

ity to compensate or respond adaptively that is believed to be most salient in the neurobehavioral toxicity of trauma, so-called “toxic stress”<sup>9</sup>.

Specific inherited profiles of temperament render some children susceptible to overwhelming anxiety in response to trauma, and others to patterns of impulsive aggression. Jonson-Reid et al<sup>5</sup> observed dose-response effects of the number of officially reported instances of abuse/neglect on an array of child and adult mental health outcomes in an unbiased, state-wide ascertainment.

An important paradox about the role of child maltreatment in the causation of psychiatric syndromes is the overarching conclusion from large twin and family studies that environmental variations – within the typical range observed in the general population – tend *not* to be as influential in the causation of serious mental health impairments as either genetic factors or severe environmental adversities outside of the typical range.

Construed graphically, if plotting severity of adversity (X axis) against degree of psychiatric impairment (Y axis), incremental increases in adversity *within the typical range* result in only minimal increases along the Y axis of psychiatric impairment. But at an inflection point – that varies for each child on the basis of genetic vulnerability or resilience – the Y axis “cost” steepens with further incremental increases in adversity, and levels off (forming a sigmoid curve) at a point beyond which impairment is so pronounced that further increases in stress have negligible additional effect.

Improved ability to operationalize “level of adversity” in increasingly precise ways, and thereby specify a curve for an individual child, stands to revolutionize targeted preventive intervention by ensuring that each child remains within his/her “safe zone” along these two critical axes.

In the meantime, efforts to prevent the occurrence of maltreatment in all children and families with appreciable elevated risk – either for maltreatment or its consequences – represents a feasible strategy for reducing the public health burden of psychopathology. Given demonstrated progress in the ability to predict and prevent child maltreatment, health and governmental systems around the world have a new opportunity (and an ethical mandate) to deploy evidence-based elements of intervention at developmentally sensitive times during the life course, targeting multiple risks, and building on existing delivery platforms for feasibility of scale-up<sup>2,8,10</sup>.

Parents, caregivers and families need to be supported in providing nurturing care and protection in order for young children to achieve their developmental potential, and – as emphasized by Shonkoff<sup>9</sup> – it must be understood and put into practice that healthy brain development requires not only enrichment, but protection from toxic stress.

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## Mental health of children living in war zones: a risk and protection perspective

Armed conflicts have a devastating impact on the mental health of affected populations. Post-traumatic stress disorder (PTSD) and depression are the most common mental disorders in the aftermath of war for both adults and children, occurring in up to one third of the people directly exposed to traumatic war experiences<sup>1</sup>. Exposure to traumatic events is the most important risk factor in this context. However, for children in particular, the detrimental effects of war trauma are not restricted to specific mental health diagnoses, but include a broad and multifaceted set of developmental outcomes that compromise family and peer relations as well as school performance and general life satisfaction.

To understand a child’s development in a war or post-war environment, we have to apply a socio-ecological perspective<sup>2</sup>, which takes into account not only the direct consequences of the war for the individual child, but also variables in the proximal

and distal environments, including the family and the community<sup>3</sup>. Today’s wars almost exclusively affect low-resource countries and are typically associated with a number of risk factors at various ecological levels, e.g. extreme poverty, a lack of resources for health provisioning, a breakdown of the school system, as well as increased rates of family and community violence. Children are particularly sensitive to such an accumulation of stressors: in fact, there is considerable evidence for a dose-response relation between the amount of stressors experienced by children and their impairments in different areas of adaptation, such as mental and physical health, academic achievement and social relationships<sup>4</sup>.

Family functioning seems to play a key role in the interplay of risk and protection factors across ecological levels. War is associated with elevated levels of family violence against children<sup>5</sup> as well as increased rates of intimate partner violence

against women<sup>6</sup>. In addition, violence related to both the war and family conflicts contributes independently to children's psychopathology. This includes PTSD, depression symptoms as well as internalizing and externalizing behavior problems<sup>4</sup>.

A key question refers to the mechanisms behind this "cycle of violence" in the aftermath of war. How are the exposure to violent conflict and increased rates of child maltreatment interlinked? So far, studies have focused mainly on intergenerational effects, i.e. parental trauma and psychopathology as potential mediators. Evidence suggests that exposure to organized violence and psychopathology associated with these experiences might act as a catalyst for domestic violence and child maltreatment. In particular, PTSD symptoms, such as irritability and outbursts of anger, as well as elevated rates of alcohol consumption in parents, may contribute to higher levels of child abuse. In line with this hypothesis, studies in post-war Sri Lanka and Uganda have shown that, next to parents' own experiences of child abuse, children's reports of maltreatment were associated with the parents' exposure to war and their PTSD symptom severity as well as with male guardian's alcohol consumption<sup>7</sup>.

Research, so far, has neglected a further pathway by which war trauma could translate into increased levels of family violence. It might be the child's own war exposure and related psychopathology that increase the risk of experiencing violence at home. Children who grow up in the midst of war are at greater risk of developing challenging behavior problems associated with their traumatization, e.g. irritability, outbursts of anger, internalizing and externalizing symptoms. Their mental health problems are typically accompanied by functional impairments that compromise their ability to perform well at school, carry out household duties, and engage in social relationships. All of these difficulties could make war-traumatized children more challenging to manage for their parents, who, in turn, may apply more violent and coercive parenting strategies. Consistent with this hypothesis, a recent study with Tamil families in post-war Sri Lanka found that children's exposure to mass trauma and child psychopathology were the main predictors of children's self-reported victimization in their families, even after controlling for parental trauma and parental mental health<sup>5</sup>.

The notion that stressors from different ecological contexts interact with each other is supported by earlier longitudinal data on maltreated children, which showed that children's externalizing behavior uniquely predicted later exposure to community violence<sup>8</sup>. These findings have important implications for future research with war-affected children and their

families. Instead of focusing on mental health problems as a mere outcome of war trauma in children, they should be considered as a potential risk factor for the experience of further adversities at a different ecological level, i.e. the family.

Applying a risk and protection perspective to the study of child mental health in a post-war context requires considering potentially protective factors that, again, may be found at various ecological levels. The family in particular may not only act as a stressor, in the case of family violence, but also foster children's resilience through care and warmth. There is some evidence that this is also valid in war-torn populations. Sris-kandarajah et al<sup>9</sup> showed that, in a context of multiple trauma caused by war and natural disaster, parental care moderates the relation between children's trauma severity and their internalizing behavior problems. Children who reported their parents to be highly caring did not show a significant increase in internalizing problems related to exposure to mass trauma. Likewise, data from families in post-war Uganda revealed that the effect of war trauma on children's psychopathology was partially mediated by lower child-perceived care from female guardians<sup>10</sup>.

We can conclude that children and families living in or fleeing war regions have a high probability of suffering from mental health problems. This is because they are confronted with an accumulation of risk factors at different socio-ecological levels. Parenting practices seem to play a crucial role for children's psychological wellbeing in a war context, both as a risk and a protective factor. Consequently, adequate health care programs for war-traumatized communities require both individual and family level approaches. The latter would assess and address potential problems between parents as well as in parent-child relationships. This might halt a potential vicious circle of war trauma, psychopathology and dysfunctional family dynamics, including the maltreatment of women and children.

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## Hikikomori: experience in Japan and international relevance

The appearance of people in Japan, especially young men, who stopped going to school or the workplace and spent most of the time withdrawn into their homes for months or years,

came to be seen as an increasing social phenomenon called *Shakaiteki hikikomori* (social withdrawal) by the late 1990s<sup>1</sup>.

A community-based survey published in 2010 reported that