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TRAUMATIC EFFECTS OF DISASTERS AND VIOLENT ACTS ON YOUTH

TRAUMA DISASTERS
VIOLENCE EMOTIONAL COMPETENCE

Introduction

Youth mental health and well-being[1] are currently in crisis due to a variety of events involving Europe. Among such events, an increasingly significant role is played by disasters and violent acts. They include natural disasters such as earthquakes, pandemics, and floods; technological disasters such as road accidents, industrial accidents, and collapses; and violent acts such as wars, terrorism, and related migrations. Among the most recent disasters, a prominent role was played by the COVID-19 pandemic, which directly involved children and adolescents throughout Europe — and worldwide.

Disasters and violent acts can have traumatic consequences on children and adolescents who experience them directly and/or indirectly, for example, through media exposure[2]. They can provoke both disruptions in youth's psychological functioning and increases in psychopathological symptoms and disturbances such as anxiety, depression, and post-traumatic stress disorder (PTSD). When dealing with minors, it is also relevant to remember that children and adolescents' vulnerability depends on their level of cognitive and emotional development[3]. However, notwithstanding the attention of international research and policies for developing youth's resilience after a disaster, few resources have been invested in promoting preventive initiatives, particularly those following scientific research standards.

[1] Raccanello, D., et al. (2023). Coping Strategies and Psychological Maladjustment/Adjustment: A Meta-Analytic Approach With Children and Adolescents Exposed to Natural Disasters. *Child & Youth Care Forum*, 52, 25—63. https://doi.org/10.1007/s10566-022-09677-x. Slone, M., Mann. S. (2016). Effects of War, Terrorism and Armed Conflict on Young Children: A Systematic Review. *Child Psychiatry & Human Development*, 47, 950—965. https://doi.org/10.1007/s10578-016-0626-7.

[2] UNDRR, United Nations Office for Disaster Risk Reduction (n.d.). Affected. *UNDRR*, https://www.undrr.org/terminology/affected

[3] Kar, N. (2009). Psychological Impact of Disasters on Children: Review of Assessment and Interventions. *World Journal of Pediatrics*, 5, 5—11. https://doi.org/10.1007/s12519-009-0001-x.

In this chapter, we will deal with this matter from a psychological perspective, merging contributions coming mainly from developmental psychology and emergence psychology. Such approaches can offer valid scientific knowledge to describe this problem and favour a better understanding of the consequences of experiencing disasters and violent acts, pointing out possible preventive solutions. We will focus on psychoeducation as a fruitful way to enhance disaster-related prevention and preparedness targeting a broad audience, including children and adolescents. We will present the case of HEMOT® (Helmet for EMOTions), an Italian centre of research that developed a variety of preventive initiatives focusing on disaster-related emotional resilience, such as school-based interventions, guidelines, technological applications, and public communication campaigns. In Italy, we implemented these activities about earthquakes[4], pandemics[5] , floods[6], and wars[7], offering methods for generalising them to other contexts. This can be the basis for developing large-scale standards at the European level, with the challenge of promoting emotional competence related to current and future disasters, focusing specifically on children and adolescents.

[4] Raccanello, D., et al. (2023). Preparing Children to Cope With Earthquakes: Building Emotional Competence. *British Journal of Psychology*, 114(4), 871–907. https://doi.org/10.1111/bjop.12661. Raccanello, D., et al. (2021). *Prevenzione Emotiva e Terremoti: Linee Guida per la Realizzazione di un Training Nella Scuola Primaria [Emotional Prevention and Earthquakes: Guidelines to Realise a Training in Primary School]*. Verona: Department of Human Sciences, University of Verona; HEMOT. https://www.hemot.eu/2021/09/07/linee-guida-e-webinar-conclusivo-del-progetto-premt/

[5] Raccanello, D., et al. (2024). Can a Web Application Foster Emotional Competence in Children and Adolescents? The Case of PandHEMOT. *Applied Psychology: Health and Well-Being*, 16(2), 672–695. https://doi.org/10.1111/aphw.12511.

[6] Raccanello, et al. (2023). Floods: How to help children and adolescents manage emotions. *HEMOT*. https://www.hemot.eu/2023/11/03/flood/

[7] Vicentini, G., et al. (2022). Development and Evaluation of Psychoeducational Resources for Adult Carers to Emotionally Support Young People Impacted by Wars: A Community Case Study. *Frontiers in Psychology*, 13, 995232. https://doi.org/10.3389/fpsyg.2022.995232.

General Assessment of the Problem

Disasters and violent acts can have traumatic consequences at physical, psychological, material, economic, and environmental levels[8], both for adults and youth. But what do we mean by disasters and violent acts? How do the experts define and classify them? What are their main consequences for children and adolescents' psychological functioning and mental health?

Disasters and Violent Acts

Disasters and violent acts can be defined as traumatic events that involve many individuals or an entire community[9]. According to international classifications[10] , we can distinguish three main types of disasters: natural disasters, technological (also called anthropogenic or human-induced) disasters, and violent acts. Natural disasters comprise those caused by natural phenomena. They include geological (e.g., earthquakes, tsunamis, landslides, volcanic eruptions), meteorological (e.g., heat/cold waves, fog, storms), hydrological (e.g., floods, avalanches), climatological (e.g., drought, fires), biological (e.g., epidemics, pandemics, insect infestations), and extraterrestrial disasters (e.g., geomagnetic storms). Technological disasters are events due to human

8 UNDRR, United Nations Office for Disaster Risk Reduction (n.d.). Disaster. *UNDRR*. https://www.undrr.org/terminology/disaster

9 McFarlane, A. C., Norris, F. H. (2006). Definitions and Concepts in Disaster Research. in Norris, F. H., et al. (eds.). *Methods for Disaster Mental Health Research.* New York: Guilford Press, p. 3.

