

Resilience

ACEs Bulletin Vol. 4

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Resilience is a concept that is gaining relevance and intensity in the field of medicine. Patients and providers are impacted by stressful and adverse experiences that threaten to destabilize the mental and physical wellness of an individual receiving or providing care. The potential to sustain the impact of formerly mentioned events is described as resilience. Lack of resilience leads to mental illness, emotional turmoil, and adverse health outcomes among other devastating effects. Resilience may be defined as the ability to sustain and recover from significant challenges that threaten a system's viability or development. Individuals with resilience experience positive outcomes in the face of significant risk experiences that would lead to difficulties in others (Hornor, 2017). Therefore, the importance of understanding and developing resilience is an essential tool to developing and promoting positive outcomes in individuals of all ages.

Resilience is not solely the absence of negative experiences. In fact, the expression of resilience requires the presence of a stressor and demonstration of overcoming that stressor. The outcome is not the absence of mental or developmental health issues, but demonstrable evidence of positive outcomes after stressor exposure. An individual that has resilience does not exclude the experience of distress, as emotional pain, sadness are expected as a result of trauma and overcoming its impact (Comas-Diaz, 2011). The outcome will vary based on the stressor, the individual, and the age/developmental stage of the individual (Bowes & Jaffee, 2013). Further convoluting factors result from the influences of gender, culture, and ethnicity, which impact what is considered stress and resilience (Hornor, 2017). Resilience itself is not an unusual or extraordinary characteristic but found in ordinary individuals and thus may be cultivated, developed and learned throughout life (Comas-Diaz, 2011). It is a process of interplay between person and environment, developed and built across various phases of life (Kunzler & Gilan, 2018).

The components which lead to resilience are as varied and dynamic as its expression. Research demonstrates that resilience consists of internal and external factors which interact and reinforce each other. Resilience is not a personality trait or genotype, but a dynamic and adaptive process that can be developed and can be changed overtime. Regardless, all variable definitions of resilience agree that as previously mentioned, it is an individual's response to a stressor, resulting in overcoming the stressor successfully (Snijders & Lotta-Katrin, 2018). The most essential component in the presence of resilience according to many studies is having caring and supportive relationships within the family and among non-family members. Among children, it is important to have a nurturing parental figure to provide support, nurturing and context during periods of stress. Relationships that are based on trust, and provide encouragement, and reassurance are strongly correlated with resilience (Comas-Diaz, 2011). The presence of these relationships indeed are what allow stress to be perceived as manageable and cultivate the ability to cope and overcome. Some literature call this "positive stress" as the

stressor allows for individuals to develop skills which strengthen their ability to manage difficulty (Center on the Developing Child, 2015). Resilience factors also include self-esteem, social skills, sense of hope, sense of control over life, respect and esteem for others, ability to accept support and assistance, interpretation of traumatic experience as not their fault, psychological hardiness and higher cognitive ability. Although, cognitive ability has not demonstrated significant against repetitive adversity and trauma (Rutter, 2012). High intelligence (as measured by IQ) may also cause individuals to have less resilience, as more knowledge of the extent of trauma and its impacts may lead to higher sensitivity to trauma (Reich, 2009). The ability to plan and execute plans successfully have been demonstrated associations to resilience. Emphasis on planning skills and less on execution have resulted and more vital to resilience in several studies. A helpful way to view resilience overall is to envision a balance, with protective experiences and coping skills on one side attempting to counterbalance significant trauma and adversity on the other side. Resilience is evident when a heavy load of factors on the trauma and adversity side is known and positive outcomes are observed (Center on the Developing Child, 2015).

Resilience Research

Resilience research formally began in the 1970s. Decades of research has determined that resilience has influence by a variety of neurobiological, psychological and social resources. It has led to a paradigm shift in practice today, which shifted from disease-oriented pathogenesis to wellness promotion and development of protective mechanisms (Kunzler & Gilan, 2018).

Resilience Research in Genetics

Genes and measured environments have led to new research on resilience. Studies investigating the genetics of resilience have noted the impact of the serotonin system in the process. Studies found that polymorphisms in the serotonin transporter gene-linked polymorphic region [SLC6A, 5-HTTLPR] may be involved in modulating the interactions between genes and environment. Short alleles of 5-HTTLPR may be associated with maladaptive behaviors such as drug use, high risk sexual activity, depression and externalizing behaviors. The long allele of 5-HTTLPR may be associated with resilience in those exposed to maltreatment as children or other traumas. Individuals with short alleles and traumatic experiences were given an interventional program in one study by Brody, Beach, and Philibert, and fortunately, genetic and environmental risks were mitigated by the program (2009). This emphasizes the importance of interventions and the potential to continue to strengthen our youth in the face of trauma and adversity. Epigenetics has also been studied in mental health and resilience. Studies have noted increased methylation in specific areas of gene loci have correlation with increased rates of Post-traumatic stress disorder (PTSD) in certain individuals exposed to trauma. Inflammatory markers, specifically elevated CRP levels have also been noted to be higher in individuals with trauma and diagnosed PTSD in comparison to individuals without PTSD diagnosis (Snijders & Lotta-Katrin, 2018).

