

Chapter 38

Positive Technology for Helping People Cope with Stress

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ABSTRACT

The emerging convergence of new technologies and health care is offering a new approach to support effective interventions. This chapter aims to describe how Positive Technology can help people cope with stress in several contexts. On the one hand, the potential capacity of sensor technologies to offer individuals the technology with which to monitor certain biological signals known to be associated with stress might serve to promote engagement with a mediated experience for stress management. On the other hand, the chapter focuses on the hedonic and eudaimonic experiences supported by technology in terms of inducing positive affective states and supporting personal growth by teaching strategies to reduce stress and enhance well-being. To further connect mediated experiences with real ones, the Interreality approach (IR) allows for the combination of assessment and intervention as inseparable parts of the general process of coping with stress.

INTRODUCTION

Stress is currently a growing problem that affects many people and significantly worsens their quality of life (Cohen, Janicki-Deverts, & Miller, 2007). Stress has various definitions that all converge upon the notion of “strain” or “the nonspecific response of the body to any demand placed upon it” (Selye, 1956).

According to Cohen et al. (Cohen et al., 2007), psychological stress occurs when people perceive that environmental demands tax or exceed their adaptive capacity. Thus, stressful experiences are conceptualized as person-environment transactions whose result is dependent on the impact of the external stimulus at three levels:

1. **Primary Appraisal:** i.e., A person’s judgment about the significance of a stimulus as stressful, positive, controllable, challenging or irrelevant;
2. **Secondary Appraisal:** Which address what one can do about the situation;
3. **Problem Management Phase:** Which is aimed at regulation of the external stimulus.

According to these levels, it’s evident that there is no “best” stress response: an optimal adaptation to environmental demands requires the ability to flexibly use coping strategies depending on the particular context and the specific stressors. In order to effectively manage stress, it is crucial to help people change the way they see the events and to learn to use coping skills.

While the mind and body’s responses to stress can be helpful and adaptive in the short-term (McEwen, 1998), repeated or long-term activation of the stress response can damage the body over time (McEwen & Stellar, 1993; Seeman, Singer, Rowe, Horwitz, & McEwen, 1997), and the effects of chronic stress are common and costly (Kalia, 2002). Indeed, chronic stress is associated with lowered immune functioning, impaired memory, chronic headaches, cardiac disease and premature aging of genes, among others (Hammen, 2005; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002; Leserman et al., 2002; McEwen, 2006; Rozanski, Blumenthal, & Kaplan, 1999). Psychological stress has been linked empirically with dysregulation of facets of the human immune system. A recent review that focused on the effects of stress on inflammation in clinical populations has demonstrated that stress exposure can increase the likelihood of developing disease, as well as exacerbate pre-existing conditions (Morey, Boggero, Scott, & Segerstrom, 2015). For example, in persons with a particular genetic disposition, as well as high level of trait anxiety, repeated and early exposure to stress may result in a decreased threshold for developing anxiety (Jackson, Knight, & Rafferty, 2010; Lupien, McEwen, Gunnar, & Heim, 2009). Stressful events influence the pathogenesis of physical diseases by causing continuous negative affective states (potentially leading to feelings of anxiety and depression), which in turn may induce changes in the emotional circuitry of the brain that can contribute to stress-related psychopathology (Davidson, Jackson, & Kalin, 2000).

The range of considerable problems related to stress highlights the importance of successfully managing stress.

Is it possible to live and live well under stress? To answer this question Antonovsky proposed the salutogenesis model (Antonovsky, 1987, 1996), which deals with the issue of stress from a whole different perspective. According to Antonovsky, daily life is constantly subject to the micro- and macro-stressors that prevent a person from achieving a state of homeostasis. However, the vast majority of people are able to maintain a balanced relationship with the environment. In some cases, even under the most challenging circumstances, people succeed in developing, growing and achieving increasingly intense levels of well-being.

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