10 EM-DAT, Emergency Events Database (n.d.). General classification. *EM-DAT*, https://www.emdat.be/classification. IRDR, Integrated Research on Disaster Risk (2014). *Peril Classification and Hazard Glossary*. Beijing: Integrated Research on Disaster Risk. https://www.irdrinternational.org/uploads/files/2020/08/2h6G5J59fs7n-Fgoj2zt7hNAQgLCgL55evtT8jBNi/IRDR_DATA-Project-Report-No.-1.pdf. Peek, L., et al. (2018). Children and Disasters. In Rodríguez, H., Donner, W., Trainor, J. E. (eds.). *Handbook of Disaster Research.* Cham: Springer, p. 243. UNDRR, United Nations Office for Disaster Risk Reduction (n.d.). Hazard. *UNDRR*. https://www.undrr.org/terminology/hazard

activities, industrial or technological procedures, or infrastructure failures. We can list among them industrial (e.g., chemical/oil spills, industrial collapses, poisoning), transport (e.g., road/air/water/rail accidents), and miscellaneous accidents (e.g., generic collapses, explosions, fires). The expression "violent acts" refers to armed conflicts or other human activities, such as war, that can create extensive social instability or tension, including the cascading events around migration.

Notwithstanding differences between them, disasters tend to share a common sequence of events over time[11]. Some experts distinguish between non-disaster, pre-disaster, impact, emergency, and reconstruction or rehabilitation phases. The first phases imply a departure from normality (*non-disaster phase*) which consists of triggers of alarm and protection systems (*pre-disaster phase*). The following phase is the one in which the disaster happens (*impact phase*). After this, during a short-term *emergency phase*, the priority is on rescue operations and victim assistance, and during a long-term *reconstruction or rehabilitation phase*, the focus is on restoring the pre-disaster conditions or conditions as similar as possible to them. We anticipate that all the activities about psychoeducation (see the following parts of this chapter) should be implemented mainly during the non-disaster and the pre-disaster phases, but they could also be relevant during other phases as well.

We can differentiate disasters and violent acts by taking into account a variety of characteristics, comprising the extent of the affected geographical area, their frequency, onset rapidity, predictability, avoidability, and duration[12]. The awareness about these characteristics has an applied relevance at various levels,

[11] Noji, E. K., (1997). The Nature of Disasters: General Characteristics and Public Health Effects. In Noji, E. K. (ed.). *The Public Health Consequences of Disasters*. New York: Oxford University Press, p. 3.

[12] Pietrantoni, L., Prati, G. (2009). *Psicologia dell'Emergenza [Psychology of Emergency].* Bologna: Il Mulino. Raccanello, D., Vicentini, G. (2022). *Psicologia dell'Emergenza in Età Evolutiva. Dall'Infanzia all'Adolescenza [Psychology of Emergency in*

for example in planning activities to support individuals coping with such events. If we focus on duration, there are evident differences between the impact phase of an earthquake compared to that of an epidemic or a pandemic. For the former, it can be a few seconds or minutes, while for the latter, it can last weeks or months and could even be in part coincident with the following emergency phase. Therefore, while psychoeducational initiatives about earthquakes are impossible to recognise during their impact phase, we witnessed a great variety of activities that were deployed during the impact phase of the COVID-19 pandemic.

Impact of Disasters and Violent Acts on Psychological Functioning During Development

Disasters and violent acts can affect youth's psychological development at a variety of levels. Some psychologists broadly distinguish between two areas pertaining to cold cognition versus hot cognition[13]. Cold cognition comprises all the cognitive processes that regard the logic and analytic processes that we use when interacting with our internal and external world, such as attention, intelligence, executive functions, memory, or learning. Hot cognition, explored more recently by experts, includes all the emotional, motivational, and social processes that are traditionally considered as less rational. The interaction between cold and hot processes shapes individuals' behaviour in everyday life, also when stressors are particularly salient, as in the case of traumatic events.

Developmental Age. From Infancy to Adolescence]. Bologna: Il Mulino. UNDRR, United Nations Office for Disaster Risk Reduction (n.d.). Disaster.

[13] Gladwin, T. E., Figner, B. (2015). "Hot" Cognition and Dual Systems: Introduction, Criticisms, and Ways Forward. In Wilhelms, E. A., Reyna, V. R. (eds.). *Frontiers of Cognitive Psychology. Neuroeconomics, Judgment, and Decision Making*. New York: Psychology Press, p. 157.

Impact on Cold Cognition

What do we know about disasters and violent acts' effects on cold cognition during development? Empirical evidence about children and adolescents indicates that they can negatively impact attention and concentration, documenting disturbances also in the long term, even after one year. This was revealed, for example, in children and/or adolescents who directly experienced the 2005 Hurricane Katrina in the United States; who indirectly experienced the 11 September 2001 terrorist attacks in the United States, and the 2004 tsunami in the Indian Ocean; and who directly or indirectly experienced the 2004 terrorist attacks in North Ossetia[14]. As it relates to intelligence, usually measured using the Intelligent Quotient (IQ), this is not negatively impacted by having experienced traumatic events such as disasters, terroristic attacks, or community violence, or by the subsequent post-traumatic disturbances[15]. Nevertheless, it gets worse after traumatic events such as maltreatment, abuse, abandonment, and

[14] Hock, E., et al. (2004). Predicting Children's Reactions to Terrorist Attacks: The Importance of Self-Reports and Preexisting Characteristics. *American Journal of Orthopsychiatry*, 74(3), 253—262. https://doi.org/10.1037/0002-9432.74.3.253. Math, S. B., et al. (2008). Psychological Impact of the Tsunami on Children and Adolescents From the Andaman and Nicobar Islands. *Primary Care Companion to The Journal of Clinical Psychiatry*, 10(1), 31—37. https://doi.org/10.4088/pcc.v10n0106. Scrimin, S., et al. (2009). Attention and Memory in School-Age Children Surviving the Terrorist Attack in Beslan, Russia. *Journal of Clinical Child & Adolescent Psychology*, 38(3), 402—414. https://doi.org/10.1080/15374410902851689. Sprung, M., Harris, P. L. (2010). Intrusive Thoughts and Young Children's Knowledge About Thinking Following a Natural Disaster. *Child Psychology and Psychiatry*, 51(10), 1115—1124. https://doi.org/10.1111/j.1469-7610.2010.02273.x.

