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Development of Maladaptive Coping: A Functional Adaptation to Chronic, Uncontrollable Stress

Martha E. Wadsworth

The Pennsylvania State University

Abstract

Health disparities are rooted in childhood and stem from adverse early environments that damage physiologic stress-response systems. Developmental psychobiological models of the effects of chronic stress account for both the negative effects of a stress-response system calibrated to a dangerous and unpredictable environment from a health perspective, and the positive effects of such an adaptively calibrated stress response from a functional perspective. Our research suggests that contexts that produce functionally adapted physiologic responses to stress also encourage a functionally adapted coping response—coping that can result in maladjustment in physical and mental health, but enables children to grow and develop within those contexts. In this article, I highlight the value of reframing maladaptive coping as functional adaptation to understand more completely the development of children's coping in different contexts, and the value of such a conceptual shift for coping-based theory, research, and intervention.

Keywords

functional adaptation; environmental context; allostatic load; coping; stress reactivity; self-regulation

Developmental Pathways to Psychopathology

Mental and physical health problems are stratified along a socioeconomic gradient and across racial divides. Racial minorities and those with fewer financial resources have higher levels of mental and physical disease and premature mortality (1, 2). These health disparities are rooted in childhood (3) and stem in part from exposure to the chronic, uncontrollable stress endemic in impoverished environments (4). Research has begun to unpack the ways that stress directly affects biological systems and leads to disorder and disease, and how it is associated with cognitive, emotional, and behavioral patterns that further contribute to disease and disorder (e.g., 5). Developmental psychobiological models that emphasize the sensitivity of the brain and associated systems to environmental inputs have explained the first set of pathways—how chronic stress and environmental adversity get under the skin to contribute to physical and mental health problems (e.g., 6–8). Research on at-risk youth suggests that the other pathway—cognitive, emotional, behavioral—also transmits risk (or confers protection) from adverse environments (5), but little theoretical or empirical work

Correspondence concerning this article should be addressed to Martha E. Wadsworth, Department of Psychology, The Pennsylvania State University, University Park, PA 16802; mew27@psu.edu.

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has delineated *how* or *why* problematic coping styles develop from chronic stress. In this article, I propose that atypical patterns of emotional, cognitive, and behavioral coping and self-regulation stem directly from the same early experiences of chronic uncontrollable stress that contribute to dysregulated biological stress reactivity.

Development of Children's Coping

Some theory and research have addressed how children develop their characteristic ways of coping, whether adaptive or maladaptive. According to the Responses to Stress model (9), children's earliest attempts to regulate themselves begin in infancy in symbiotic coregulation with a caregiver. Early self-soothing (thumb sucking) and regulation behaviors (looking away) emerge during the first year, setting in motion a process that unfolds over the next two decades (and beyond) wherein children become increasingly independent in their ability to manage difficult situations and soothe themselves (10). The ingredients necessary for children to develop a healthy repertoire of coping skills apparently are the presence of mild and moderate stress, positive coping models, and age-appropriate scaffolding (11, 12).

During the toddler and preschool years, children typically progress from crying and seeking physical comfort to seeking help and avoiding sources of stress. As cognitive abilities develop in the elementary school years and children improve their emotional awareness, metacognition, and executive functions, more complex cognitive and behavioral coping strategies such as problem solving and cognitive reframing emerge, and coping repertoires are refined well into adolescence and beyond (e.g., 13). By mid- to late adolescence, youth typically have a coping repertoire that contains a range of strategies (e.g., active and accommodative; cognitive, emotional and behavioral) and the ability to flexibly match coping strategies to important characteristics of a stressful situation (e.g., its controllability and urgency).

However, some youth have unhealthy or maladaptive coping repertoires that rely too heavily on a single strategy such as avoidance, tend to be inflexible and applied rigidly, and can include behaviors with serious negative consequences. Such underdeveloped or immature coping styles have been identified as proximal causal mechanisms that connect stressful childhoods to psychopathology (e.g., 14–16).

The Origins of Maladaptive Coping

What happens in a child's life to disrupt the normative developmental sequence and cause children to get stuck at an immature level of coping? Zimmer-Gembeck and Skinner's integrative review showed that older children and adolescents may continue to use less mature or primitive forms of coping (e.g., escaping and seeking contact with a caregiver) when they face extremely stressful events. Research on child trauma and post-traumatic stress disorder suggests that children develop problematic coping to protect themselves from overwhelming stress such as maltreatment (17). Similarly, cognitive theories of depression suggest that children develop negative coping and thinking patterns from early invalidating interactions with caregivers. Thus, repeated use of developmentally primitive coping, lack of exposure to healthy alternatives, or repeated exposure to overwhelming stress may solidify a maladaptive style of coping—one that relies too much on primitive strategies such as

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avoidance and denial (e.g., 18). Despite recognition that maladaptive coping apparently stems from adverse childhood experiences (e.g., those associated with poverty), and predicts psychopathology across the lifespan and mediates the association between adversity and psychopathology (e.g., 19), little research has addressed how maladaptive styles of coping develop.

