

Psychological Resilience in Response to Adverse Experiences

An Integrative Developmental Perspective in
the Context of War and Displacement

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Introduction

The concept of resilience in psychology originated from observations of variance in the mental health outcomes of children growing up in adverse circumstances. The term *resilience*, meaning *the process of positive adaptation in the context of adversity* (Luthar, Cicchetti, & Becker, 2000), was applied to explain how some of those exposed to environments associated with negative development, such as poverty and deprivation, adapted well and grew into healthy adults (Masten & Garmezy, 1985). Research into resilience has proliferated in recent years, but the popularity of the phenomenon has led to a body of research comprised of a variety of conceptualizations, which remain to be integrated. This chapter will discuss the current state of resilience in the field of developmental psychology and propose an integrative perspective for future research, with a focus on its application in a population exposed to extreme adversity: refugee children. First, we will provide a brief account of the history of resilience research in the field of psychology and provide general definitions of key terms, before highlighting several ongoing debates in this field. We will then propose a new model that integrates the complex developmental processes involved in psychological resilience and review the literature from this perspective to demonstrate how to apply our integrative model of resilience in practice.

The History of Resilience Research in the Field of Psychology

Resilience is a central concept in many areas of psychology but has its original roots in developmental psychopathology. Early individual and collaborative work between key researchers such as Michael Rutter, Emmy Werner, and Norman Garmezy led to the emergence of the original concept on the back of empirical research on individual differences in the developmental response of at-risk children (Garmezy & Rutter, 1983; Masten, Best, & Garmezy, 1990; Werner, 1992). Their research on childhood adversity in large cohort studies found that individuals showed substantial heterogeneity in their outcomes despite equivalent childhood risk (Werner, 1992). A large proportion of individuals thought to be at risk due to socioeconomic disadvantage or parents with mental health problems developed better than expected, leading such children to be labeled as *invulnerable* (Anthony, Koupernik, & Chiland, 1978). However, it was soon recognized that invulnerability was an inappropriate term, as it implied an absolute resistance to adversity in all possible circumstances, as the function of a stable characteristic intrinsic to the individual. Rutter (1993) argued this could not be the case, as the effects of adversity tend to be cumulative and individuals who are resistant to one type of stress may not be resistant to others. Additionally, research showed that some individuals that had been exposed to adversity in childhood and initially displayed development of maladaptive behaviors recovered over time and seemed to function well in adulthood (Werner, 1992). In other words, they appeared to *bounce back*, most likely due to specific environmental or individual characteristics that exerted a protective function on their development. Hence, the term *resilience* came into use and the research focus shifted from risk to protective factors.

The rich and substantial body of research on resilience in the field of psychology can be divided into four distinct eras or waves (Masten, 2007): (a) descriptive, (b) process-focused, (c) intervention-based, and (d) multilevel. Following the first wave of investigation into predictors of the differing outcomes in adversity-exposed children, the second wave began the task of investigating the underlying processes that could explain the relationship between resilience and the variables associated with it. This included taking a longitudinal perspective of resilience, drawing on the rich literature of developmental psychology. The third wave focused on the practical implications of resilience, and research on the subject was carried out via prevention and intervention studies. The fourth wave, within which the field currently resides according to Masten (2007), aims to integrate the various research findings and study resilience across multiple levels from wider socioecological systems to the individual cellular level (Ungar, 2018).

Definition of Terms

The concept of resilience rests on the existence of some type of adversity that an individual, or system, can be *resilient to*. The nature of the adversity must therefore be understood in addition to the resilience process. Adversity can vary in terms of severity, complexity, causality, temporal characteristics, and the interpretations and relevance specific to the individual's

context and culture (Ungar, 2015). To infer resilience, this adversity needs to be sufficiently contextually severe to threaten usual functioning. While we do not have an established adversity threshold in developmental psychology, Ungar (2015) has argued that a resilience “diagnosis” needs to take into account the characteristics of the adversity in addition to the outcomes. Therefore, the nature of the *risk* context, as well as specific *risk* factors, are important to understanding resilience. The word *risk* is often used interchangeably with adversity or stress as well as in terms of risk factors, which are environmental or individual factors that make an individual more likely to develop psychological problems in response to adverse experiences. *Protective* factors, on the other hand, describe those characteristics that have the opposite effect and protect, or buffer, an individual from the negative effects of adverse experiences (Rutter, 1990). The term *promotive* factors is also used to describe characteristics that promote positive adaptation irrespective of the exposure to adversity (Sameroff, 2000). Importantly, the use of the word *factor* was criticized by Rutter (1987), who argued that resilience processes are not determined by stable factors with consistent effects across contexts. Instead, he suggested that using the term *mechanisms* is more accurate. The literature has since generally accepted that resilience occurs via and is influenced by adaptable mechanisms rather than stable factors (Masten, 2007), but many papers continue to refer to factors, with the underlying understanding that this concerns specific aspects of environmental and individual characteristics that can have risk or protective *functions* in specific contexts.

Long-Standing Debates

The working definition of resilience in psychology—the *process* of adaptation in the context of adversity to continue the *successful functioning* of a system (Luthar et al., 2000; Ungar, 2018)—is sufficiently vague that how to define and measure resilience itself continues to be debated. The key points of contention are whether resilience should be considered a *trait* or a *process* and what should be considered *successful functioning*. The resulting lack of consensus is limiting progress as varying definitions make it hard to compare and conduct meta-analyses on research even within the discipline of developmental psychology. Here, we will discuss these points and some other outstanding questions to be addressed before moving on to how these might be considered in our integrated model of resilience.