[15] Deprince, A. P., Weinzierl, K. M., Combs, M. D. (2009). Executive Function Performance and Traumatic Event Exposure in a Community Sample of Children. *Child Abuse and Neglect*, 33(6), 353—361. https://doi.org/10.1016/j.chiabu.2008.08.002. Hadi, F. A., Llabre, M. M. (1998). The Gulf Crisis Experience of Kuwaiti Children: Psychological and Cognitive Factors. *Journal of Traumatic Stress*, 11(1), 45—56. https://doi.org/10.1023/A:1024453015176. Saigh, P. A., Mroueh, M., Bremner, J. D. (1997). Scholastic Impairments Among Traumatized Adolescents. *Behaviour Research and Therapy*, 35(5), 429—436. https://doi.org/10.1016/S0005-7967(96)00111-8.

family violence[16]. Similarly, deterioration in some executive functions (such as verbal fluency or the ability to be flexible and inhibit irrelevant information) is associated with exposure to violence, abuse, or neglect, especially for youth presenting post-traumatic disturbances or symptoms[17]. As for memory, preschoolers can already remember the core characteristics of traumatic events such as kidnappings[18], earthquakes[19], or hurricanes[20]. The quality of the memory, however, can vary according to factors such as age, amount of stress, level of the threat against their life, and coping modalities[21]. Finally, mere exposure to disasters and violent acts would not be associated with worse school learning; rather, such impairments would be related to the presence of post-traumatic symptoms or to the interruption of school attendance as a cascading effect derived from those events[22]. To sum up, disasters and

16 Perfect, M. M., et al.. (2016). School-Related Outcomes of Traumatic Event Exposure and Traumatic Stress Symptoms in Students: A Systematic Review of Research From 1990 to 2015. *School Mental Health*, 8(1), 7—43. https://doi.org/10.1007/s12310-016-9175-2.

17 Nyvold, O., et al. (2022). Unity or Diversity of Executive Functioning in Children and Adolescents With Post-Traumatic Stress Symptoms? A Systematic Review and Meta-Analysis. *Child Neuropsychology*, 28(3), 374—393. https://doi.org/10.1080/09297049.2021.1979950. Op den Kelder, R., et al (2018). Executive Functions in Trauma-Exposed Youth: A Meta-Analysis. *European Journal of Psychotraumatology*, 9(1), 1450595. https://doi.org/10.1080/20008198.2018.1450595.

18 Terr, L. C. (1983). Chowchilla Revisited: The Effects of Psychic Trauma Four Years After a School-Bus Kidnapping. *The American Journal of Psychiatry*, 140(12), 1543—1550. https://doi.org/10.1176/ajp.140.12.1543.

19 Najarian, L. M., et al. (1996). Relocation After a Disaster: Posttraumatic Stress Disorder in Armenia After the Earthquake. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35(3), 374—383. https://doi.org/10.1097/00004583-199603000-00020.

20 Fivush, R., et al. (2004). Weathering the Storm: Children's Long-Term Recall of Hurricane Andrew. *Memory*, 12(1), 104-118. https://doi.org/10.1080/09658210244000397.

21 Blandón-Gitlin, I., Pezdek, K. (2009). Children's Memory in Forensic Contexts: Suggestibility, False Memory, and Individual Differences. In Bottoms, B. L., Najdowski, C. J., Goodman, G. S. (eds.). *Children as Victims, Witnesses, and Offenders: Psychological Science and the Law*. New York: Guilford Press, p. 57.

22 Kousky, C. (2016). Impacts of Natural Disasters on Children. *The Future of Children*, 26(1), 73—92. https://www.jstor.org/stable/43755231.

violent acts can negatively impact youth's attention and concentration, executive functions, memory, school performance, and, in some cases, intelligence.

Impact on Hot Cognition

We could argue that the impact of disasters and violent acts on hot cognition is even more salient and pervasive than that exerted on cold cognition. When we reason about such events, one of the main thoughts concerns the huge psychological suffering associated with them. Some experts underline that the emotional reactions to traumatic events are "normal reactions to abnormal events"[23]. As such, the latter is the source of extremely intense and frequent negative emotions, such as fear, sadness, anger, disgust, disappointment, regret, and many others — varying extensively for a plurality of factors[24]. Indeed, the emotions felt in the context of a disaster influence all the psychological processes involved and are, in turn, influenced by them, sometimes positively and sometimes negatively. For example, during an earthquake a child could freeze due to an incontrollable fear, staying motionless and as such being unable to make decisions and implement safety behaviours to escape from a dangerous place. On the contrary, still due to fear, another could be more cautious and avoid risky behaviours, safeguarding their health. Empirical evidence indicates that, in uncertain or risky situations, stimuli provoking fear are processed faster, leading to more probable, rapid, and adaptive reactions[25]. However, this could be

[23] Stanulovic, N. K. (2005). *Psicologia dell'Emergenza. L'Intervento con i Bambini e gli Adolescenti [Psychology of Emergency. The Intervention With Children and Adolescents]*. Roma: Carocci.

[24] Villalta, L, et al. (2018). Emotion Regulation Difficulties in Traumatized Youth: A Meta-Analysis and Conceptual Review. *European Child & Adolescent Psychiatry*, 27(4), 527–544. https://doi.org/10.1007/s00787-018-1105-4.

