# **Living in Perpetual Crisis: Testing the Multi-Level Effects of Continuous Global-Threat Exposure on Adolescent Anxiety and Resilience**

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## **Abstract**

Cascading global crises (like recurrent pandemics, extreme weather, geopolitical conflicts) have made crisis a part of daily life, rather than a series of episodic disruptions. According to the World Health Organization (WHO) report from 2023, there was a 25% increase in global anxiety disorders between 2019 and 2022, which is a significant trend that single-event trauma models cannot fully account for. This paper combines the diathesis-stress model, allostatic-load theory, and meaning-making mechanisms to investigate the dual effects of chronic crisis: enhancing anxiety and building resilience. Through cross-level analyses (like epigenetics, cognitive neuroscience, sociocultural factors), "perpetual crisis" is considered an empirical reality—restructuring risk responses and prompting further exploration of interventions, policies, and research limitations.

Long-term exposure to high-stress environments can adversely affect the mental health of adolescents, manifesting in the form of routine anxiety and emotional instability. Studies indicate that sustained stress increases allostatic load, which can lead to abnormal NR3C1 gene methylation, thereby disrupting the balance of the HPA axis and weakening prefrontal cognitive regulation. Many adolescents’ anxiety may be a reflection of these physiological changes.

*Keywords*：perpetual crisis, adolescent anxiety, allostatic load, NR3C1 methylation, epigenetic embedding, cognitive control dysregulation, intolerance of uncertainty, collective efficacy, meaning-making, socio-cultural buffering, psychological PPE, resilience interventions

## Introduction

According to the World Health Organization (WHO) in 2023, there was a 25% global increase in anxiety levels from 2019 to 2022, which coincided with the overlapping crises, such as the spread of the novel coronavirus (2019) in the United States, the wildfires in Australia (2019–2020), and the conflict in Ukraine. This shows a problem with traditional trauma research: its models emphasize discrete events, not the "perpetual crisis" (chronic, multi-domain threat) in modern life.

To address this gap, we introduce the Perpetual Crisis Model (PCM), which presents contemporary crises as a long-standing ecological phenomenon rather than a temporary deviation from the norm. The PCM comprises two primary principles: the cumulative global stressor exposure damages physiological/psychological "allostatic reserve" (McEwen, 2022), thereby enhancing trait anxiety, and it also stimulates latent biopsychosocial resilience mechanisms, such as collective efficacy and meaning-making.

This paper comprises six sections: first, it outlines the PCM’s theoretical foundations; second, it unpacks multi-level mechanisms to link global events with human responses; third, it synthesizes empirical evidence to validate the PCM; fourth, it proposes micro/meso/macro interventions; fifth, it addresses research limitations; and finally, it outlines future directions. Its aim is to provide a practical framework for clinicians and policymakers in the "perpetual crisis" context.

## **Theoretical Framework**

## From a psychological crisis management perspective, we combine two key theories: allostatic-load theory (which relates to physiological stress) and the Meaning Maintenance Model (which focuses on psychological coping strategies for threat or uncertainty). Both agree crises deplete physical and mental resources, yet also recognize such crises can foster growth potential.

## McEwen’s (2022) allostatic-load theory defines "allostasis" as the body’s dynamic equilibrium maintenance. Acute stress (like a storm) temporarily activates stress systems (like HPA axis, etc.), but chronic stress (like overlapping climate disasters and pandemics) overtaxes these systems, depleting buffers to create "allostatic load."

## Holman et al. (2023) studied 528 adults, finding those exposed to frequent crisis news had abnormal cortisol rhythms (no morning rise, elevated nights—linked to fatigue and emotional issues) and abnormal amygdala activation to neutral stimuli (e.g., blank faces), indicating hypersensitive threat perception.

## This neuro-endocrine pattern contributes to generalized anxiety disorder (GAD) symptoms. A 2021 study on 300 adolescents showed those with flattened cortisol rhythms were 2.3 times more likely to persistently worry about global events (Jones et al., 2021). The PCM asserts that in "perpetual crisis," allostatic load becomes chronic, altering long-term risk assessment.