Process Versus Trait

Whether to conceptualize resilience as a process or trait is an ongoing debate in the developmental psychology literature. Although early work proposed that resilience is a process that needs to be measured longitudinally to understand adaptation to adversity (Masten, 2007), some continue to define resilience as a stable trait (Hu, Zhang, & Wang, 2015). Similar to the problems with invulnerability raised by Rutter (1993), conceptualizing resilience as a trait is problematic as it implies that a person will either be resilient or not, which is both inaccurate and risks placing the culpability for a person’s mental health entirely on the individual (Masten, 2012). Moreover, adversity in the context of developmental psychology is often chronic. For example, an underprivileged home environment, parental abuse, or displacement

and resettlement are chronic adversities existing worldwide that put children at risk for the development of problematic outcomes. An individual's resilience, therefore, is better understood and studied in terms of the *process* of adaptation to these ongoing risks across development.

Certain individual traits, such as hardiness and ego-resiliency, reflect internal capacities that appear to overlap with the trait understanding of resilience (Hu et al., 2015). These traits have occasionally been equated with resilience itself, as they promote positive adaptation. Although these traits may reflect important mechanisms internal to the individual that influence their resilience to stressors, a process-based perspective incorporating the interactions between various systems is required to address the complexity of dynamic responses to adversity. To add a further source of divergence, some define resilience in terms of outcomes, while others include protective resources that are both internal (e.g., self-esteem) and external (e.g., social support) to the individual (Ungar, 2015). While it remains up for debate how to measure and classify resilience, we would argue that such scales measure important psychosocial resources rather than resilience itself. Furthermore, although various genetic, physiological, cognitive, and social factors have been implicated in resilience (Fazel, Reed, Panter-Brick, & Stein, 2012; Russo, Murrrough, Han, Charney, & Nestler, 2012), it remains to be understood how these interact over time in the process of adaptation to adversity.

Positive Adaptation

While positive adaptation after exposure to adversity is the main, and perhaps the most obvious, element of defining resilience, it is open to a variety of interpretations ranging from the absence of disorder to the development and presence of clearly positive behaviors and traits (Luthar et al., 2000). Consequently, it remains uncertain what specific outcomes should be considered; some researchers rely on absence of psychopathology (i.e., minimal anxiety and depression scores) as evidence for resilience (e.g., Aitchison, Abu-Bader, Howell, Khalil, & Elbedour, 2017) while others have considered scores on standardized measures of social, emotional, behavioral, and academic performance (e.g., Cicchetti & Rogosch, 2007). Furthermore, the question remains what level of positive adaptation is required to identify an individual as resilient. Some have argued that the resilience threshold should be defined using comparisons of outcomes with low-adversity groups (Sattler & Gershoff, 2019), while others place a threshold at better than expected given the adversity context (Amstadter, Moscati, Maes, Myers, & Kendler, 2016).

Importantly, individuals show different psychological trajectories following exposure to risk, meaning that a negative response at an earlier point does not necessarily mean an individual cannot be resilient in the longer term. As summarized by Masten (2012), stress resistance, posttraumatic growth, and recovery (Figure 21.1) are three different trajectories that have been recognized as types of resilience in the literature. Stress resistance describes a process of steady and positive development despite exposure to high cumulative risk. Posttraumatic growth describes an individual resisting stressors and becoming stronger from their experiences. This idea of thriving in adversity was a challenge to the initial view of resilience as successful homeostasis, suggesting that individuals can learn and grow from their experiences (O'Leary & Ickovics, 1995). Recovery describes the process of "bouncing back" to former functioning following a disruption caused by adversity. A disruption without

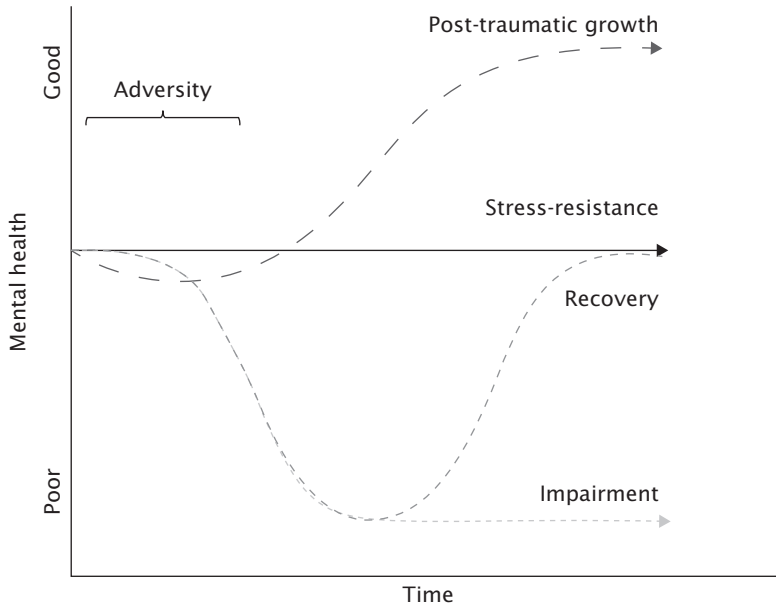


FIGURE 21.1 Three resilience trajectories and one of impairment. Adapted from Masten and Narayan (2012).

consequent recovery is known as impairment and is an example of a nonresilience trajectory. Positive adaptation is therefore not a static process that is identical across individuals. Differences in individual's trajectories may be explained by the specific resources or risk factors they are exposed to, as well as the influences of time and development.

