

In this interview the psychologist Omar Hahad addresses the interconnection of rest and resilience, and discusses how they are forming a dynamic cycle with stress, recovery, and growth.

AD We are pleased that you agreed to do this interview. Mr. Hahad, can you introduce yourself and your field of expertise?

OH Thank you for having me. I am Omar Hahad, a psychologist and researcher at the University Medical Center in Mainz, Germany, specialized in examining the influence of environmental stressors on health outcomes. My work primarily explores how the external environment, the so-called “exposome”—like psychosocial stress, socioeconomic disparities, noise, air quality, and other urban and everyday living characteristics affect cardiovascular health and mental well-being over the life course. I am particularly fascinated by how psychological factors interact with biochemical mechanisms to influence health outcomes. My research seeks to bridge the gap between objective environmental exposures and subjective experiences, exploring how perceptions of our surroundings shape our stress responses and overall health. I’m also highly interested in psychological resilience—how some individuals thrive despite being confronted with stressors while others are more vulnerable and tend to develop impaired mental health over the course of life.

AD How do you define stress, and what is its function?

OH Hans Selye, a physician and the founder of modern stress research, said “Stress is the spice of life.” I definitely agree with that. Stress is often portrayed as the enemy, but it is fundamentally an adaptive response. Stress is not inherently negative. In manageable doses, it promotes growth, learning, and adaptation—a concept known as eustress. It helps and motivates us to mobilize energy, achieve goals, enhances cognitive function, and builds resilience and hardiness. The problem arises when stress becomes chronic or overwhelming, which can lead to conditions such as depression, anxiety, and overall impaired health and quality of life. Therefore, the key is not to eliminate stress but to manage its intensity and duration, allowing for adequate recovery and rest. That is why the World Health Organization identifies coping with stress as a vital component of life skills education. Indeed, dealing with stress in a favorable manner is a key life skill for the 21st century.

On a conceptual level, stress is a physiological and psychological reaction to a perceived challenge or threat. It activates physiological stress pathways such as the hypothalamic-pituitary-adrenal (HPA) axis, releasing stress hormones such as cortisol and adrenaline to prepare the body for fight-or-flight. This response enhances alertness, sharpens focus, and mobilizes energy reserves, enabling us to react swiftly to danger. From an evolutionary standpoint, this was crucial for survival.

AD Would you recommend avoiding or coping with stressful situations?

OH Avoiding stress is neither feasible nor desirable. Stress is an inevitable part of life, and in many cases, it is a precursor to growth, achievement, and wellbeing. How would you otherwise learn to effectively cope with stress and navigate through life events sustainably in the first place? Our organism is continuously exposed to varying degrees of stress. Upon waking in the morning, stress hormones are mobilized to facilitate the transition from sleep to wakefulness. Throughout the day, the body adapts to environmental changes, such as temperature fluctuations when leaving home, and responds to social interactions, all of which contribute to physiological and psychological stress. In essence, the only ones free from stress are those who have drawn their last breath. To be alive is to dance with stress—it is the ever-present rhythm of existence.

Instead, I advocate for adaptive coping strategies, rest, and recovery that enable us to navigate sustainably through stress and life challenges. Individuals need to identify and use the resource networks that best support their resilience, whether these involve social support, physical activity, problem-solving abilities, cognitive strategies, or other coping mechanisms.

AD Can you introduce our readers to your work on resilience and its definition?

OH The American Psychological Association defines resilience as “the process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands.” So, this definition clearly emphasizes the experience of stressful life events as a prerequisite for building resilience. It is commonly defined as the ability to “bounce back” from adversity, but it is more complex than solely recovery. In my work, I explore resilience as a dynamic, learnable, multi-dimensional process that involves adapting positively to stress while maintaining psychological and physiological balance. It is not just about surviving difficult experiences, but thriving because of them. This aspect is described as “bounce forward” rather than just “bounce back.”

Resilience encompasses several overlapping and integrative components: cognitive flexibility, emotional regulation, social support, and a sense of purpose or meaning. Cognitively, resilient individuals are able to reframe challenges and adopt a growth mindset. Emotionally, they regulate distress and maintain a balanced outlook. Socially, they draw strength from supportive relationships. Existentially, they find meaning and purpose even in hardship, which fuels perseverance and growth.

AD From a historical perspective, when did the study of resilience begin and why? What is its philosophical background?

OH The concept of resilience has deep philosophical roots in Stoicism, which emphasizes rational acceptance of adversity and emotional endurance. Stoic philosophers acknowledged the limited ability to control external events. However, they emphasized that one can control their responses to them. This perspective is in line with modern concepts of resilience, which involves cognitive appraisal and emotional regulation.