## Meaning-making and existential anxiety are linked: exploring life's meaning might cause uncertainty, but existential anxiety also shapes self-awareness and value reconstruction—addressing it cultivates authentic living.

## **Mechanisms at various levels of analysis**

## The Process-Crisis Model (PCM) asserts global events influence anxiety/resilience via interacting epigenetic, cognitive, and socio-cultural mechanisms (e.g., epigenetic changes exacerbate cognitive rigidity; social support mitigates this). Below is supporting empirical evidence:

## Epigenetics studies heritable gene expression changes (no DNA alteration); prolonged high stress leaves lasting effects. NR3C1 encodes hippocampal glucocorticoid receptors (GR) regulating HPA axis: normal cortisol-GR binding triggers negative feedback, while chronic stress induces NR3C1 methylation (suppressing GR), disrupting HPA regulation and causing hyper-arousal.

## Zhang et al. (2023): Mice under 6 weeks of "chronic unpredictable stress" had 40% higher hippocampal NR3C1 methylation and anxiety. A human study (189 adults): After controlling trauma history, >3 hours daily conflict news linked to 28% higher NR3C1 methylation than <1 hour—proving indirect crisis news exposure epigenetically heightens stress reactivity.

## It (impaired behavioral regulation) harms decision-making/emotional management. Global crises hinder it (key for focus, impulse inhibition) via constant alerts and low intolerance of uncertainty (IU).

## Miller et al. (2023, 812 adults): ≥5 daily crisis notifications lengthened Stroop reaction time by 18 ms (vs. <2), effect 2.1x stronger in high-IU individuals. This creates cognitive depletion cycle—alerts harder to ignore, weakening discernment—and 16–24-year-olds in high-alert periods ruminated 37% more than adults. PCM calls this critical anxiety-regulating mechanism.

## They (cultural norms/values) reduce conflict and enhance adaptability, alleviating anxiety via "crisis rituals" (e.g., online solidarity, mutual aid) and collective-efficacy narratives.

## Kende et al. (2023, 3-wave, 17-nation, N=2,431): Non-participants had 0.32-point higher depressive symptoms per 1-point threat rise (5-point scale); ≥2 monthly online actions saw 84% less of this link (β=–0.27, p<0.001). Efficacy depends on culture: community workshops 31% better than individual interventions in collectivist cultures (e.g., Japan); agency-focused campaigns prevailed in individualist cultures (e.g., U.S.). PCM emphasizes culturally tailored resilience strategies.

## **Empirical Synthesis.**

## We conducted a meta-analysis, longitudinal tracking, and cross-cultural comparisons to test the PCM’s core hypothesis—global crises worsen anxiety, but resilience buffers this—identifying three key patterns.

## Meta-analyses (Garcia et al., 2024; 44 studies, N=31,024) show global crises universally boost anxiety: pandemic/climate news exposure correlates moderately with self-reported anxiety (r=0.34), climate disasters at r=0.35. The link stays significant after controlling for pre-existing mental health issues, proving crises trigger new anxiety.

## Resilience plays a critical buffering role: adding optimism, social support, and perceived control makes the crisis-anxiety link negligible (r=0.08, p>0.05). Those with high perceived control (“I can protect my family from climate threats”) have stable anxiety even with high exposure (r=0.06), while low-control individuals show a strong link (r=0.51, p<0.001)—supporting the PCM’s dual-process model.

## Individual vulnerability moderates the relationship, meta-analysis shows that the crisis-anxiety effect is 1.8x stronger in high-neuroticism people and 2.3x stronger in those with trauma histories (Garcia et al., 2024). According to the stress-diathesis model, effective interventions should reduce external stressors like information overload and improve internal stability, such as emotion regulation.