Individual Differences in Environmental Sensitivity

A key point that as yet has not been considered in research on resilience is that some people may be more affected by both negative and positive contextual factors than others (although some factors are consistently predictive of mental health there is often considerable variation in their effect on individuals). The perspective of *environmental sensitivity* (Pluess, 2015) provides a theoretical framework for why some seem more sensitive to their experiences. According to this theory, individuals differ in the extent to which they perceive and process aspects of their environment. This includes sensitivity to physical aspects of the environment, as well as social and emotional influences. Sensitivity can be understood both in terms of *developmental plasticity* (i.e., to what extent the early environment shapes developmental trajectories) and in terms of sensitivity as a relatively stable characteristic of the individual. Environmental sensitivity builds on the traditional diathesis–stress concept, which showed that stressors lead to the development of psychopathology in the presence of some inherent vulnerability (Monroe & Simons, 1991). The environmental sensitivity framework, which encompasses, besides diathesis–stress, the concepts of *sensory processing sensitivity* (Aron & Aron, 1997), *differential susceptibility* (Belsky & Pluess, 2009), *biological sensitivity to context* (Boyce & Ellis, 2005), and *vantage sensitivity* (Pluess & Belsky, 2013), suggests that some individuals are more affected by their experiences due to heightened environmental sensitivity.

Hence, they may be more vulnerable to the negative effects of adverse experiences but also more receptive to positive or nurturing experiences. According to the neurosensitivity hypothesis (Pluess & Belsky, 2013), both genetic factors and experiences in early development may influence the sensitivity of the central nervous system, which then manifests itself in heightened physiological, psychological, and behavioral responsiveness (Pluess, Stevens, & Belsky, 2013). However, it remains to be tested whether and to what degree individual differences in environmental sensitivity play a role in psychological resilience.

An Integrative Model for Resilience in Developmental Psychology

To address the previously raised issues and advance the study of psychological resilience, we propose five important perspectives that should be applied to measure and understand the processes in resilience. First, a multiple-systems perspective is necessary to understand the complex and nested nature of the risk context a child is exposed to and the various risk and protective processes and resources involved in resilience. This draws on ecological systems theory (EST; Bronfenbrenner, 1979) and combines its psychosocial focus with bioecological factors (Figure 21.2). Second, individual differences in environmental

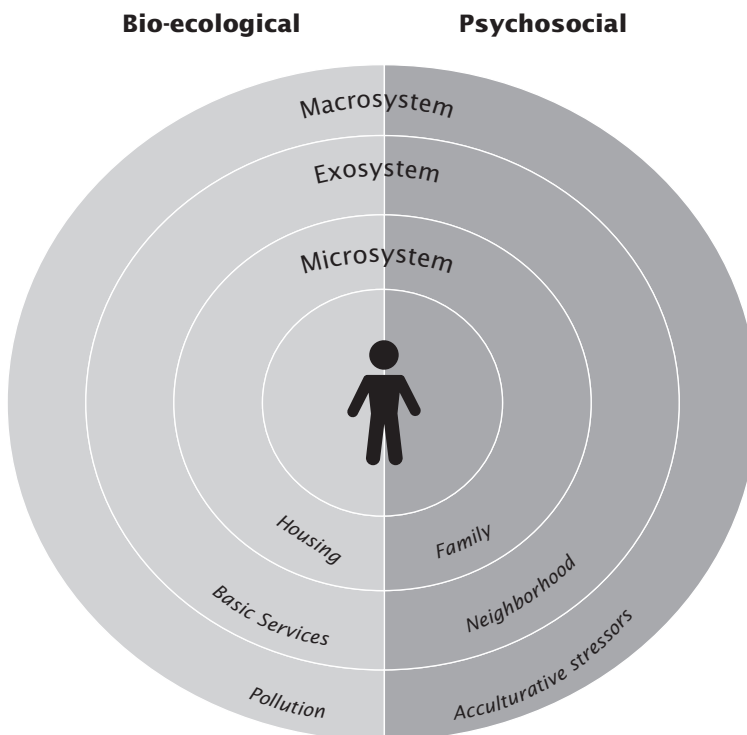


FIGURE 21.2 Representation of the individual nested within multiple systems combining psychosocial factors from ecological systems theory (Bronfenbrenner, 1979) with bio-ecological factors, with examples of factors in each system.

sensitivity may play an important role regarding the relationships between resilience processes and explain variation in outcomes beyond that predicted by environmental factors. Third, a multilevel approach should be applied to understand resilience processes and outcomes at different levels of analysis from the genetic, through physiological, to psychological and behavioral levels. Fourth, to consider the multifaceted manifestations of resilience, we need to apply a multidimensional approach to outcomes. A multidimensional approach requires consideration of various outcome dimensions beyond symptoms of psychopathology. We argue that behavioral, somatic, and academic dimensions are influenced by resilience and should be assessed from multiple points of view. Finally, a longitudinal perspective in conjunction with these four other facets is necessary to enable a cohesive picture of the resilience process and how time, development, and multiple systems influence it.

All five elements are key to understanding resilience from a perspective that integrates different contexts, systems, levels, mechanisms, and outcomes. Hence, our conceptual model (Figure 21.3) is characterized by the consideration of:

1. *Multiple systems.* Various factors throughout the psychosocial and bioecological systems impact the individual and have risk and protective functions in the context of adversity.
2. *Individual differences in environmental sensitivity.* Individuals may be more or less sensitive to the effects of both negative and positive experiences and environmental factors. This environmental sensitivity moderates the impact of environmental factors on the individual.
3. *Multiple levels of analysis.* A multilevel perspective is required to understand processes and outcomes at molecular, physiological, and psychological levels.
4. *Multiple dimensions of positive adaptation.* Resilience can manifest in children in different patterns across different dimensions with consequences for measuring resilience.
5. *Life course perspective.* Resilience should be considered as a process over time and a developmental perspective is important to understand the resilience process and children's transactions with their environment.