[25] Ekman, P. (1992). An Argument for Basic Emotions. *Cognition and Emotion*, 6(3–4), 169–200. https://doi.org/10.1080/02699939208411068. Liddell, B. J., et al. (2005). A Direct Brainstem–Amygdala–Cortical 'Alarm' System for Subliminal Signals

counterproductive when it is necessary to use such processes in a flexible, innovative, slower, and creative way to find solutions to problems that are perceived as new. Indeed, positive emotions, such as calm, are the ones that favour these ways of processing information. As we argue later in this chapter, psychoeducation can play an important role in assisting children and adolescents to learn adaptive ways to cope with their emotions so that they can behave appropriately in the face of unanticipated emergencies.

Hot cognition also includes motivational and social factors. Among the first, it is interesting to reflect on the consequences of self-efficacy, the perception of one's own capacity to cope with the demands of a task, even when it threatens or challenges an individual[26]. We know, for example, that self-efficacy can influence the development of mental disturbances, but also a variety of other states related to how people cope with pain and health. Nevertheless, self-efficacy can increase due to different aspects, which include observing how other people cope with difficult events and social persuasion. As we will see, both aspects can be taken into account within psychoeducation initiatives aiming to improve youth's resources to deal with disasters of various kinds. Among social factors, researchers' attention has been attracted by the role of social support. While the direction of the relation between this construct and well-being is still discussed — does social support result in better well-being[27] or does psychological distress erode social networks[28]? There is no doubt

of Fear. *Neuroimage*, 24(1), 235–243. https://doi.org/10.1016/j.neuroimage.2004.08.016.

[26] Bandura, A. (1997), *Self-Efficacy: The Exercise of Control*. New York: Freeman.

[27] Cohen, S. (2004). Social Relationships and Health. *American Psychologist*, 59(8), 676–684.

[28] Kaniasty, K., Norris, F. H. (2008). Longitudinal Linkages Between Perceived Social Support and Posttraumatic Stress Symptoms: Sequential Roles of Social Causation and Social Selection. *Journal of Traumatic Stress*, 21(3), 274–281. https://doi.org/10.1002/jts.20334.

that receiving or giving social support has a protective role for children and adolescent victims of disasters or violent acts[29].

Impact on Children and Adolescents' Physical and Mental Health

As disasters and violent acts are exceptional events that often happen unexpectedly, they can have terrible consequences for all the affected people. However, children and adolescents are often considered more vulnerable in such contexts and, therefore, need more attention than adults[30].

Impact on Physical Health

Notwithstanding the great recovery capacity that usually characterises children and adolescents, even when experiencing traumatic events, disasters and violent acts can have both direct and indirect consequences on their physical health[31].In addition to injuries or breathing problems directly caused by collapses or dust clouds, after a disaster, the availability of food or drinking water could be reduced and the healthcare facilities (e.g., hospitals) could be saturated or not available. Due to these disruptions, preexisting pathologies could be neglected and new health problems could go undiagnosed.

In such contexts, children and adolescents are more vulnerable than adults for both biological and social reasons. Their immune system has not yet completely developed, and they suffer more from dehydration, leading to a higher risk of negative health consequences. At the same time, particularly younger children

[29] Allen, L, et al. (2021). The Correlation Between Social Support and Post-Traumatic Stress Disorder in Children and Adolescents: A Meta-Analysis. *Journal of Affective Disorders*, 294, 543—557. https://doi.org/10.1016/j.jad.2021.07.028.

[30] Peek, L.., et al. (2018).

[31] Kousky, C. (2016).

depend on parental care for many issues and cannot fulfil their needs by themselves.

Impact on Mental Health

Many studies have documented the presence of psychopathological symptoms or disturbances among children and adolescents exposed to natural disasters, technological disasters, or violent acts. PTSD is the most studied consequence. However, disasters can also result in other psychological problems such as depression, anxiety, behavioural or sleeping problems, and psychosomatic symptoms. In some cases, consequences of disasters also have potentially long-term traumatic sequelae that may even be intergenerational in scope[32].

Factors Influencing Mental Health

Some personal or contextual factors could facilitate good mental health (i.e., protective factors) or, conversely, increase the risk of negative psychological consequences (i.e., risk factors). One of the most important factors is exposure[33], referring not only to the objective proximity to the event but also to the severity of the physical and social problems experienced as a result of the disaster (e.g., injuries, losses). The more a youth has been exposed to a disaster, the worse the impact on his/her mental health. A second factor is time, which has a controversial role. Some studies

[32] Dashorst, P., et al. (2019). Intergenerational Consequences of the Holocaust on Offspring Mental Health: A Systematic Review of Associated Factors and Mechanisms. *European Journal of Psychotraumatology*, 10(1), 1654065. https://doi.org/10.1080/20008198.2019.1654065. Payne, E. A., Berle, D. (2021). Posttraumatic Stress Disorder Symptoms Among Offspring of Holocaust Survivors: A Systematic Review and Meta-Analysis. *Traumatology*, 27(3), 254—264.

[33] Memarzia, J., Walker, J., Meiser-Stedman, R. (2021). Psychological Peritraumatic Risk Factors for Post-Traumatic Stress Disorder in Children and Adolescents: A Meta-Analytic Review. *Journal of Affective Disorders*, 282, 1036—1047. https://doi.org/10.1016/j.jad.2021.01.016.

found an improvement in mental health a year after the disaster[34]; others suggest that some psychopathological problems tend to get worse in the long term, especially when immediate interventions are lacking[35].

