon Morakot reported that pre-intervention severity of depression significantly decreased compared with the treatment as usual group [81].

Current evidence base regarding debriefing in children following traumatic events is small [82], and although methodologically challenging, more robust studies are required for any meaningful conclusions.

There are a few recent meta-analyses which are worth mentioning. A meta-analysis of 18 studies assessed the effectiveness 21 interventions for depression in youth exposed to political violence or natural disasters where a range of interventions were studied. The summary intervention effect was small and not statistically significant. However, the effect was significant when the intervention was conducted following a natural disaster, or in a high income country, or when it was non-trauma-focussed, or was provided in more than eight sessions. Interventions in the context of political violence and in LAMI countries were not effective. Similarly, interventions with trauma-focussed components or processes and those delivered in 8 or fewer sessions did not have statistically significant effect on depression [83••].

A recent systematic review assessed quality of psychological intervention in LAMI countries affected by armed conflicts, disasters secondary to natural hazards and other humanitarian crises and reported that no RCTs provided data on the outcome for major depression in children [84•]. However, another meta-analysis on RCTs of focussed psychosocial support versus waiting list control reported few studies that assessed depression in children in LAMI countries exposed to humanitarian crises such as wars, armed conflicts and disasters. The result suggested that there was no overall effect on depressive symptoms at the end of intervention or at follow-up [85].

Another meta-analysis of psychological interventions in LAMI countries on depressive symptoms in young survivors of mass violence reported that uncontrolled effect sizes for changes in depression symptoms were small across all interventions pre-post, and medium from pre-treatment to follow-up. Comparison between active conditions with waiting-list at post-treatment produced a small effect size, and there was no difference in follow-up [32].

There is a need for developing robust assessment methods and interventions for disaster affected adolescents [86], and study their effectiveness. It is important that the interventions help the young victims' life and goals back on tract, instil sense of worth and when appropriate rehabilitate them for a productive life.

Challenges

Assessing young people and conducting studies following mass trauma situations such as disasters, terror incidences and violence especially during the immediate aftermath are extremely challenging. Besides the resource issues, ground realities especially in LAMI countries and execution of studies with sound methodology, participation in studies may depend upon various factors related to the affected population, including individual sensitivity, sociocultural acceptance and presence of symptoms [87]. Providing specific mental health services could be tough in traumatic situations; although it is a more prominent issue in LAMI countries, there are reports of service gap and resource constraints even in developed countries with well-established services [6, 88]. In addition, lack of resources for intervention and long-term support can be a hindrance for many therapeutic and outcome studies in large and remote disaster-affected areas.

Practical and psychological support received during and after traumatic events from the disaster workers may help a lot. This warrants proper training of disaster workers and professionals blending therapeutic approach with practical support for the young victims of trauma. Identifying the presence of symptoms and risk factors, and triaging the victims to available and pre-existing support systems are helpful at the minimum.

There is a particular issue with the young people with pre-existing disabilities. They are disproportionately more vulnerable and any intervention plan should cater to their needs [89]. Similarly, as comorbidities are commonly associated with depression in post-traumatic situations, mostly PTSD and other anxiety disorders [10•], the intervention plan should be holistic.

Conclusion

Depression in youth following disasters, terrorism and violence is common. Considering the ever increasing mass trauma situation around the world, the number of studies exploring various aspects of depression is rather scarce. It appears that most cases may be not diagnosed because of various reasons including lack of facilities, appropriate assessment and ground realities. Depression is an extremely treatable illness and efforts should be taken to identify it early and treat it adequately. More research is required on effectiveness of various psychotherapeutic interventions for post-disaster depression in young people.

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Compliance with Ethical Standards

Conflict of Interest Nilamadhab Kar declares no potential conflicts of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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- • Of importance
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