Review of Empirical Evidence

To assess the evidence for the different aspects of our integrated resilience model, we will consider the framework we have proposed in relation to refugee children, in which the main source of adversity is war exposure and forced displacement. One of the most pressing issues of the time is the global refugee crisis, which has exposed millions of children to extreme adversity (United Nations High Commissioner for Refugees, 2019). In what follows, we will consider current evidence for resilience in refugee children through the lens of the five facets of our integrated model. It is important to note that, due to the inconsistency of definitions of resilience in the literature, some studies that professed to investigate resilience may not fit our definition of this concept. We will therefore discuss results in terms of the specific outcomes measured and apply these to our evaluation of resilience as we define it.

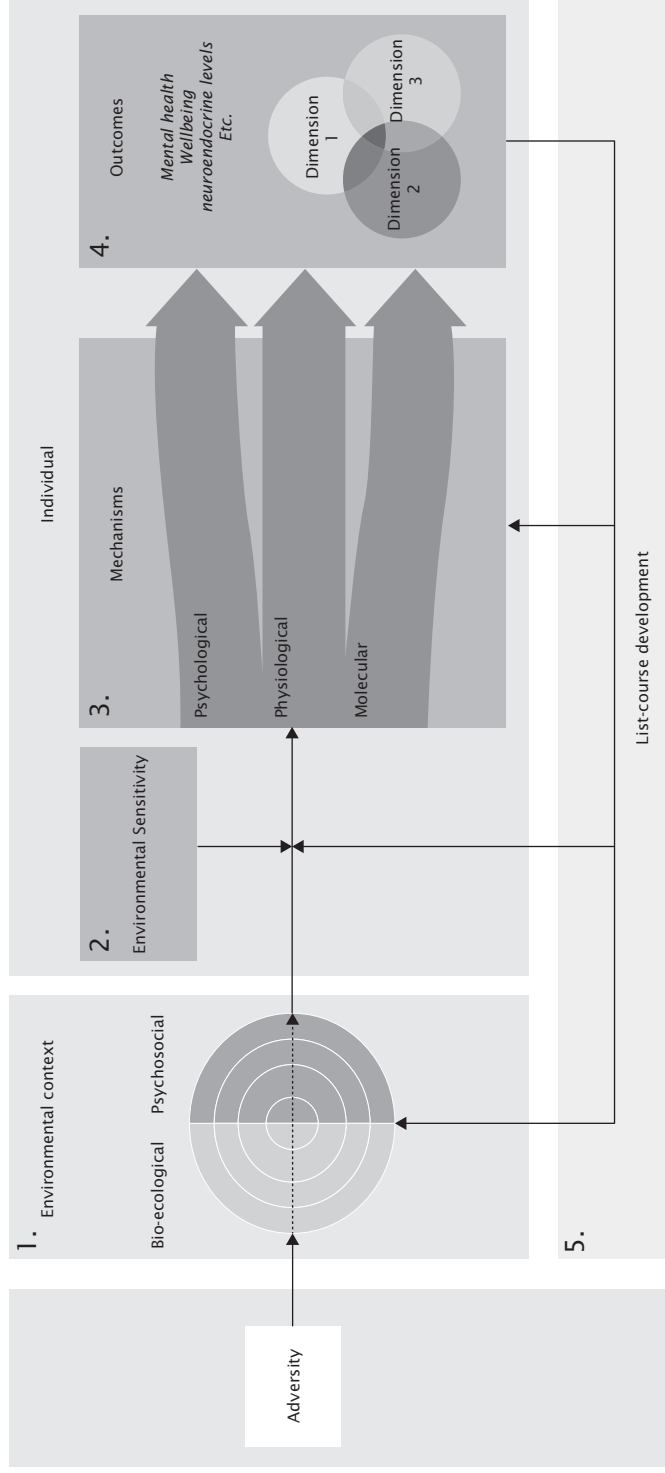


FIGURE 21.3 An integrative model, labeling each of the five elements.

Facet 1: The Multisystemic Nature of Psychological Resilience

According to EST (Bronfenbrenner, 1979), child development is influenced by multiple nested systems, as represented in Figure 21.2. The systems identified by Bronfenbrenner (1979) are the *individual* (e.g., psychological and biological factors), *microsystem* (close social systems e.g., the family), *mesosystem* (interactions between the microsystems), *exosystem* (proximal environment e.g., neighborhood), *macrosystem* (wider social context), and *chronosystem* (time). Research on resilience in refugee children has shown involvement of factors from each system. More practical environmental factors beyond these psychosocial systems, such as housing conditions or access to services, also interact with psychological and social factors as well as directly influencing an individual's well-being. All these systems are individually important, but also by nature so intertwined that interactions between them can lead to varying effects. Taking a multiple systems perspective of resilience is particularly important to understand the influence of the system contexts on the functions of resilience factors in the specific individual.

The individual. Research on risk and protective factors, and specifically research with refugee children, has identified several psychological factors, such as self-regulation and coping skills, that are associated with better mental health (Aitchison et al., 2017; Howell et al., 2015). Cognitive resources may protect individuals or promote adaptive development by enabling them to cope with environmental stressors. For example, use of positive types of coping is associated with lower posttraumatic stress (PTS) and emotion dysregulation in refugee children, whereas avoidance strategies such as wishful thinking and social withdrawal predict greater problems on these measures (Khamis, 2019). Interestingly, Khamis (2019) found that adaptive strategies, such as cognitive restructuring and seeking social support (but not active problem-solving), were significantly associated with better mental health outcomes. This may be a result of the type of adversity that refugee children face. The participants in Khamis's study were Syrian refugees aged 7 to 18 years living in Jordan and Lebanon. As such, the stressors they faced from war, displacement, and ongoing stressors such as poverty may be particularly difficult to problem-solve. If these are the key stressors predicting psychopathology, which they generally are in such populations (Bronstein & Montgomery, 2011), the adversity may be so great that problem-solving is insufficient to make a difference as it might in less challenging contexts. This highlights the concept that certain resilience-promoting resources may only be available or effective depending on the characteristics of the adversity being faced (Ungar, 2015).

