

“Child Development in the Context of Disaster, War, and Terrorism: Pathways of Risk and Resilience” (2012), by Ann S. Masten and Angela J. Narayan

In 2012 Ann S. Masten and Angela J. Narayan published the article “Child Development in the Context of Disaster, War, and Terrorism: Pathways of Risk and Resilience” in *Annual Reviews in Psychology*. The authors conducted their study at the Institute of Child Development at the University of Minnesota in Minneapolis, Minnesota. In the article, Masten and Narayan review a number of articles to examine and compile the research made since the twenty-first century on the psychological impact of mass trauma, such as war, terrorism, and disasters, on children. The goal was not only to highlight all current research but also delineate any patterns and inconsistencies between the works, and present the utility of that research. Masten and Narayan found that as of 2011, there is a scarcity of research on long-term studies guiding practices to mitigate distress in children before and after disasters beginning as early as prenatal development.

In their article, Masten and Narayan reviewed multiple sources on the effects of traumatic experiences. Masten, a professor in child development at the University of Minnesota in Minneapolis, Minnesota, studied competence or the ability to learn and master skills, risk, which increases the likelihood of developing disorders, and resilience, the ability to overcome harmful experiences. Narayan, a predoctoral scholar at the University of Minnesota, studied developmental psychopathology, or how early adversities affect psychological health and well-being.

Masten and Narayan divide the article into six sections, “Introduction,” “Conceptual Advances,” “Exposure: Dose and Determinants,” “Individual Differences in Response,” “Intervention,” and “Conclusion and Future Directions.” Throughout the paper, the authors review the history of research on child development associated with mass trauma, psychological terms and theories that guide that research, what that research reveals about types of trauma and their effects, how that research has been applied, and a recommendation for future application and continuation of that research.

In the “Introduction,” the authors state that millions of children throughout the world are exposed to war, terrorism, and natural disasters. As a result, the authors state that many are concerned with the psychological impact these adversities have on children. However, since the mid-1900s, the authors claim that there have been few instances of well-documented studies on the impact of war or disasters on child development. The authors argue that researching mass trauma experiences is difficult for many reasons, including the ethical concerns regarding re-traumatization, the hazards of the disaster, limited tools in those conditions, and limited prior comparison data. The authors claim further well-documented, long-term, and controlled research is needed to build a base of evidence and examine the developmental nuances that shape adaptation to mass trauma. The authors then explore the history of research on child development in war, disaster, and terrorism. According to Masten and Narayan, literature on the psychological impacts of war began with Anna Freud and Dorothy T. Burlingham during World War II. In their study, conducted between 1936 to 1943, the two researchers determined that children experienced increased traumatic shock with parent loss than without. The authors also describe Freud’s and Sophie Dann’s study of children who displayed the ability to recover after escaping concentration camps.

In the second section, “Conceptual Advances,” Masten and Narayan outline the various conceptual frameworks used to understand child development and to develop interventions for children exposed to disasters. The authors state that according to currently accepted frameworks, an individ-

ual's ability to adapt following traumatic events is influenced by that individual's prior experiences and development. The authors argue that various factors including resilience, or the ability of individuals to adapt or overcome stressful experiences, and vulnerability, which sensitizes an individual to trauma and puts them at risk for developing unhealthy symptoms following trauma.

The authors first discuss resilience frameworks for understanding child development following trauma. The ability to recover from trauma can be learned and allows individuals to return to normal psychological functioning despite previous psychological trauma. Masten and Narayan state that interdisciplinary work and collaboration has established two naturally occurring factors that encourage resilience. The first factor, a protective factor, acts as a shield against risk, during high risk conditions. Protective factors could include support groups, such as Alcoholics Anonymous, which when present during a particularly difficult time period can protect an individual from relapse. The second factor, a promotive factor, bolsters health regardless of risk conditions. An example of a promotive factor is a supportive family available throughout a child's lifespan that ensures his or her psychological well-being.