Maladaptive Coping as Functional Adaptation

Allostatic load (AL; 20) theory consolidates clinical and research findings into a cohesive explanation of how toxic early environments lead to disparities in physical health—via damage to physiologic stress-response systems resulting from the body's attempts to maintain homeostasis in the face of chaos. The AL model focuses on damage to and dysregulation of the sympathetic-adrenomedullary (SAM) system and the hypothalamic-pituitary-adrenal axis (HPA; 4) caused by early uncontrollable stress. Repeated, excessive activations of these systems as a result of chronic and uncontrollable stress lead to wear and tear on the body. When chronically engaged, HPA and SAM systems overactivate critical physical organs and systems involving physical organs (e.g., cardiovascular, immunologic, metabolic), sometimes damaging them and leading to physical diseases (7). Research informed by AL illustrates the sensitivity of the brain and other organ systems to environmental stress in childhood, as well as the potential costs of this neural plasticity (20). Although AL theory recognizes the functional reason why human physiology adapts to early uncontrollable stress, it emphasizes the damage to stress-response systems and underscores the physical and mental health problems that result.

In contrast to AL theory, the adaptive calibration model (ACM; 21) emphasizes the necessary and beneficial functions of biological and behavioral adaptations to chronically stressful environments. For example, highly reactive biological stress responses, and vigilant and avoidant coping are critical for adapting to harsh, inhospitable environments. Given its functionalist perspective, the ACM acknowledges but does not emphasize that these atypical responses also lead to higher rates of physical and mental health problems among disadvantaged groups and thereby contribute to health disparities.

Uniting the insights of AL and ACM, experiential canalization theory (6) emphasizes that functional adaptations of the biological and behavioral systems come with tradeoffs. The physiologic systems that develop to protect the child—and presumably succeed in doing so—also lead to undesirable processes and outcomes in other domains. For example, the dysregulated HPA is hypervigilant in all situations, not just dangerous ones. Therein lies the crux of the problem—a hypervigilant stress response maximizes an at-risk child's ability to grow and develop in his or her assigned environmental niche, and simultaneously fatigues related metabolic, cardiovascular, immunologic, and endocrine systems, leading to premature disease (e.g., hypertension and midline adiposity), early aging, and risk for psychopathology. By extension, a rigidly applied avoidant coping response protects a child growing up amid violence and victimization, but can also lead to clinical levels of anxiety or depression.

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Extending each of these theories to include coping would lead to the prediction that coping and self-regulation patterns would also be shaped by the demands of the inhospitable rearing environment (e.g., that associated with poverty). Developmental cascade theories explain that such adaptations to the stress response result from the body's efforts to align person and environment systems (e.g. 22, 23). These complex chains of person-environment transactions calibrate the child's biological, behavioral, and socioaffective systems so that the child can function within his or her environmental context. Thus, coping behaviors that protect the child from danger to the physical or psychological self and promote status and inclusion would be highly developed (e.g., 21), quite likely at the expense of a wide, flexible coping repertoire that would be adaptive in a range of settings.

Support for such a phenomenon is accumulating. The conditions that lead to a hyperreactive or hyporeactive physiologic stress response apparently affect the development of self-regulation and coping skills similarly (4, 24). Because of their chronic and uncontrollable nature, poverty and exposure to violence are exceedingly difficult for children to cope with using active primary control strategies such as problem solving (e.g., 25, 24). As a result, coping strategies that keep children from danger and protect them physically and psychologically are favored, and can become established because of developmental cascade processes (e.g., 23). Children experiencing chronic stress (e.g., family conflict, economic hardship, exposure to violence and victimization) tend to rely on cognitive and behavioral avoidance (e.g., 26, 27). Moreover, while avoidance generally predicts poor functioning (e.g., 19), avoidant coping in the context of uncontrollable stress such as conflict and violence is sometimes associated with psychological problems in the long term but not in the short term (e.g., 27, 28). Thus, early or primitive strategies may help children cope with extremely or chronically stressful events (13).

Children facing chronic and uncontrollable stress less often cope by actively attempting to solve problems and managing their emotions, a type of coping typically associated with more optimal psychological functioning. In fact, active attempts to intervene in uncontrollably stressful situations such as interparental conflict often lead to undesirable psychosocial outcomes (e.g., 16), including more frequent emotional and behavioral problems. Efforts to accommodate to stress through acceptance, cognitive reframing, and distraction tend to be more effective in coping with uncontrollable stress because they predict less frequent symptoms even in children exposed to chronic stress. However, children facing extreme stress use less of this type of coping, as well (29).