The microsystem: Family. Aspects of the family and home life are some of the most consistently reported factors associated with outcomes in children facing adversity. The family environment, relationships, and parenting style can directly influence a child's experiences and how secure they feel and (directly or indirectly) teach them ways to cope with stressors. In terms of parent-child interactions, parenting style plays a key role in resilience. For example, having at least one authoritative parent (i.e., high in behavioral control, parental knowledge, and support, and low in harsh punishment and psychological control) was associated with

better academic performance, fewer internalizing symptoms, and less norm breaking in a sample of Arab refugee adolescents (Smetana & Ahmad, 2018). Parental support also seems to be important by itself; according to a systematic review of displaced and refugee children, perception of high parental support was associated with better psychological outcomes (Fazel et al., 2012).

Parents can also indirectly influence the resilience of their children. A parent's trauma experience and psychopathology are associated with their child's mental health, sometimes more so than the child's own traumatic experiences (Fazel et al., 2012). This is an example of how external influences can propagate through the ecological systems to impact the individual and a reminder that individuals should be considered in context. While trauma experiences are an important factor in mental health, children, particularly when very young, do not necessarily remember them or do so unreliably (Panter-Brick, Grimon, Kalin, & Eggerman, 2015). Children's experience and memory of war and displacement may therefore be shaped by their parents' own experiences. Parental perspectives give somewhat more objective accounts of children's adversities, while also providing a view into parental functioning and the child's home context.

The exosystem: Wider community. The exosystem describes other social systems in the community beyond the family. This may represent a collection of systems such as school, the neighborhood, or other social groups the child or family are part of. These can remain isolated from other groups within this system, or interact with one another as well as with the family environment and individual. One specific social system that is very important for child refugees with access to it is school (Trentacosta, McLear, Ziadni, Lumley, & Arfken, 2016; Wiegersma, Stellinga-Boelen, & Reijneveld, 2011). Greater positivity about school was associated with fewer PTS symptoms in children of Iraqi refugees (Trentacosta et al., 2016), while one study reported that simply attending school was associated with better mental health among asylum-seekers (Wiegersma et al., 2011). School attendance can provide a protective effect in multiple ways. Receiving education helps children to learn and develop both academically and socially, which in turn provides them with more hope and options for the future. For example, sense of school belonging is associated with lower depression and greater self-efficacy among adolescent refugees (Kia-Keating & Ellis, 2007). Additionally, school attendance can help develop individual strengths such as self-regulation and coping strategies outside the family environment.

The macrosystem: Cultural, national, and global factors. Social systems such as family and neighborhood are nested within the context of the macrosystem. Political and cultural contexts shape the functioning of social systems, while often being removed enough that individuals do not necessarily recognize the effects these macrolevel forces have on their lives. Some examples of factors or systems at the macrolevel that might affect refugees are religion, cultural norms, attitudes toward migration, social policies, economic states, and environmental factors (Aitchison et al., 2017; Ellis, MacDonald, Lincoln, & Cabral, 2008; Montgomery, 2008; Sim, Fazel, Bowes, & Gardner, 2018; Ungar, 2015). Due to the nested nature of the ecological systems (Bronfenbrenner, 1979), macrosystem factors necessarily

influence individuals largely through effects on more immediate systems, making it difficult to consider them as single effects. They are also investigated less often in the psychological literature than effects within or proximal to the individual such as cognitive processes and family dynamics. We will therefore discuss them here mainly in terms of the interactive nature of the multiple systems involved in resilience.

Religion, for example, is a factor that might influence an individual's emotions and cognitive factors, and provide another social group or influence in the micro- or exosystem (Ungar, Ghazinour, & Richter, 2013). However, religion is also a major factor on a global scale as it applies not only to personal beliefs but is upheld by and entwined in cultural systems and traditions (Masten, 2014). For example, for a sample of Middle Eastern adolescent refugees in Europe, belonging to a small, persecuted religious group or having left or changed religions was associated with greater internalizing symptoms compared to adolescents who had been and continued to be Muslim or Christian (Montgomery, 2008). The wide-ranging popularity and power of both mainstream Islam and Christianity provide greater sociopolitical protection and larger in-groups in countries where they are the majority, compared to smaller or more marginalized religions.

Just as religious identities might be a source of protection or vulnerability, other cultural identities have also been implicated in resilience. A strong national identity was predictive of less anxiety and depression among adolescents in Gaza refugee camps (Aitchison et al., 2017). It may be that such factors are particularly important to young people who experience displacement, by helping them to maintain a sense of belonging once the social structures that reinforce belonging have been disrupted. However, as with the other factors at the macrolevel, sense of identity might also work more at a lower systems level, such as the microsystem, by improving feelings of belonging to a heritage culture.

Ecological factors. In addition to the psychosocial factors covered in EST, ecological factors of a more physical nature can have a great impact on refugee's well-being across different systems. For example, the experience of displacement confronts individuals with practical stressors and insecurities such as lack of food, water, shelter, healthcare, and education (Al-Rousan, Schwabkey, Jirmanus, & Nelson, 2018). Beyond limited access to basic sustenance, perhaps one of the most salient challenges for those displaced by war is housing insecurity (Sabin, Cardozo, Nackerud, Kaiser, & Varese, 2003; Ziersch & Due, 2018). Living in refugee camps, informal settlements, or poor quality housing, and the associated experiences that come with that can affect both physical and mental health. Among people in refugee camps, lack of housing or shelter (Feyera, Mihretie, Bedaso, Gedle, & Kumera, 2015), and poor housing conditions (Carta et al., 2013) are associated with greater depression and PTSD symptoms. Individuals resettled in more permanent housing also experience challenges; crowding, stability, and satisfaction with housing are all associated with mental health outcomes (Ziersch & Due, 2018). Issues such as stability may be particularly pertinent for displaced children, as instability can contribute to a sense of ongoing potentially traumatic risk (Sabin et al., 2003). A holistic approach to resilience in refugee children must therefore consider the practical stressors occurring in the child's life, including built and natural environments.