The researchers then discuss another set of factors that shape children's psychological reactions to trauma. Vulnerability factors are the opposite of promotive and protective factors. Vulnerability factors, such as previous traumatic experiences and genetics, exacerbate the effects of future adversities. The authors call that a sensitizing effect. The idea is similar to how a physical injury is more painful if the body was already bruised. However, as Masten and Narayan point out, researchers hypothesize that, if negative experiences can sensitize children, then the reverse may be true as well. The researchers argue that, if vulnerability factors exacerbate the effects of adversities, then positive experiences should be able to mitigate the effects of traumatic experiences.

The authors then discuss the impact that multiple traumatic events can have on children's ability to overcome adversities. The authors explain that research has demonstrated the potential for early trauma to have an inoculation effect, or de-sensitize children. In that case, early trauma experience prepares individuals to better handle trauma in the future, much like vaccines prepare the body to fend off future infections.

The authors highlight one final conceptual framework in understanding the effects of trauma on childhood development. The theory of cascading consequences explains that the effects of trauma can spread, over time, from one person to another, and from one generation to the next. The authors describe these trends as snowball effects, chain reactions, and progressive effects. The authors use stress as an example. They say stress can alter gene expression and that can be passed onto children. As Masten and Narayan note, researchers believe they can use developmental cascades to introduce protective and preventative cascades that promote adaptation such as pregnant women or parents whose behavior will influence that of their children's.

In the third section, "Exposure: Dose and Determinants," Masten and Narayan investigate the relationship between the severity, number, and time of exposure to the degree and number of distress symptoms that children exhibit. The authors use the term dose to describe the number, duration, or severity of a traumatic exposure. They explain that most common findings in research support the idea that distress in children increases with an increase in dose. However, they caution that additional research also suggests that even though dose may keep increasing, at a certain dose, children are no longer capable of adapting or adapting normally. That does not, however, mean that they are no longer capable of recovery. In addition, Masten and Narayan argue that it might be possible that children exposed to trauma may not show any traumatic symptoms until they have been exposed to a specific dose. Finally, according to the authors research also indicates one last dose effect in which adaptive behavior decreases with increasing exposure to adversity and increases when exposure levels are extreme.

In their continued discussion of exposure to trauma, the authors note that other factors influence the relationship between child behavior and dose. Masten and Narayan state that many variables including socioeconomic status, geographical location, and community impact a child's likelihood of experiencing a traumatic event. Age is also a determinant of exposure, and older age ranges are susceptible to higher exposure doses. Gender is another determinant, and in studies of Palestinians or child soldiers, females faced sexually traumatic experiences whereas males faced armed conflict

exposure.

Masten and Narayan also discuss how exposure can occur through direct and indirect pathways. Direct pathways include those in which a child is harmed directly, as in a physical injury. Indirect pathways include those in which the child experiences harm through other means such as through stressed caregivers. The authors also discuss the role of media-based exposure to traumatic events, such as through television viewing or personalized exposure through social media. The authors state that there is very little research done on the effects of media exposure of traumatic events, but that current research is consistent with dose-related effects. The authors state that more research on media related dose effects is needed.

In the longest section of the paper, "Individual Difference in Response," Masten and Narayan move on to examine how each child reacts differently to adversity based on a variety of factors. They discuss how gender, timing of trauma, intelligence, previous trauma exposure, and promotive and protective factors all affect how individuals adapt differently. The authors discuss each factor in depth.

The authors begin their discussion of individual differences with how the gender of an individual predicts different distress outcomes in individuals. They claim that the most common gender differences in adaptation include greater distress and post-traumatic stress disorder symptoms in females. They also add that other reports find that both males and females have different stress responses, internalize and externalize problems differently, and are influenced by the cultural context in which they reside. However, the authors argue that gender differences are difficult to study in the context of mass trauma and require better methodology, such as pre-disaster data and standardized measures.