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## **Interventions and Policy Implications**

Policy effectiveness is determined by regional factors, including economy, culture, and resources—localized policies tend to be more effective than uniform ones. Based on the PCM principles, the following interventions are evidence-supported:

Short and intense training enhances executive functions. Lee et al. (2023) discovered that 20-minute online training (avoiding crisis words) reduced amygdala reactivity to crisis stimuli by 22% (compared to 3% in controls) and improved IU scores by 19% (after a 2-week follow-up). In the 2022 floods, Pakistan’s training app had 120k+ downloads, and 75% of users reported less flood news distress. It requires theory foundation, cost-effectiveness, and context alignment (like commuting).

This therapy reconstructs collective narratives, reinforces community identity, and prioritizes cultural narratives, particularly those of marginalized voices. An 8-week RCT (N=214) cut trauma intrusions by 31% (vs. 5% in controls), with benefits extending to work stress (70% coped better). Adaptation is essential: collectivist cultures include leaders, individualist cultures emphasize personal growth (Patel et al., 2024).

Modeled on physical PPE, core components: media capped at ≤3 daily crisis pushes (≥5 harm cognitive control); government-psychologist joint communication (guidance + solidarity messages). The cost-benefit ratio is 4:1, as per World Bank (2023). France’s 2023 heatwave policy, which includes 2 daily alerts and local leader videos, reduced anxiety by 24% compared to nearby areas, as reported by the French Ministry of Health in 2023. This demonstrates the effectiveness of macro buffers.

## **Limitations and Future Prospects**

Our study has insights but limitations (e.g., small sample size, needing to refine variable control). Future work should expand data, enhance statistical analysis, and incorporate interdisciplinary perspectives; addressing three key PCM research gaps is necessary.

Overreliance on self-report data and WEIRD samples restricts result generalizability. Garcia et al. (2024)’s meta-analysis included 78% European/North American studies, 92% using self-report scales (e.g., GAD-7). Non-Western sociocultural buffers differ, and self-reports might undercount anxiety in stigmatizing environments (Singh et al., 2022). Future cross-cultural studies should use biomarkers (e.g., saliva cortisol, fMRI) to validate criteria globally.

Few longitudinal designs block causal inferences. Most studies (e.g., Holman et al., 2023) are cross-sectional or short-term (3–6 months), so it’s hard to tell if NR3C1 methylation precedes cognitive dysregulation or stems from less social participation. Long-term cohorts (1–2 years) with repeated epigenetic/cognitive/sociocultural measures (e.g., tracking teens before/after crises) are required.

Computational modeling of crisis evolution is weak. PCM frames crisis as dynamic, yet few use dynamical-systems/machine learning to monitor anxiety/resilience under overlapping stressors. Integrating real-time media, epigenetic markers, and community participation might identify clinical anxiety tipping points. Future research should use computational psychiatry tools to enhance PCM’s predictive capabilities.

## Conclusion

Global events now define normality: the pandemic, climate disasters, and geopolitical conflicts create a "perpetual crisis" era of chronic, multi-domain, inescapable threat. The Perpetual Crisis Model (PCM) takes anxiety and resilience as adaptive responses to this ecological condition, with resilience as a socio-biologically embedded capacity (not just an individual trait).

Integrating allostatic load, meaning-making, and stress-diathesis theories, the PCM explains how global crises influence responses via NR3C1 methylation, cognitive control dysregulation, and socio-cultural rituals (which buffer effects). Empirically, global crisis exposure amplifies anxiety (r = .34; Garcia et al., 2024), but resilience resources (perceived control, community solidarity) neutralize this.

The proposed multi-level interventions—brief cognitive control training (micro), community narrative therapy (meso), "Psychological PPE" policies (macro)—are based on RCTs, cross-cultural studies, and real-world pilots. Together, they tackle PCM mechanisms, turning perpetual crisis from chronic anxiety source to growth opportunity.

Future PCM refinement needs cross-cultural, longitudinal, and computational research. Main takeaway: In a crisis world, responses should be multi-level—targeting individual psychology, biological stress traces, and social structures that exacerbate or buffer crisis effects. Only then can we build a global population resilient enough to thrive, not just survive, in crisis.

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