Interactions between the systems. To understand the roles these varied systems play in resilience, it is critical to consider how they impact one another. For example, wider macrosystem factors such as culture or economic factors can affect coping strategies and parenting styles. In the Middle East, parenting is often thought to be very authoritarian, although different countries within that region report differing levels of authoritarian and permissive parenting (Dwairy et al., 2006). Meanwhile, in Western countries such as the United States, there tends to be a greater expectation for parenting to be permissive (d'Abreu, Castro-Olivo, & Ura, 2019; Smetana & Ahmad, 2018). Although parenting style is not homogenous even within cultures, beliefs about parenting might influence the styles that parents use and how children feel about these styles. The results reported by Khamis (2019) showing that children's use of problem-solving was not associated with their mental health could be explained by parenting style. If parents are more authoritative, meaning they have more behavioral control over their children (Smetana & Ahmad, 2018), the tendency and expectation, particularly for young children, to independently problem-solve will be less (Aroian et al., 2009). When refugees settle in host countries that are culturally different from their countries of origin, these interactions may become further complicated (d'Abreu et al., 2019). The gap between parenting expectations in the heritage and host culture can change children's perceptions and reduce parent's feelings of control, thereby creating another potential source of conflict in the family (Betancourt et al., 2015). While it is difficult to disentangle the interactions between such factors across the different systems, it is necessary to consider all of them to understand the complex processes influencing resilience to war and displacement among refugee children.

Facet 2: Applying the Theory of Environmental Sensitivity

Environmental sensitivity (Pluess, 2015) provides a conceptual model for why some children are more responsive to and affected by adversity as well as protective factors. As a relatively new perspective, very little research has investigated how sensitivity might be involved in refugee children's responses to risk and protective factors. Studies with nonrefugee children suggest that physiological (e.g., respiratory sinus arrhythmia and salivary cortisol) reactivity to social, cognitive, and emotional challenges is associated with different outcomes according to levels of adversity in young children (Obradović, Bush, Stamperdahl, Adler, & Boyce, 2010). Those with higher stress reactivity showed more adaptive outcomes if they lived in conditions of low adversity, but more maladaptive outcomes if they had high family adversity. If cortisol and respiratory sinus arrhythmia responsivity are markers of heightened environmental sensitivity, then it follows that those with greater stress reactivity would be more sensitive to negative effects of adversity as well as the positive effects of protective factors. Consistent with this hypothesis, children with *low* adversity and *high* reactivity were generally the best adapted group, which supports the idea that high sensitivity enables children to benefit more from positive environments in the absence of adversity (Obradovic et al., 2010). Recently, results from the first study to look specifically at the environmental sensitivity of refugee children were published (Karam et al., 2019). Karam et al. (2019) found evidence that sensitivity moderated the relationship between exposure to war events and posttraumatic stress disorder (PTSD) symptom severity with more sensitive children being more affected

by war exposure. This supports our theory that environmental sensitivity moderates the effects of environmental factors on mental health outcomes, suggesting further investigation of this area is worthwhile.

Facet 3: Applying a Multilevel Perspective to Psychological Resilience

Within the individual, resilience processes occur at multiple levels of analysis, including genetic, epigenetic, biochemical, neurological, physiological, and psychological. For example, research suggests that there is a heritable component to resilience (Amstadter et al., 2016), and that neurophysiological factors influence how children respond to stressors (Russo et al., 2012). Moreover, the little neuroimaging research in this area thus far has found associations between the volume of brain regions such as the right prefrontal cortex and competence in adversity (Burt et al., 2016). Therefore, investigation of resilience mechanisms at multiple levels of analysis is crucial to identifying processes associated with individual differences in the response to adversity.

The concept of *allostasis* may help to understand the role of resilience processes at the physiological level. Allostasis describes the biological responses that allow physiological adaptation in the context of environmental changes or stressors (Karatsoreos & McEwen, 2011). Ongoing exposure to stressors can have a cumulative effect on the body by creating *allostatic load* or overload, if the system is required to continuously make allostatic responses or if they are not sufficiently well regulated. Therefore, the functioning of an individual's physiological systems involved in allostasis can have a crucial impact on how that individual responds to trauma and can also be impacted by the environment. This may have long-term effects particularly in children exposed to early life stress, due to their developing state, and potentially results in neurobiological vulnerability to subsequent stress (Heim & Nemeroff, 2001). For example, chronic stress may create chronic sensitization of the central nervous system and other neurotransmitter systems, having long-term consequences on stress reactivity. The mechanisms involved in allostasis include the activity of stress-responsive hormones within the hypothalamic–pituitary–adrenal axis, such as cortisol and dehydroepiandrosterone. These have been implicated in responses to war trauma and resilience to adversities in general, although results are varied and little research has been conducted in children displaced by war (Russo et al., 2012). While some studies of the long-term effects of trauma show hypocortisolism, others have found increased cumulative cortisol levels (Stuedte et al., 2011). In fact, research into refugee adolescents showed no significant difference in cortisol levels according to trauma but did show cortisol dysregulation (Dajani, Hadfield, van Uum, Greff, & Panter-Brick, 2018).