Other factors regard personal characteristics (e.g., age, gender, previous mental health), that can play a role in influencing the psychological consequences. Age has often been used to investigate developmental differences. Many studies documented a worse impact on older children and adolescents' mental health compared to younger children, due to their higher awareness about the event and its consequences[36]. However, in particular contexts (such as the conscription of child soldiers[37]), younger children showed more severe mental health problems. Regarding gender (considering the binary division), males and females are both potentially exposed to the negative impact of disasters and violent acts; however, some research evidence indicates differences in the type of consequences, with males experiencing more externalising (e.g., behavioural problems, aggressiveness) and females more internalising problems (e.g. depression, anxiety)[38]. In addition, pre-existing mental health conditions could be a risk factor after a disaster: Children and adolescents suffering

34 Furr, J. M., et al. (2010). Disasters and Youth: A Meta-Analytic Examination of Posttraumatic Stress. *Journal of Consulting and Clinical Psychology*, 78(6), 765—780.

35 Wang, C. W., Chan, C. L., Ho, R. T. (2013). Prevalence and Trajectory of Psychopathology Among Child and Adolescent Survivors of Disasters: A Systematic Review of Epidemiological Studies Across 1987—2011. *Social Psychiatry and Psychiatric Epidemiology*, 48(11), 1697—1720. https://doi.org/10.1007/s00127-013-0731-x.

36 Vossoughi, N., et al. (2018). Mental Health Outcomes for Youth Living in Refugee Camps: A Review. *Trauma, Violence, & Abuse*, 19(5), 528—542. https://doi.org/10.1177/1524838016673602.

37 Betancourt, et al. (2013). Research Review: Psychosocial Adjustment and Mental Health in Former Child Soldiers-A Systematic Review of the Literature and Recommendations for Future Research. *Journal of Child Psychology and Psychiatry*, 54(1), 17—36. https://doi.org/10.1111/j.146-7610.2012.02620.x.

38 Pereda, N. (2013). Systematic Review of the Psychological Consequences of Terrorism Among Child Victims. *International Review of Victimology*, 19(2), 181—199. https://doi.org/10.1177/0269758012472771.

from already-existing psychopathological problems or who have previously experienced other traumatic events are more at risk[39].

Finally, social factors can also influence youth's psychological well-being. Social support is considered a key protective factor for the mental health of children and adolescents exposed to disasters and violent acts. In particular, the presence of one or both parents is fundamental for favouring a good adjustment after a traumatic situation, especially for younger children[40]. Social relations can also be promoted by guaranteeing school activities. In the aftermath of a disaster, learning opportunities are often suspended. However, restoring such activities as soon as possible is a protective factor for youth's mental health, not only for educational purposes but also for the possibility of getting in touch with friends and teachers[41]. Lastly, the socioeconomic conditions of the area impacted by the disaster are another important factor[42]. Children and adolescents living in contexts characterised by medium-low economic development, struggling with resource paucity and difficult access to healthcare facilities, are more vulnerable to mental health problems.

Answers: Promoting Resilience and Emotional Competence

Notwithstanding their widespread negative consequences, in some cases, traumatic events may lead to positive long-term

39 LeMoult, J., et al. (2020). Meta-Analysis: Exposure to Early Life Stress and Risk for Depression in Childhood and Adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry*, 59(7), 842–855. https://doi.org/10.1016/j.jaac.2019.10.011.

40 Jin, S. S., et al. (2021). Systematic Review of Depression and Suicidality in Child and Adolescent (CAP) Refugees. *Psychiatry Research*, 302, 114025. https://doi.org/10.1016/j.psychres.2021.114025.

41 Aghajafari, F., et al. (2020). Academic Achievement and Psychosocial Adjustment in Child Refugees: A Systematic Review. *Journal of Traumatic Stress*, 33(6), 908–916. https://doi.org/10.1002/jts.22582.

42 Aghajafari, F., et al. (2020).

consequences such as increased resilience[43]. The term resilience has emerged in various contexts, characterising everyday language as well as national and international policies. The common denominator at the basis of the widespread use of this term is the view of resilience as a phenomenon which reflects a relatively positive adjustment in front of significant traumatic events[44]. Having its roots in physical science and engineering — as the property of a material to absorb energy when it is being deformed up to its elastic limit — this expression began to be applied to the psychological field in the 1970s, and nowadays is the core element of a multi-disciplinary approach called "science of resilience". Resilience is conceptualised as a dynamic and limited resource, which is, however, renewable. Given the malleability of this psychological process, explicit efforts to maintain or improve children and adolescents' resilience can, therefore, be effective.

One way to improve people's resilience towards disasters and violent acts, and particularly their emotional resilience, is to increase their emotional competence. Emotional competence is the ability to express, understand, and regulate one's own and others' emotions, and it is a fundamental resource to successfully adapt to contextual requests, also during stressful events[45]. Children begin early to express and recognise emotions through verbal and non-verbal channels. The first relies on the words that we use to describe how we feel — the so-called emotional lexicon — together with all the verbal contents that permit us to describe the causes or the consequences of emotions. The second regards all the ways that enable us to externalise — and, in turn, to recognise — emotions through facial expressions, gestures, tone of voice, etc. During development, children progressively

43 Masten, A. S. (2021). Resilience of Children in Disasters: A Multisystem Perspective. *International Journal of Psychology*, 56(1), 1—11. https://doi.org/10.1002/ijop.12737.

44 Luthar, S. S., Grossman, E. J., Small, P. J. (2015). Resilience and Adversity. In Lamb, M. E., Lerner, R. M. (eds.) *Handbook of Child Psychology and Developmental Science: Socioemotional Processes*. Hoboken: John Wiley & Sons Inc., p. 247.