Therefore, this pattern of findings (of reliance on and efficacy of avoidance in the context of adversity) is consistent with the functional adaptation models outlined earlier (e.g., 6). However, while adaptive for chronic stress, reliance on avoidance does not equip children to cope with the circumstances they will encounter in life and places them at risk for mental health problems (19). In summary, my research and that of others (24, 25) support the notion that living with chronic stress shapes the development of a child's coping repertoire in a way that is simultaneously adaptive and maladaptive, depending on the context (dangerous or normative) and the outcome (safety or illness).

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What is to be gained by applying these developmental models to theory and research on how children cope? Conceptualizing maladaptive coping from the perspective of functional adaptation discourages simplistic thinking about “good” and “bad” coping in favor of attending to more complex questions about how, when, and for whom different types of coping are adaptive. Additionally, recognizing that some of the so-called negative outcomes associated with different types of coping represent tradeoffs incurred by successful adaptation to suboptimal environments should encourage new research questions (e.g., about the origins of psychopathology and health disparities). Coping-based intervention can also be transformative: Teaching at-risk children how to use different coping strategies and expand their coping repertoires may be beneficial as children encounter complex and novel environments as they grow older (30). Additionally, some normative developmental contexts will present challenges that can benefit from children using a range of coping strategies. Finally, coping interventions may also represent our best hope for repairing and recalibrating physiologic stress systems (e.g., the HPA) that have adapted to chronic stress in ways that increase physical and mental health problems.

The Biology of Coping

Research from my lab supports the proposition that coping is malleable, different types of coping look different physiologically, and experimentally manipulated coping yields physiological differences (31). For example, experimentally induced secondary control coping is associated with less HPA activity and quicker HPA down-regulation than is avoidant coping (32). Coupled with evidence that psychosocial interventions lead to predicted changes in biological markers of the HPA (e.g., 33, 34), this suggests that coping-based intervention may improve a youth’s coping and recalibrate his or her psychobiological stress-response system. The positive implications of remediation of the psychobiological stress-response system are many and varied given the system’s role in physical and mental health problems. Hence, I propose that improving children’s abilities to cope with stress and regulate their reactivity can break the cycle of damage from chronic uncontrollable stress to health disparities, especially if the coping and regulatory processes that are targeted have effects at many levels, including the physiologic level (35).

Furthermore, research on brain plasticity in regions such as the prefrontal cortex, hippocampus, and amygdala, coupled with our emerging evidence of physiologic coping malleability, suggests that learning new ways to cope with stress may lay new neural pathways that could prevent further damage to these systems (20). Behavioral interventions ranging from training in stress inoculation to environmental enrichment can stimulate neurogenesis in key areas such as the hippocampus, prefrontal cortex, and amygdala, even into late adulthood (e.g., 36). In addition, brain regions critical for coping and self-control, such as the prefrontal cortex, have lengthy maturational periods extending into young adulthood. This prolonged development may functionally extend the period of malleability and responsivity of this system to psychosocial intervention (e.g., 37). Thus, psychosocial interventions that promote skills to cope with stress, increase a sense of control, and lead to reduced stress levels may not only affect physiologic stress systems (38), but also restore damaged systems that could otherwise result in pathology and dysfunction (e.g., 39). In fact, repairing these systems may help eliminate health disparities.

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However, in all of this work we must not lose sight of the essential message of functional adaptation. The stress-response systems of children facing extreme stress have adapted to survive in harsh environments. Therefore, given that children living in poverty cannot be magically transported to safe and nurturing environments, they need to be able to survive despite harsh environments while they acquire skills to cope with developmentally normative types of stress. Such children may need a wider repertoire of coping skills to counteract both chronic, uncontrollable stress and more routine daily stress. Thus, interventions should target opening new coping pathways, but *critically*, not necessarily closing off early or primitive coping pathways. As implied by research on developmental coping, achieving a balance of approach and avoidance, mature and primitive will likely be most adaptive for the widest array of contexts children will encounter as they develop.

Conclusion

I have chronicled an expanded conceptualization of contextually adapted and adaptive coping that is consistent with developmental psychobiology theories of how chronic, uncontrollable stress during childhood gets under the skin. Bringing coping into the conversation illuminates psychosocial pathways to repair damaged biological stress systems, thereby providing clear and practical directions for intervention. An intervention that teaches children about active, avoidant, and accommodative coping skills with which to tackle both controllable and uncontrollable stress *and* addresses when to use each type of coping or a combination of strategies may help counteract health disparities. In addition, an intervention informed by the functional adaptation perspective would recognize that many children's behaviors that lead to serious negative consequences (e.g., delinquency and substance use) are the tradeoffs that accompany adapting successfully to a childhood marked by adversity (e.g., poverty and violence). Thus, my intervention may have even wider implications in that it offers at-risk youth *socially desirable* ways to adapt to their environments. Hence, by viewing coping through this contextually rich framework, researchers can identify and foster skills and abilities to buffer at-risk youth from stress. This perspective also illuminates possible pathways to repair and restore damaged physiologic stress-response systems that could otherwise result in socioeconomic or racial health disparities (38).

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