Results are further complicated as the role of these hormones in resilience differs by gender, the diurnal cycle, the type of adversity exposure, age, and environmental and genetic factors (De Bellis & Zisk, 2014). While there is as yet no research looking at the genetics of resilience specifically for refugee children, various studies have found associations between genetic polymorphisms, early life stress, and psychological outcomes. Polymorphisms in receptors important to hypothalamic–pituitary–adrenal axis function, CRHR1 and FKBP5, have been found to interact with maltreatment during childhood to predict later

psychological outcomes such as depression, PTSD, and neuroticism (Binder et al., 2008; Bradley et al., 2008; DeYoung, Cicchetti, & Rogosch, 2011). Such gene \times environment interactions may influence stress responses via effects on neuroendocrine function. For example, variations in CRHR1 were associated with cortisol dysregulation in a sample of maltreated children (Cicchetti, Rogosch, & Oshri, 2011). Although we generally separate our discussion into resilience processes and outcomes for the sake of simplicity, the example of neuroendocrine involvement in adversity is a good demonstration of how in some cases they may be one and the same. Cortisol functioning can be used as an outcome measure by representing the stress impact of adversity on the body, but it may also mediate between genetics and experience to impact a child's subsequent functioning and stress response. As a dynamic, ongoing process, resilience involves many mechanisms that are both influenced by stress and influence the response to stress and adversity. This complexity emphasizes the need to investigate the interactions between different systems at different levels of analysis over time.

Interactions between different levels of analysis. As mentioned before, the exact relationship between biological processes and resilience remains somewhat unclear. Perhaps one of the reasons for this is the interactions between neurobiological factors and factors at the individual and social level. The little research that has been done on this with refugee children suggests that there are associations between exposure to adversity, maternal cortisol and immune function, child cortisol and immune function, and child mental health (Obradović et al., 2010; Yirmiya, Djalovski, Motsan, Zagoory-Sharon, & Feldman, 2018). For example, Yirmiya et al. (2018) identified three pathways from war exposure to anxiety in a sample of adolescents via maternal factors. The two biological pathways showed a mediating effect of the mother's cortisol levels (and immune function) between exposure and their child's cortisol levels (and immune function). Increase in both maternal factors was associated with increase in their child's, leading to increases in adolescent anxiety. These biological paths interacted with a third, social pathway. War exposure was associated with less supportive parenting from the mother, which was associated with lower adolescent social collaboration and subsequently greater anxiety. The authors interpreted this as evidence that maternal functioning can influence child adaptation to stress via mechanisms at multiple levels of biological and social systems.

Facet 4: The Multidimensional Nature of Psychological Resilience

As mentioned earlier, positive adaptation in the context of exposure to adversity should be conceptualized as multidimensional rather than unidimensional. Outcomes after trauma can manifest in many dimensions such as emotional, behavioral, academic, and somatic domains (Fazel et al., 2012; Infurna & Luthar, 2017). Children may be affected differentially across each (Luthar et al., 2000) depending on their personal resources and the specific nature of the adversity they experience. Additionally, assessment of adaptation is likely influenced by societal values and the priorities of the assessors (Schwarz, 2018). For example, a child may be performing well academically but behaving poorly at home. Therefore, a combination of objective (e.g., school grades) and subjective (e.g., depressive symptoms) measures across a

range of dimensions may be required to assess resilience. In fact, Infurna and Luthar (2017) have shown that rates of resilience differ across measurement dimensions, such as life satisfaction, positive and negative affect, and physical functioning, with only 8% of their sample classified as resilient in all dimensions. Although this result was from adults, studies of psychopathology in refugee children show a similar story; in a sample of Syrian refugee children, 52.1% and 46.8% scored below the clinical cut-offs for depression and anxiety, respectively, but only 17% of the sample had scores below both cut-offs (Kandemir et al., 2018). Hence, measuring single dimensions of functioning will likely lead to overinflated estimates of resilience. It is therefore crucial to consider multiple dimensions to obtain a comprehensive view of how a child is functioning and accurate prevalence estimates for both psychopathology and resilience.

Not only is a multidimensional approach important to properly determine whether an individual is resilient; it is also important to understand the mechanisms promoting positive adaptation. Results showing that different factors (i.e., family cohesion, parental education) are predictive of different outcomes (i.e., PTSD and behavioral problems) demonstrate that different dimensions of mental health and resilience may involve separate processes (Fazel et al., 2012). An understanding of how to operationalize the multiple dimensions of resilience is therefore crucial to getting an accurate idea of the resilience process. Furthermore, resilience in one domain may influence resilience in others. For example, in terms of academic resilience, early mathematics ability of children living in poverty in the U.S. predicted later literacy (Sattler & Gershoff, 2019). The involvement of multiple dimensions of functioning should therefore be considered both in terms of resilience mechanisms as well as outcomes.

Facet 5: A Developmental Perspective of Resilience

The developmental section of our model accounts for both the immediate process of transactions between individuals and their environment and the overall influences of personal and environmental development over time. Longitudinal research is crucial to investigate the highly dynamic and complex process of resilience, as well as the developmental factors that might affect mechanisms related to children's resilience. At the immediate transactional level, children are not only influenced by but also have influence on their environment, whether consciously or unconsciously. Bidirectional child–environment transactions affect their exposure to environments or events within the microsystem. For example, the individual-level factor of self-regulation might protect children from engaging in risky social situations (Gardner, Dishion, & Connell, 2008). Within the family, a child's behaviors can also influence the parent–child interactions they experience. In a study of anger within refugee families, parents often cited their child's misbehaviors as the reason for their anger (Hinton, Rasmussen, Nou, Pollack, & Good, 2009). Particularly among refugees where the whole family might be traumatized by their premigration and migration experiences, parents might be more easily triggered to become angry, harsh disciplinarians, or violent toward their children. Children who are traumatized are also more likely to show behavioral problems (e.g., Eruyar, Maltby, & Vostanis, 2018; Hodes & Vostanis, 2018). In this way, parental psychopathology can interact with children's behavior, the family dynamic, and the parent–child relationship as a consequence of the feedback loop shown in Figure 21.3 (Section 5).