45 Denham, S. A. (1998). *Emotional Development in Young Children.* New York: Guilford.

refine their understanding and knowledge about the nature of emotions and the related mechanisms, and such knowledge is a fundamental requisite to regulate them, especially in case of negative stressors. The cognitive, emotional, and behavioural processes through which individuals react in the face of real or perceived stressful events are defined by the experts as coping strategies[46]. In an effort to produce a broad classification of these strategies taking into account age changes, some authors[47] proposed a developmental classification with three categories corresponding to different adaptive functions of the strategies themselves, focused on three basic human needs concerning the need for competence, relatedness, and autonomy[48]. Each category includes two connected families of strategies and their opposites. The first set, focused on competence, involves problem solving and information seeking in contrast to helplessness and escape or avoidant reactions. These strategies help individuals to adapt their behaviours to the environmental constraints they face. The second set, focused on relatedness, comprises self-reliance and support seeking in contrast to delegation and social isolation. It revolves around endeavours to build reliance amongst and between people caught up in the situation. The third set, focused on autonomy, includes accommodation and negotiation in contrast with submission and opposition. These strategies are organised around efforts to trade options to reach one's own goals. Following disasters, children and adolescents can use a range of coping strategies. Acknowledging that the efficacy of each strategy depends on various elements pertaining

[46] Lazarus, R. S., Folkman, S. (1984) *Stress, Appraisal, and Coping*. New York: Springer.

[47] Zimmer-Gembeck, M. J., Skinner, E. A. (2011). The Development of Coping Across Childhood and Adolescence: An Integrative Review and Critique Research. *International Journal of Behavioral Development*, 35, 1—17. https://doi.org/10.1177/0165025410384923.

[48] Deci, E. L., Ryan, R. M. (1985). The General Causality Orientations Scale: Self-Determination in Personality. *Journal of Research in Personality*, 19(2), 109—134. https://doi.org/10.1016/0092-6566(85)90023-6.

to individual, contextual, and task characteristics, some empirical evidence gives hints about the most and least adaptive strategies concerning disasters and violent acts. For example, for natural disasters, children and adolescents' strategies such as escape, social isolation, and opposition are associated with negative psychopathological indicators, while strategies such as problem solving and social support are associated with indicators of positive functioning[49]. Therefore, acquiring and being familiar with a range of potentially adaptive or maladaptive strategies in advance with respect to the occurrence of a disaster or a violent act is one way to provide children and adolescents with resources to demonstrate resilience during and after them.

Answers: Enhancing Disaster-Related Prevention and Preparedness Through Psychoeducation

According to the United Nations, increasing children and adolescents' awareness about disasters is among the key pillars to favour their readiness towards them, in turn promoting their emotional resilience[50]. Psychoeducational resources, also based on the use of technology, are key instruments to increase awareness and knowledge about protective behaviours and emotional resources to cope with possible and future disasters and violent acts. However, the efficacy of such resources to increase disaster-related prevention and preparedness has been investigated only in rare cases following the standards of evidence-based research[51], as "the use of prior research in a systematic and transparent way to

[49] Raccanello, D., at al. (2023). Coping Strategies and Psychological Maladjustment/Adjustment: A Meta-Analytic Approach With Children and Adolescents Exposed to Natural Disasters.

[50] Seddighi, H., et al. (2020). Students' Preparedness for Disasters in Schools: A Systematic Review Protocol. *BMJ Paediatrics Open*, 4(1), e000913. https://doi.org/10.1136/bmjpo-2020-000913.

[51] Flay, B. R., et al. (2005). Standards of Evidence: Criteria for Efficacy, Effectiveness and Dissemination. *Prevention Science*, 6(3), 151—175. https://doi.org/10.1007/s11121-005-5553-y.

inform a new study so that it is answering questions that matter in a valid, efficient, and accessible manner"[52]. But what do we mean by disaster-related preparedness and prevention? And what is psychoeducation?

To respond to the first question, we must refer to the concept of disaster risk reduction[53], related to the prevention of the risk of new disasters, the diminishment of the risk of already existing disasters, and the management of the residual risk, to promote resilience at the economic, social, environmental, and health (both physical and mental) levels. Both prevention and preparedness are referred to in the United Nations' guidelines described in the *Sendai Framework for Disaster Risk Reduction 2015—2030*[54]. Disaster-related prevention includes all the activities aimed at reducing the risk of existing and new disasters, such as realising works for the safety of a territory for the hydro-geologic risk, constructing buildings according to the anti-seismic legislation, or respecting measures for water contamination for the risk associated with industrial accidents. Disaster-related preparedness is the range of competencies and capacities of governments, organisations, communities, and individuals to anticipate, respond, and recover in relation to the impact of probable, imminent, or current disasters. Examples are planning alert or evacuation systems, storing food, but also promoting knowledge and competencies to better deal with safety responses, both behavioural and emotional, in relation to a disaster, also through psychoeducational initiatives.

Psychoeducation is a kind of intervention that can amply target a whole community in relation to a disaster or a violent

[52] Robinson, K. A., et al. (2021). Evidence-Based Research Series-Paper 1: What Evidence-Based Research Is and Why Is It Important? *Journal of Clinical Epidemiology*, 129, 151—157. https://doi.org/10.1016/j.jclinepi.2020.07.020.

[53] UNDRR, United Nations Office for Disaster Risk Reduction (n.d.). Disaster risk reduction. *UNDRR*, https://www.undrr.org/terminology/disaster-risk-reduction

[54] UNISDR, United Nations International Strategy for Disaster Reduction (2015). *Sendai Framework for Disaster Risk Reduction 2015—2030*. Geneva: UNISDR.

act, including children and adolescents. It is focused on giving information that can help in the process of natural recovery. It can include structured interventions with different sessions, workshops, or informative materials such as pamphlets[55]. It usually covers knowledge about the traumatic event, common reactions to that event, psychological consequences, and coping strategies, sometimes also referring to specific psychological services available in the territory. One of its benefits is that it can be used in all the disaster phases, but its efficacy is particularly relevant during the phases preceding a disaster or a violent act. However, from the perspective of the psychological international research on disaster risk reduction, there is still a gap in the development of psychoeducational research conducted from a preventive perspective deputed to support children and adolescents, following the standards of scientific research.