Resilience Research in Neurobiology

The processing of stress and the resulting response is processed by the central nervous system and its command center, the brain. In addition, the brain is responsible for the communication between the body and the immune system, via the autonomic nervous system. Environmental stressors may result in an activation of the acute stress response, and activation of sympathetic nervous system dominant effects. The ability to recover and achieve homeostasis after the stressor is essential. If homeostasis is not achieved, heightened neuroendocrine responses may continue, resulting in psychopathological and adverse physiological conditions. Elevated levels of norepinephrine (NE), released from the brainstem and locus coeruleus during stress, is known to inhibit the prefrontal cortex, promoting instinctual survival responses over executive function. Elevated levels of NE are noted in those with PTSD and other pathologies resulting from traumatic stress and lack of resilience. Elevated and decreased levels of cortisol have been noted in those with PTSD, and the presence of DHEA has been demonstrated as protective against elevated stress and associated with resilience. Serotonin, as previously mentioned is involved in the process of resilience. The release of this neurotransmitter has both anxiolytic and anxiogenic effects. Certain receptors, serotonin 1B and 2C have been noted to be associated with adaptive reactions to stressful circumstances. The goal of all of this biomedical investigation is to produce a biochemical, neurobiological stress resilient profile to provide a platform for protective elements and understanding of equilibrium on a biological level and continues under investigation (Osorio, 2017).

Promoting resilience

Success in promoting resilience must consist of a dual approach, combining microlevel (the individual) and macrolevel (community) interventions and programs. Four sources of resilience identified at both levels are (1) individual coping styles; (2) social determinants of health and resources available in the surrounding environments; (3) interventions provided via government and private services that are available for facilitating recovery from trauma; (4) government policies that influence resources that will be accessible to the community (Hornor, 2017). The components weigh heavily on the macrolevel approach which is fundamental for abused children and vulnerable families. Studies have found that the more children are exposed to adverse events, the more a child's resilience will depend on the resources available to promote resilience and recovery. The resilience literature demonstrates that a link between public policy and behavioral sciences is needed for sustained success in resilience promotion (Ungar, 2012). The macrolevel approach is of paramount importance, and sets the foundation for individualized interventions, further emphasizing the essential role of policy in resilience.

Promotion on the individual level is an important role for providers. Ensuring that providers and our patients have resilience is crucial for lifetime health and wellness. Resilience building and promotion begins with advocating for healthy and supportive relationships in an individual's life. Children must have a trustworthy, present and supportive parent as a foundation to their resilience. Individuals (both children and adults) benefit from a positive self-view and a hopeful

outlook on the future to keep them motivated to overcome challenges from trauma. Creating plans for potential future issues, anticipating and welcoming change and having personal goals are known activities that build resilience. These can be practiced in a family unit, including children of appropriate developmental age, or they can be done individually with trusted relationships or providers (Comas-Diaz, 2011). The belief that one can handle a situation is a tool for resilience building. This can be developed with activities in the arts or athletics, and having a resource for identifying strengths, and confidence building. Families can be encouraged to seek out opportunities to point out skills and strengths in members of their family (Hornor, 2017). Providers and the quality of the relationship with patients and families has been emphasized by the literature in noting that for those experiencing adversity, the number of resources was not as significant as the quality of trust and interaction with providers. Therefore, providers have an essential role in identifying issues and building resilience with patients (Osorio, 2017).

Resilience in providers

Providers cannot be excluded from the concept of resilience. Those who spend their lives caring for others proves challenging, taxing, and depleting at times. The need for providers to “bounce back” from adversity, stress, and difficulties is crucial to long term success in a career of service. Studies on resilience in providers note that students who strive for perfection, have difficulty distancing themselves from work and are not physically active produce a risk group of individuals of reduced resilience. Recommendations include using the medical curriculum as a tool to promote resilience, providing resilience based programs in the curriculum and identifying individual behaviors and elements resulting from the setting of medical training to improve collaboratively (Kotter, 2019).

Studies on providers in practice note that the ability to self-monitor, set limits, and behaviors that promote constructive and healthy engagement (as opposed to withdrawal) during difficult challenges at work are all correlated with resilient providers. Beyond the importance of individual characteristics of providers are successful workforces, which have systems that promote resilience and wellness as part of their culture and therefore enhance resilience in their employees and build resilience in others. Advocacy for this type work system cannot be overstressed (Epstein & Krasner, 2013).

Resilience training for providers is generally a welcome concept, and perceptions among providers are of value in their ability to ameliorate workplace stressors. Challenges arise in the ability to provide useful trainings in resilience to those who most would benefit from them. Providers who are stressed, busy, and overwhelmed are generally the least likely to seek trainings and yet would benefit most. Providers in a perception study also noted that systems which overwhelm providers with work volume and little structural support may be at cause, as providers with resilience strategies may be bombarded by the unhealthy system. This further elucidates the macrolevel, systems-based perspective needed to create resilience in our community (Cheshire & Hughes, 2017).

Conclusion

Resilience is a powerful instrument for health, wellness, and success throughout the course of a lifetime. It is a concept which is important for all ages and its importance transcends culture, nation and time. Advocacy and promotion of resilience is crucial for the vitality of our communities. Policies and systems which endorse resilience and create foundations based on strengthening resilience have the greatest potential for impact. Providers have a unique and important role in developing macrolevel growth via policy and systems advocacy and microlevel interventions and prevention via patient and self-care. As research further carves out the behavioral and biological path to resilience, we can lead our communities, our patients, and ourselves to derive the plethora of benefits of a resilience based life by investing in our relationships, supporting our patients and colleagues, and insisting that our systems which sustain us also sustain resilience.

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