These patterns have the capacity to develop or sustain maladaptive mental health outcomes over time (Timshel, Montgomery, & Dalgaard, 2017).

At the larger, life-course scale, one of the most replicated predictors of mental health outcomes among refugee children is age, with many studies finding increasing mental health problems with older age (Eruiyar et al., 2018). The greater ability to process trauma that comes with age could lead to more negative responses as individuals are better able to understand their past experience. However, as suggested by Eruiyar et al. (2018), as children age they may also be more able to develop better coping strategies. Indeed, both older age and greater use of coping skills were associated with fewer mental health problems among Palestinian adolescents (Aitchison et al., 2017). Child development is a complex process even outside of the context of trauma and resilience. Several considerations point to early development as a crucial stage for the development of sensitivities, experiences, and coping mechanisms. The idea of steeling effects, or stress inoculation, supports the idea that early exposure to a manageable dose of adversity can help a child develop the capacity to deal with adversity in the future (Rutter, 2012). Although there is a lack of research as yet on the concept in refugee children, some evidence from human and non-human (primate) adults supports the theory that challenging but not overwhelming stress can increase resilience to subsequent stress (Daskalakis, Bagot, Parker, Vinkers, & de Kloet, 2013; Edge et al., 2009; Lyons, Parker, Katz, & Schatzberg, 2009; Seery, Holman, & Silver, 2010). However, this also works the other way, such that failure to cope with stress can have a cumulative effect and decrease capacity to cope over time (Daskalakis et al., 2013).

The concept of developmental cascades is helpful in explaining such results. Developmental cascades refer to the way in which the effects of early life experiences can be accumulated by spreading across multiple levels, systems, and domains as a result of interactions between developing systems (Masten & Cicchetti, 2010). According to the theory, cascades can flow both upwards and downwards through levels of function, so that they can have effects on the epigenetic, physiological, and psychological levels. Cascades can manifest in both negative and positive ways, such that competence in one domain early on can provide the building blocks for positive adaptation in other higher order domains, while negative experiences can increase vulnerability (Masten & Cicchetti, 2010). Therefore, in contrast to steeling effects there exists the potential for a developmental cascade of increased vulnerability. For example, war trauma could interact with genetic factors to increase sensitivity or stress reactivity and lead to changes in neurobiological and cognitive development that increase vulnerability to subsequent adverse experiences. The psychological well-being of a child at different time points is therefore a crucial factor to consider in a resilience framework.

Implications

While we have mentioned several areas in which resilience research needs further development, there is much that we already know. Psychological resilience involves and affects multiple systems; can be investigated across multiple levels of analysis; manifests in multiple dimensions, the relationships of which are influenced by the individual's environmental sensitivity; and develops over time along with developmental processes. Potential implications of this understanding apply both to research and to interventions for populations, such as

refugee children, who are at great risk. Specifically, resilience cannot be understood or promoted by focusing on single systems or factors. Instead, we need to consider how factors work together. In terms of interventions, this provides support for a more holistic approach. While we accept that there are certain factors that are more challenging to change, such as exposure to war traumas, it may be the case that we should focus on changing the odds rather than trying to beat them (Seccombe, 2002). For example, psychological interventions targeting the whole family or providing children with alternative sources of social support can create a better environment for children. More immediate strategies such as improving behavioral or cognitive strategies for promoting resilience might be more successful if children have a supportive social environment. Cooperation at different levels of society could help to provide a more integrated approach to resilience more suitable for its complexity. For example, stressors for refugee children and parents such as discrimination in the host country can be tackled at each ecological level. At the macrosystem level, political changes such as reversing hostile environment policies (Liberty, 2018) can make the environment less institutionally discriminatory. Journalism and public campaigns could improve the host community's perceptions of its refugee population, while interventions at the microsystem such as in schools and workplaces could improve the behavior of hosts toward refugees. A greater feeling of community acceptance in addition to practical changes to the environment and the promotion of refugees' rights could make a difference to the mental health of parents and children and facilitate better patterns of adaptation.

Conclusions and Future Directions

In this chapter we have reviewed evidence of the complex nature of psychological resilience in the context of development during war and displacement. The evidence suggests that resilience involves multiple systems, requires investigation at multiple levels of analysis, needs to be considered across multiple dimensions of positive adaptation, and is a longitudinal, dynamic process that is affected by developmental processes and sensitivity to the environment. Although the processes that contribute to resilience are highly complex, some aspects may be more relevant to developmental outcomes in specific contexts and can be targeted with interventions. For example, alleviating external sources of stress by improving housing or supporting asylum claims or providing mental health support for parents have the potential to create environments that are more conducive to children's adaptive coping, and subsequently improve the efficacy of psychological treatment for the child. Holistic research integrating the different facets proposed in our model, in addition to reaching more consensus on the conceptualization of resilience, will significantly advance the field.

Key Messages

1. We define resilience as positive adaptation in the context of adversity. According to this definition, resilience is a dynamic process and cannot be observed in the absence of adversity.

2. Resilience processes, which occur at multiple levels of functioning (e.g., neurological and cognitive levels), manifest in multiple dimensions (e.g., emotional, behavioral, physiological). Studies of resilience must therefore consider multilevel and multidimensional approaches.
3. Resilience processes in the context of adversity are influenced by a range of additional factors with specific risk or protective functions across the different psychosocial and bioecological systems.
4. People differ substantially in their sensitivity to both negative and positive aspects of the environment. Resilience research needs to take differences in environmental sensitivity into account when investigating the variance of outcomes in children exposed to adversity but also in response to protective factors.
5. Given resilience is a process, longitudinal perspectives are necessary to capture how individuals and their environments change over time and how they adapt to adversity.

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