How to Implement Psychological Prevention

The American Psychological Association's guidelines about prevention in psychology[56] suggest at least three elements responsible for a successful intervention programme, which are relevant also for disaster risk reduction. The first element is constituted by the link between an intervention and a scientific theory. The development of an intervention should be based on a theoretical approach, from which implementable actions derive that must be monitored on-course and evaluated at the end. This enables us to cyclically revise and improve the intervention itself with a view to bringing about some prompt changes. At the same

[55] Hisli Sahin, N., Yilmaz, B., Batigun, A. (2011). Psychoeducation for Children and Adults After the Marmara Earthquake: An Evaluation Study. *Traumatology*, 17(1), 41—49. https://doi.org/10.1177/1534765610395620.

[56] APA, American Psychological Association (2014). Guidelines for Prevention in Psychology. *The American Psychologist*, 69(3), 285—296. https://doi.org/10.1037/a0034569.

time, the development should be anchored on empirical evidence that documents its efficacy following the standards of scientific research.

A second element regards the use of culturally relevant practices, differentiating the interventions according to the characteristics of the involved people to respond appropriately to their needs. Focusing on psychoeducational interventions, it descends the relevance of adapting them both to specific cultural characteristics, and to the individual characteristics that change with age, devising interventions that consider developmental differences.

The third element refers to the need to jointly consider individual and contextual characteristics. From a preventive perspective, this implies having the resources to understand in detail how a specific disaster in a specific domain can impact a specific territory. Therefore, the relevance of involving different professionals on an interdisciplinary basis — e.g., for an intervention about emotions and earthquakes, we need psychologists and geologists; for an intervention about emotions and pandemics, we need psychologists and doctors — becomes evident, as well as the need to involve a network of professionals and volunteers already existing in a specific territory.

These guidelines could represent the ingredients for implementing effective preventive actions towards a variety of different disasters, also benefitting from the advantages of psychoeducation for increasing psychological resilience.

The Case of HEMOT®

In light of the importance of activities enhancing emotional prevention and preparedness towards disasters and violent acts, we instituted the Centre of Research in Psychology HEMOT® — Helmet for EMOTions (www.hemot.eu), within the Department of Human Sciences of the University of Verona in Italy. Among the initiatives promoted by HEMOT® there are school-based

interventions[57] , guidelines[58], applications[59] , and public communication campaigns[60] (see Figure 1 for an example of disseminated pamphlet) in relation to a variety of disasters and violent acts (i.e., earthquakes, pandemics, floods, and wars). These psychoeducational resources were based on a patented method[61], tested through scientific research, and conducted in collaboration with a variety of stakeholders. The aim of such initiatives was to develop in children, adolescents, and adults psychological — especially emotional — resources to cope with possible, imminent, or ongoing disasters. The focus was first on the promotion of awareness about how people emotionally react to disasters and violent acts and, as a second step, about a range of coping strategies that can be chosen by each individual to tackle disaster-related emotions, taking into account one's own characteristics, those of the context, and those of the specific situation. However, they also fostered a basic understanding of the main characteristics of specific disasters

57 Raccanello, et al. (2023). Preparing Children to Cope With Earthquakes: Building Emotional Competence. Raccanello, D., Vicentini, G., Burro, R. (eds.) (2021). *Prevenzione Emotiva e Terremoti. Un Percorso per Bambini [Emotional Prevention and Earthquakes. A Training for Children]*. Milan: McGraw-Hill Education.

58 Raccanello, et al. (2021). *Prevenzione Emotiva e Terremoti: Linee Guida per la Realizzazione di un Training Nella Scuola Primaria.*

59 Raccanello, et al. (2024). HEMOT (2022).

60 Raccanello, D., at al. (2020). Public health emergency: Psychological tips for children and adolescents' emotions, *HEMOT*. https://www.hemot.eu/2020/02/28/public-health-emergency/. Raccanello, D., et al. (2020). Raccanello, D., et al. (2022). News about wars: How to help children and adolescents cope with related emotions. *HEMOT*. https://www.hemot.eu/2022/03/28/news-about-wars-psychological-tips-for-children-and-adolescents-emotions/. Vicentini, G., et al. (2022). Raccanello, D., et al., (2023). Floods: How to help children and adolescents manage emotions.

61 Raccanello, D., Burro, R. (2019). Metodo per l'allenamento della prevenzione ad un disastro, nonché sistema computerizzato ed un programma eseguibile al calcolatore per l'implementazione di tale metodo [Method for disaster prevention training, as well as a computerized system and a computer executable program for the implementation of this method] (Italian patent n. 102019000008295). *Ufficio Italiano Brevetti e Marchi*. https://it.espacenet.com/publicationDetails/biblio?CC=IT&NR=201900008295A1&KC=A1&FT=D&ND=5&date=20201206&DB=&locale=it_IT

Pamphlet disseminated by HEMOT® through a public communication campaign for supporting adults to help child and adolescent direct and indirect victims of floods.

and related safety behaviours, as we are aware that emotional and behavioural preparedness are two sides of the same coin.

Examples of Other European Solutions

In the European Funding and Tenders Portal[62], it is possible to find several examples of projects tackling problems concerning disasters at the European level, sometimes benefiting from psychoeducational approaches targeting youth.

For example, the ongoing project "Volunteering teams supporting refugees fleeing disasters in Greece (Volteri 5)"[63] aims to create a team of young people providing psycho-social support to migrants, refugees, and asylum-seekers from war-affected areas, also through educational activities. However, its objective is to deal with the psychological consequences of already existing violent acts, paying less attention to preventive actions. Another example is the completed project called "Training and knowledge sharing platform for first responders and educational tools for students' and citizens' awareness and preparedness against natural and manmade disasters and risks"[64]. Among its aims was the implementation of an educational platform, also for primary and secondary school students, with a specific focus on prevention.

