

March 9, 2016

Wednesday

Key Concept 1 Essay

Adverse Childhood Experiences: Stress, Gene-Environment Interplay, and Resilience

There has been extensive research done in the field of childhood adversity or adverse childhood experiences (ACE). However, consistent and mutual understanding of the meaning of this concept is lacking. ACE is associated with childhood maltreatment, childhood trauma, and childhood violence. Kalmakis and Chandler (2013) conducted a concept analysis to produce an operational definition: childhood events, varying in severity and often chronic, that occur in a child's family or social environment and cause harm or distress, thereby disrupting the child's physical or psychological health and development. In this essay, I explore childhood adversity in relation to its developmental trajectories in adaptive and maladaptive behavior—a developmental psychopathological lens. I briefly review the historical background of the study of childhood adversity, and then provide an overview of the different facets that interact with each other throughout the course of development. First, I explore the biological aspects of ACE: the neurobiological stress response system (Kumar, Rinwal, Kaur, and Machawal, 2013) and the gene-environment interplay (Nugent, Tryka, Carpenter, and Price, 2011). Then, I consider the individual level and the concept and processes involved in resilience.

Background

Childhood adversity has drawn many researchers in the fields of psychology and psychiatry, sharing the notion that complex experiences in childhood greatly affect early development and mental health throughout our lives. Freud's psychoanalytical theory primarily

stemmed from case studies of adults' accounts of child abuse (Craig & Baucus, 2002; Kalmakis & Chandler, 2013). Bowlby's attachment theory posits that children must feel secure in the belief that a parent will tend to their needs. As a result of parental neglect, rejection or deprivation, children can develop negative mental health consequences (Stroebe & Archer, 2013; Kalmakis & Chandler, 2013) such as maladaptive trajectories related to anxiety, stress, and emotion regulation. This suggests that violating a child's sense of security and parent-child relationship from an early age puts a child's psychological development at risk. Based on the seminal Adverse Childhood Experiences (ACE) study conducted by the Centers for Disease Control and Prevention and Kaiser Permanente's Health Appraisal Clinic in 1998, a clinical revelation began on connections between childhood trauma and adult health outcome (Felitti et al., 1998). Thus, began the research endeavours of further investigating how adverse childhood experiences could influence one's physical and psychological health later on in life. These mechanisms of influence on a child's mental health will be the focus of the remainder of this essay.

Mechanisms of Adverse Childhood Experiences

In conceptualising ACE from prior literature, Kalmakis et al. (2013) propose five salient characteristics of ACEs: that they are harmful to a child, chronic or recurring, distressing, cumulative, and varying in severity.

(a) Neurobiology of Stress

One theory holds that alterations in the neurobiological stress response lead to disease and dysfunction that could be involved in the pathway from ACEs to disease or psychopathology.

Stress is defined as a physical, mental, or emotional adjustment or response to demands upon the body. This can be any situation or thought that can make one feel frustrated, angry, nervous, or anxious. A stressor is a stimulus, either internal or external, such as ACEs, that activates the body's sympathetic nervous system or fight or flight system. This activates the body's stress response system via the hypothalamic-pituitary (HPA) axis: the hypothalamus releases the corticotrophin releasing factor (CRF) hormone, which activates the pituitary gland to release the adrenocorticotrophic hormone (ACTH). This in turn, alerts the adrenal glands and results in the release of cortisol as well as other hormones like epinephrine and norepinephrine. Chronic exposure to stressors causes an over-activation of this stress response system which can lead to psychopathology of depression, post-traumatic stress disorder, and anxiety disorders (Kumar et al., 2013).

(b) Gene-Environment Interplay

While early life stress such as that in ACEs have been documented as an important risk factor for psychopathological outcomes, it does not invariably lead to dysfunction nor is it a specific risk factor for any particular disorder (Nugent et al., 2011). These divergent outcomes are illustrated in part by the theory of gene-environment (GxE) interactions, whereby genetic differences influence the likelihood that exposure to ACEs will result in psychopathology. Nugent et al. (2011) posit that functioning is normal under conditions of low environmental stress but impaired under conditions of high environmental stress. This environmental component interacts with a genetically determined vulnerability to stress. Growing studies in the field of epigenetics extend this research to the possibility of certain genes to confer environmentally sensitive plasticity. This means that the same genetic variant may result in risk

under harmful environmental circumstances but provide benefit under optimal conditions (Belsky et al., 2009; Belsky and Pluess, 2009; Fox et al., 2007; Nugent et al., 2011). This idea of plasticity challenges the previously simplistic views on genetic vulnerability to the environment and encourage researchers to consider protective factors that can build resilience among children.

(c) Resilience

While research has delved into the multiple risk pathways leading to the development of psychopathology, there may also be value in exploring an individual's capacity in developing resilience in spite of adverse childhood experiences. Resilience is defined as a child's ability to regain his or her shape after going through adversities; the ability to cope and do well in life in spite of having to face a number of difficulties (Gunnestad, 2008). In contrast with risk factors, protective factors are factors within a child, in a child's environment, and the interaction between these factors that give a child strength, skills, and motivation to cope in difficult situations. Gunnestad (2008) categorises this into (1) network factors (external support from family, friends, and peers); (2) abilities and skills (internal support); as well as (3) meaning, values and faith (existential support). These protective factors operate by building a positive self-image, reducing the effect of risk factors, breaking a negative chain reaction, and opening up new opportunities (Rutter, 1990; Gunnestad, 2003).

Overall, it can be said that the developmental trajectories in adaptive and maladaptive behavior within adverse childhood experiences are multi-layered and complex. While all of us possess a stress response system, long-term stress can result in an over-activation of this system and increase the risk of psychopathological outcomes. The interaction between gene and environment add nuance to how we develop risk and/or protective factors in response to adverse

childhood experiences. (Regardless) the study on resilience offers growing insight and possibility of altering the pathways leading to maladaptive trajectories in response to adverse childhood experiences.

Background

Childhood adversity has drawn many researchers in the fields of psychology and psychiatry during the modern era, especially in response to the growing evidence of its impact on development and mental health throughout the lives of those who have experienced it.

References

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Andrea Wong:

Adverse Childhood Experiences: A finely crafted essay, well researched & very effective in its scope!

Culture in Developmental Psychopathology: You work in a supple way with questions of culture and developmental psychopathology, effectively review relevant research, and offer very productive future directions in thinking about multiculturalism and developmental psychopathology.

Community Mental Health: Effective revisions. This essay does important work in pulling together these elements.

Overall: I'm impressed with your comprehensive crafting of these essays and integration of multiple elements and disciplinary subfields within each essay. Excellent work!