Resilience CE

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ABSTRACT

Every child is a unique individual. This individuality is evident in children exposed to psychosocial trauma or adverse childhood experiences. There exists wide variation in the way children respond to toxic stressors in their lives. Some children appear to be relatively unaffected, while others develop a variety of psychological, behavioral, and physical consequences. What is the explanation for this phenomenon? Resiliency has been suggested to explain this variation in pathology expressions in trauma-exposed children. It is vital for pediatric nurse practitioners to understand the concept of resilience. This continuing education offering will define concepts of resilience and stress, explore the neurobiology of resilience, and examine interventions that promote resilience in children. J Pediatr Health Care. (2017) *31*, 384-390.

KEY WORDS

Trauma, resilience, stress

OBJECTIVES

1. Define the concepts of resilience and stress.
2. Discuss the neurobiology of resilience.
3. Understand factors related to resilience.
4. Describe resilience promotion at the macro- and micro-level.
5. Identify strategies to promote resilience that the pediatric nurse practitioner can incorporate into practice.

Every child is a unique individual. This individuality is evident in children exposed to psychosocial trauma or adverse childhood experiences. There exists wide variation in the way children, even identical twins raised in the same environment, respond to toxic stressors in their lives. Some trauma-exposed children develop a variety of psychological or physical concerns, but others with similar exposures remain relatively unscathed (Jaffee, 2007). It is estimated that up to 15% of trauma-exposed children experiencing child maltreatment and other adverse childhood experiences (see Box 1) appear to have little or no symptom development, whereas others exposed to similar or even apparently less trauma exposure develop severe symptoms (Werner & Smith, 2001). What is the explanation for this phenomenon? Resiliency has been suggested to explain this variation in pathology expression in trauma-exposed children. It is vital for pediatric nurse practitioners (PNPs) to understand the concept of resilience. This continuing educational offering will define the concepts of resilience and stress, explore the neurobiology of resilience, and examine interventions that promote resilience in children.

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Conflicts of interest: None to report.

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0891-5245/$36.00

http://dx.doi.org/10.1016/j.pedhc.2016.09.005

DEFINING RESILIENCE

Resilience is a dynamic concept (Rutter, 2013). Most definitions of resilience include the overcoming of stress or adversity or a relative resistance to environmental risk (Bowes & Jaffee, 2013). The broader, systems framework definition of resilience is the capacity of a dynamic system to withstand or recover from significant challenges that threaten its stability, viability, or development (Sapienza & Masten, 2011). Rutter (2006) used the term resilience to refer to the finding that some individuals have a relatively good psychological outcome despite suffering risk experiences that would be expected to result in serious sequelae. Resilience, at its essence, is an interactive concept to describe the combination of serious risk experiences and a relatively positive psychological outcome despite those experiences (Rutter, 2006). Resiliency can also be defined as protective or positive processes that reduce maladaptive outcomes under conditions of risk (Greenberg, 2006). Three broad categories of protective factors have been identified: individual (temperament and intelligence/cognitive ability), the quality of the child's relationships, and broader environmental factors (safe neighborhoods, quality schools, and regulatory activities; Greenberg, 2006).

It is also important to understand the concept of risk. First of all, it is unlikely that there exists a single cause of

BOX 1. Adverse childhood experiences/sources of toxic stress

- Child maltreatment
  - Sexual abuse
  - Physical abuse
  - Emotional abuse
  - Neglect
- Exposure to domestic violence
- Household drug/alcohol abuse
- Parental mental illness
- Loss of a parent
- Poverty
- Household involvement with law enforcement
- Familial involvement with child protective services

Source: Felitti et al. (1998).

many negative outcomes to trauma exposure, such as mental illness, substance abuse, or high risk sexual behaviors, among others. Even when a genetic or biochemical mechanism has been identified, expression of the disorder is influenced by environmental or biological events. There are multiple routes to and from risk and problem outcomes; different combinations of risk factors necessary and the effect of a risk factor will depend on its timing and relationship to other risk factors (Bowes & Jaffee, 2013). Risk factors may be mediated by individual factors, such as sex, ethnicity, and culture. The concept of risk may vary across groups or cultures. For example, the definition of child maltreatment in one culture, or at one time in history, may not be the same as another (Bowes & Jaffee, 2013). Physical punishment and strict parenting may be regarded as evidence of a parent's involvement and care in some communities but considered child maltreatment in others (Chen & Luster, 2002).

Stress

To fully understand the concept of resilience it is important to understand the concept of stress. Stress is a rather complex concept. Stress has been defined as a perceived threat to an individual's homeostasis. The threat to homeostasis can be physical, psychological/emotional, or both. Our bodies react physiologically and psychologically to all types of stressors (Banny, Cicchetti, Rogosch, Oshri, & Crick, 2013). Exposure to severe or chronic stress (toxic stress) has been associated with both physical and psychological negative health consequences. However, exposure to mild or moderate stress is much less likely to result in negative health consequences and may actually be beneficial to development (Rutter, 2013). Stress is somewhat subjective both in the measurement of severity and experience; the way in which individuals perceive and interpret stressors may vary greatly (Bowes & Jaffee, 2013). This variance may be a function of their previous exposures to stress (Cicchetti & Rogosch, 2009). Exposure to low or controlled levels of stress may potentially benefit an individual both physiologically and psychologically. Key elements that help determine whether a stressor is associated with severe symptoms or recovery include appraisal of the experience, potential consequences of the experience, and the choice of coping strategies used by the individual to either change the stressful experience or modify his/her emotional response (Lazarus, 1996). Physiologically, evidence proves that differences in coping strategies are associated with differences in neuroendocrine responses to acute and chronic stress (Olff, 1999).

There are basically three levels of stress response. Brief exposures to stress with opportunities to return to baseline can be positive and result in growth (Cicchetti & Rogosch, 2009). These exposures can better prepare the individual for stress exposure later in life. This exposure results in only a mild elevation of stress hormones, and individuals learn to self-regulate. A supportive caregiver facilitates stress exposure that results in positive growth for the individual. There is also tolerable stress; serious but temporary stress exposure. Stress hormone levels are elevated, but with buffering from genetics and supportive relationships the individual recovers. Then there is toxic stress—ongoing stress over a long period of time (Hornor, 2015). This results in chronic activation of the stress response, which results in consistently high levels of stress hormones. When this occurs in the absence of protective relationships and protective genetics, lifelong physical and psychological consequences can occur for the individual.

> A supportive caregiver facilitates stress exposure that results in positive growth for the individual.

Stressful experiences during critical periods of brain development in infancy and young childhood can change the functioning of specific brain circuits that underlie adult emotional and cognitive behavior and functioning (Taylor, 2010). These effects of stress are mediated by the autonomic nervous system and hypothalamus–pituitary–adrenal (HPA) axis (Daskalakis, Bagot, Parker, Vinkders, & de Kloet, 2013). Much research has focused on understanding how mediators of these systems such as biogenic amines (adrenaline), neuropeptides, and hormones can change brain function and behavior for life (Maras & Baram, 2012). These stress mediators and their receptors on the hypothalamus–pituitary–adrenal axis are prime targets for epigenetic changes; enduring changes in the transcriptome underlying DNA methylation and chromatic modification (Daskalakis et al., 2013). The exact mechanism by which epigenetic changes occur and result in functional and behavioral changes remains unknown.

Daskalakis et al. (2013) discuss three models to explain the stress/resilience phenomena. The cumulative stress model (McEwen, 1998) states that the accumulation of