62 European Commission (n.d.). EU funding & tenders portal. *European Commission*, https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home

63 Associacio Open Cultural Center (2023—2025). Volunteering teams supporting refugees fleeing disasters in Greece (Volteri 5) [EU funded project]. *European Commission*. https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/projects-details/43254037/101126548/ESC2027?order=-DESC&pageNumber=1&pageSize=50&sortBy=title&keywords=%20disaster&isExactMatch=true

64 Diethnes Panepistimio Ellados (2021—2022). Training and knowledge sharing platform for first responders and educational tools for students' and citizens' awareness and preparedness against natural and manmade disasters and risks' [EU funded project]. *European Commission*. https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/projects-details/31082527/101017819/UCP-M?order=DESC&pageNumber=1&pageSize=50&sortBy=title&keywords=%20disaster&isExactMatch=true

However, the proponents focused only on behavioural preparedness, and not on psychological aspects. Also, the projects "Improving disaster risk understanding"[65] and "Drafting disaster risk reduction awareness raising guidelines and disaster loss data & assessment system"[66] — both still ongoing — assume an educational perspective and aim at developing various educational materials to improve disaster risk awareness, for communities and youth, but it is not clear how they address psychological issues.

These examples, together with many other initiatives, demonstrate the current European attention to the themes of disaster risk reduction. However, they still leave unexplored many roads that could have a substantial impact in reducing youth's mental health problems concerning disasters and violent acts, for instance, by taking into account at the same time behavioural and psychological aspects, preventive actions, and psychoeducational initiatives.

WH-Questions for Policy-Makers Interested in Promoting Disaster-Related Youth's Emotional Resilience Through Psychoeducation: Possible Responses

Are there any practical suggestions for policy makers offering clear paths to improve the situation of European youth, as far as risk disaster reduction is concerned? Is it possible to intervene

65 Glavna Direktsia Pojarna Bezopasnost i Zashtita na Naselenieto (2023—2025). Improving disaster risk understanding' [EU funded project], *European Commission*. https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/projects-details/43298203/101142694/UCPM2027?keywords=%20disaster&isExactMatch=false&order=DESC&pageNumber=1&pageSize=50&sortBy=title

66 Croatian Ministry of Interior (2024—2025). Drafting disaster risk reduction awareness raising guidelines and disaster loss data & assessment system' [EU funded project]. *European Commission*. https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/projects-details/43298203/101142799/UCPM2027?keywords=%20disaster&isExactMatch=false&order=DESC&pageNumber=2&pageSize=50&sortBy=title

to promote youth's disaster-related emotional resilience? Resorting to the well-known WH-questions can constitute a simple way to tackle this conundrum, following the path tracked by psychoeducation.

How *is it possible to intervene concerning disaster risk reduction?* Psychoeducation can be a viable way to intervene in the context of disaster risk reduction. Psychoeducational initiatives can be implemented in a potentially infinite number of ways. They can include school-based interventions, development of guidelines, applications, public communication campaigns, and many others — always respecting the standards of scientific research.

Who *can be the target of disaster-related psychoeducation?* Psychoeducational initiatives can target all levels of society, from individuals to communities, countries, and international organisations. They can be specifically developed for children and adolescents, and then be progressively extended to all the other population segments. Psychoeducation has the greatest potential of reaching a high number of people in a brief time, including those who still have preconceptions about psychological help services.

What *contents should disaster-related psychoeducation promote?* Disaster-related psychoeducation should foster emotional resilience, focusing on understanding disaster-related emotions and coping strategies, together with knowledge about the nature of disasters and violent acts and associated safety behaviours.

Where *is it possible to intervene?* Acknowledging the challenges of a globalised society, disaster-related psychoeducation can be implemented both at the European and at wider levels, in all the contexts in which professionals such as psychologists, teachers, educators, or social workers, as well as non-professionals such as volunteers of civil protection agencies or parents can operate with

youth and educational contexts, focusing on families, schools, extracurricular activities, and larger communities.

When *is it better to intervene through disaster-related psychoeducation?* Psychoeducational initiatives can be conducted in all phases of the disaster cycle, but their potential is maximum when they are promoted before a disaster or a violent act, also in light of the plethora of advantages of preventive actions.

Why *is it necessary to intervene through disaster-related psychoeducation?* All these initiatives are a priority to contrast disruptions in youth's psychological functioning and increases in psychopathological symptoms and disturbances such as anxiety, depression, and PTSD, that disasters and violent acts can provoke.

Following these directions, psychoeducation could really become a keyword for improving youth's mental health in relation to the challenges of disaster risk reduction, both at a European and at a more global level.

Conclusion: Future Challenges and Options

All the described initiatives about disaster-related prevention and preparedness play a key role in promoting resilience, and in particular emotional resilience, of individuals, communities, countries, and international organisations. They offer a range of psychoeducational techniques to which all people interested in preserving and fostering children and adolescents' well-being — professionals such as psychologists, teachers, educators, or social workers, as well as non-professionals such as volunteers of civil protection agencies or parents — can resort.

To conclude, the initiatives promoted by HEMOT® can be the basis for developing large-scale standards at the European level to foster emotional competence related to current and future disasters in a plurality of contexts, beginning from schools

and then involving a larger variety of contexts. A critical future challenge involves the need to identify resources to educate youth to cope with current and future disasters, through psychoeducational initiatives aiming at promoting and supporting their emotional competence, whenever possible assuming a preventive perspective.

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Children and adolescents living in contexts characterised by medium-low economic development, struggling with resource paucity and difficult access to healthcare facilities, are more vulnerable to mental health problems.

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