Scientifically, the study of resilience began in the 1970s with developmental psychologists observing children who thrived despite adverse conditions, such as poverty or parental mental illness. One of the most influential early contributions was the Kauai Longitudinal Study conducted by Emmy Werner, a renowned German-American developmental psychologist. This long-term investigation examined the development of 698 children born in 1955 on the Hawaii's island of Kauai. The study suggested that despite growing up in challenging circumstances, about one third of children developed resilience in adulthood, with key factors including supportive relationships, personal strengths, and positive educational experiences.

AD Does resilience only happen as a reaction to stress?

OH No, to my understanding, resilience is not solely built in a reactive manner. It can also be proactive and anticipatory. While resilience is often accompanied by adversity, it can be cultivated in anticipation of future challenges. Each of us, to varying degrees, uses aspects of this in our everyday lives. For example, when we know we have a challenging event, exam, or talk ahead, we try to rest the day before going to sleep or activate other resources as anticipation for the event that allows us to manage it effectively. In early life, our parents and other caregivers may teach us how to anticipate stressful events, equipping us with the necessary resources to cope with them. While this does not replace the experience of facing these challenges firsthand, it can work in tandem with personal experiences to shape and strengthen resilience.

AD Can you see a connection between rest and resilience?

OH Absolutely. Rest and resilience are interconnected, forming a dynamic cycle of stress, recovery, and growth. Rest is not merely the absence of activity, it is a vital process of restoration refilling physical, cognitive, and emotional resources. In fact, rest is the foundation upon which resilience is built.

From my own research, I know how important sleep, for instance, is. In previous studies from our team, we exposed participants in their bedrooms during sleep to an environmental stressor. The next day the participants were invited to the study center, and we drew blood and measured the vascular function. The results showed that one night of disturbed sleep was enough to increase stress hormone levels, increase blood pressure and heart rate, and impaired vascular function. This shows how important rest, in the form of adequate sleep, is to maintain health and in conclusion resilience.

In today's world, rest is often stigmatized as laziness or weakness. This is kind of cultivated, especially in the workplace, even though it is an act of self-preservation and empowerment. In fact, most successful and healthy people are those who have distinct routines in maintaining and creating rest.

AD How can resilience be learned, and to what extent is it based on one's genes?

OH Resilience is shaped by a complex interplay between genetic predispositions and environmental influences. While genetic factors influence baseline stress reactivity and emotional regulation, resilience is largely learned and developed through life experiences. It is a dynamic process that can be cultivated at any stage of life.

Research in behavioral genetics suggests that approximately 30–50% of individual differences in resilience can be attributed to genetic factors, such as variations in neurotransmitter systems involved in stress regulation. For instance, genetic polymorphisms affecting serotonin and dopamine pathways influence emotional regulation and cognitive flexibility, which are essential components of resilience.

However, environmental factors and life experiences play a more significant role in shaping resilience. Exposure to manageable stressors, supportive relationships, and positive role models contribute to adaptive coping mechanisms. This concept, known as “stress inoculation,” suggests that experiencing and overcoming moderate challenges enhances future resilience. Stress inoculation is also an approach used in psychotherapy, in which individuals are gradually exposed to stressors in a controlled manner to enhance their coping skills and build resilience.

Resilience can be actively cultivated through practices such as mindfulness, cognitive-behavioral strategies, and meaning-making. Mindfulness enhances emotional regulation and reduces rumination, while cognitive-behavioral techniques foster cognitive flexibility and positive reappraisal of stressors. Meaning-making involves reframing adversity to find growth and purpose, transforming suffering into a source of strength.

Social support is another important component. Resilience is not solely an individual trait but is also socially constructed. Supportive communities provide emotional security, a sense of belonging, and shared narratives of hope and recovery. In fact, our social environment and relationships, how we respond to others and how they respond to us, strongly shape our self-concept, how we see ourselves, and our place in the world. Therefore, resilience is both personal and collective, shaped by genes, experiences, and social contexts.

To give an example of how important resilience is, we recently studied how resilient coping is linked to heart disease and death in a large group of people in Germany.¹ Our results show that people with low resilient coping were more likely to have heart disease and die earlier than those with high resilient coping, even when considering other risk factors. This shows how important resilience is for health and disease.

AD What role does the environment play in stress reactions?

OH The environment, or as researchers like me call it, “the exposome,” is a powerful determinant of not only stress reactions but also health in general, influencing both the exposure to stressors and the resources available for coping. Environmental stressors can be physicochemical (e.g., noise, air pollution, urban density), social (e.g., social isolation, discrimination), or psychological (e.g., perceived lack of control). These stressors act in concert and synergy, to activate the organism's stress response systems.