Next, the authors argue that the timing of psychological trauma and stress impact an individual's ability to adapt successfully. The idea is similar to how broken bones heal better during childhood compared to old age. The authors claim that timing of trauma is especially important in regards to sensitive periods, when an organism is especially responsive to certain stimuli. Thus, organisms are more likely to develop certain skills or be more vulnerable to harm during that time compared to later developmental periods. An example of a sensitive period is when children develop the ability to speak. If learning speech is disrupted, it will be very difficult to acquire the skill in the future. Bad timing can affect children's ability to adapt, their health, and their vulnerability to future traumas. Masten and Narayan state that overall evidence from 9/11 and holocaust studies supports that prenatal exposure of stress can decrease cortisol levels in infants, especially if severity of exposure increases or occurs during the third trimester.

The authors then discuss how the amount of previous exposure to adversity shapes an individual's development. Masten and Narayan explain that moderate exposure to adversity can lead to protective effects in children. In contrast, too little exposure or too much exposure to trauma can lead to vulnerability effects in individuals. The authors use the example of stress, stating that prolonged chronic stress is known to make individuals vulnerable to future stress. Stress raises cortisol levels, and that in turn consolidates trauma related memories and activates a stress system, which protects the brain from excess cortisol, a stress hormone. When stress becomes a constant, as in prolonged exposure to trauma, the body adapts and considers the raised stress level as the normal level. Thus, the body experiences cortisol depletion and no trauma memory consolidation, which then increases risk of experiencing intrusive memories and post-traumatic stress disorder symptoms.

Finally, Masten and Narayan outline the promotive and protective factors that influence an individual's ability to adapt. They list several factors that encourage resilience, including attachment relationships, cognitive skills, competency, personality, meaning in life, and community. The authors describe several studies in Kenya during political conflict, in which children who had learned to monitor their behavior, such as planning or inhibiting unwanted behavior, showed less distress after the disaster. Cultural skills, such as a better grasp of language and culture predicted better adaptive recovery in refugee children. Finally, the authors state that factors such as an accepting community, especially in a school environment, have been shown to provide children with leadership skills, peer and adult relationships, routines, and constructive activities while giving the parents a break and help the children overcome adverse effects of trauma.

In the fifth section, "Intervention," Masten and Narayan discuss intervention practices. The authors state that very little information exists on intervention research, partially because it is difficult to implement in the context of a disaster. The authors highlight what little information exist and explore the relationship between intervention and recovery.

The authors first explain the relationship between intervention and recovery. Studies conducted in Yugoslavian countries and Bosnia demonstrate that interventions helped children adapt. Those interventions included mother-child supportive interactions, psychoeducation that was skill focused, and group therapy. Other intervention practices include preparing children for disaster. A study in Israel found that intervention mitigated post-traumatic stress and distress symptoms in children. All the studies suggested that increased and comprehensive interventional support increased health outcomes. Next, the authors explain how mediators enhance intervention. Additional studies have revealed the role of mediators, which help researchers identify the most effective treatments and make interventions more efficient.

Finally, the authors discuss intervention timing. According to the authors, the general consensus in the scientific community on intervention in the young adheres to a risk-and-resilience perspective and focuses on pre-disaster planning, post-disaster aid, and long-term recovery efforts. The authors cite five intervention principles that include promoting a sense of safety, calming, competency, connectivity, and hope. However, Masten and Narayan emphasize that timing is important, however research indicates that immediate intervention following a crisis might have negative effects. Thus, the authors suggest that it is best to wait for natural recovery from psychological trauma before investigating if further help is required. The authors add how long the natural recovery takes, however the answer remains unclear, which makes it difficult to judge when intervention should be implemented following trauma. Furthermore, besides timing, factors such as patient privacy, culture, developmental stage, and the credibility of intervention techniques must be considered before intervening.

In their "Conclusion," Masten and Narayan summarize their findings from the review. They maintain that research on children exposed to war, terrorism, and disaster was pioneered four decades ago and is guided by resilience frameworks. Even so, the authors stress that very little work on this topic exists at the time of their review. Masten and Narayan establish that there is a critical need for research on developmental timing and long-term studies on recovery. According to the authors, that is especially important during the twenty-first century, a time in which war, terrorism, and disasters are so prevalent. The authors further advocate for governmental collaboration on universal preventative, post-disaster, and long-term recovery treatment research.

Sources

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