In my research, I focus on environmental stressors like noise pollution, air pollution and the built environment. Chronic exposure to noise, for instance, disrupts sleep and increases physiological arousal, leading to cardiovascular strain and mental distress. Interestingly, the subjective experience of noise, referred to as noise annoyance, significantly influences health outcomes, independent of actual noise levels. This highlights the importance of psychological appraisal in stress reactions.

Conversely, restorative environments can mitigate stress and enhance resilience. Natural landscapes, green spaces, and quiet areas, for example, promote relaxation by reducing physiological arousal and enhancing cognitive restoration. We know today that the environment plays a larger role in shaping health and disease in the population than genes and that most chronic diseases are substantially influenced by the environment.

This highlights another important aspect. While we have a significant influence on how we experience and evaluate events, there are broader contextual factors that neither individuals, psychologists, physicians, nor healthcare providers can fully control. Building resilient societies is a collective effort that requires action from policymakers and decision-makers. This means that a resilient infrastructure must be established and maintained to foster and strengthen resilient behaviors. Such efforts should focus on fundamental aspects of everyday life, including workplaces, social security, and the broader infrastructure. Factors such as poverty, unequal access to resources like education, and living in socially deprived areas can impact (mental) health and resilience from the very beginning of life.

AD How does one's individual resilience affect the wider societal context?

OH Individual resilience doesn't exist in isolation—it creates a ripple effect that shapes the broader society. Resilient individuals are better at handling stress, staying emotionally balanced, and fostering positive social connections. In turn, this strengthens social cohesion, collective well-being, and community resilience.

The COVID-19 pandemic powerfully illustrated this dynamic. As a global crisis, it tested both individual and societal resilience, revealing stark differences in how people and communities responded. It forced us to ask: How quickly can we adapt to such a large-scale stressor? What does our response say about us as individuals and as a society? This crisis became a mirror, reflecting both our strengths and our vulnerabilities.

On one hand, we witnessed incredible acts of solidarity, people coming together to support one another and navigate the pandemic. On the other hand, we also saw division, discrimination, conflicts between opposing views, and a rise in depression and anxiety. This experience was a lesson in resilience, and we must use it to better prepare for future challenges.

As I mentioned earlier, resilience is not just an individual trait, it is deeply intertwined with the social environment. Just as resilient individuals contribute to stronger communities, the structures and support within a society shape the resilience of its people. The quote “we become ourselves through others” is very accurate in this context. I believe the COVID-19 pandemic has fundamentally changed people in ways that cannot be ignored.

AD In view of the current political situation, how resilient do you think our society is?

OH Our society is grappling with a range of challenges: climate change, political polarization, economic instability, and rapid technological advancements. These stressors are further amplified by the digital age, which accelerates the flow of information while at the same time fueling anxiety. Inequalities in healthcare, education, and economic opportunities mean that some communities are more affected by stress than others. Marginalized groups often face additional burdens, such as discrimination and poverty, which can undermine their resilience.

The COVID-19 pandemic, as I mentioned earlier, acted like a magnifying glass for these social disparities, intensifying existing inequalities and revealing how different groups experience and respond to crises in vastly different ways. The erosion of political and social trust poses a significant threat to societal resilience. To be honest, as someone in my mid-30s, I have never experienced society as feeling so fragile as it does now.

AD Has the research on resilience led to any personal changes for you?

OH Absolutely. My research on resilience has really shaped how I handle stress, rest, and productivity in my daily life. I have learned that stress is a part of life, but I am confident in my ability to deal with it. Studying how environmental stress affects mental well-being has made me more mindful of my surroundings. I have also come to understand the importance of community and support, so I focus on building meaningful relationships and creating a sense of belonging. Staying active, balancing work with rest, and spending quality time with family and friends are really important to me. Of course, there are times when I feel overwhelmed and drained, but I remind myself that these moments are just part of the journey, and to become the person I want to be, I need to embrace them and keep moving forward.

AD How would you like to close this interview, and which important question hasn't been asked yet?

OH To wrap up, I want to stress that resilience is not just about surviving tough times—it is about transforming them. It is about embracing change, nurturing hope, and discovering meaning even in the face of life's greatest challenges.

One question that often goes unasked but is vital to consider is: How can we redesign our societal systems to prioritize resilience? This question pushes us to rethink our cultural ideas of success, productivity, and well-being. Answering this question requires systemic change. It involves creating supportive communities, equitable social systems, and restorative environments.