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Teaching and Learning Guide for Stress and Health: A Structural and Functional Analysis of Chronic Stress

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This guide accompanies the following article: Smyth, J. M., Zawadzki, M. J., & Gerin, W. (2013). Stress and health: A structural and functional analysis of chronic stress. *Social and Personality Psychology Compass*, 7, 217–227. doi: 10.1111/spc3.12020.

Author's Introduction

It is widely believed that “stress” is bad for health, especially stress that is considered “chronic”. Yet, defining precisely what is meant by chronic has largely been absent from theoretical and empirical examinations of stress. This article provides working definitions of acute and chronic stress, discusses how chronic stress can take different forms, and focuses on delineating the conditions that tend to give rise to chronic stress. As part of this discussion, this article considers the role that various features of the environment, and how the environment is perceived, contribute to the chronicity of stress. In addition, it discusses the important role that engaging in perseverative cognitions (such as ruminating or worrying) has in leading a person to experience stress too often and for too long. More specifically, it describes how perseverative cognitions can interact with each of the conditions that give rise to chronic stress, thus exacerbating the amount (and impact) of chronic stress the person is experiencing. One take-home message is that there may not be just one “kind” of chronic stress; rather, chronic stress may arise from a range of contributing sources and may have different shapes and forms. Extending this logic, the article concludes with a discussion of how interventions to reduce stress may benefit from ideographically tailoring treatment to the type(s) of chronic stress an individual is experiencing.

Author Recommends

Baum, A., O’Keefe, M. K., & Davidson, L. M. (1990). Acute stressors and chronic responses: The case of traumatic stress. *Journal of Applied Social Psychology*, 20, 1643–1654. doi: 10.1111/j.1559-1816.1990.tb01499.x

Baum and colleagues describe three different ways to categorize the duration of a stress response: duration of the physical stressor, the duration of perception of the stressor as a threat, and the persistence of the response to the stressor. These factors are then discussed in terms of how singular events can cause extended physiological responding beyond the stressor being present and what would constitute a typical time of recovery. This work is drawn upon to consider the different factors that give rise to chronic stress.

Brosschot, J. F., Gerin, W., & Thayer, J. F. (2006). The perseverative cognition hypothesis: A review of worry, prolonged stress-related physiological activation, and health. *Journal of Psychosomatic Research*, 60, 113–124. doi: 10.1016/j.jpsychores.2005.06.074

Brosschot and colleagues present an argument as to how people's ability to recreate stress in their minds, for example to ruminate and worry, might lead to poor health. Specifically, they suggest that perseverative cognitions prolong one's physiological and affective response to a stressor. This work is drawn upon to suggest the importance that our thoughts have in influencing chronic stress. It is expanded to consider how perseverative cognitions interact with different forms of chronic stress.

Byrne-Davis, L. M. T., & Vedhara, K. (2008). Psychoneuroimmunology. *Social and Personality Psychology Compass*, 2, 751–764 doi: 10.1111/j.1751-9004.2007.00069.x

Byrne-Davis and Vedhara provide an overview of the field of psychoneuroimmunology, which is concerned with the processes that explain how psychological and social factors impact disease and health. After describing the body's various biological systems (i.e., immune, nervous and endocrine) they discuss how the mind and body can influence each other. The mind-body connection is then used to describe how stress can result in sickness. This article provides a useful primer on one of the key pathways through which chronic stress can exert negative health effects.

Cohen, S., Janicki-Deverts, D., & Miller, G. E. (2007). Psychological stress and disease. *Journal of the American Medical Association*, 298, 1685–1687. doi: 10.1001/jama.298.14.1685

Cohen and colleagues provide a comprehensive treatment of how chronic stress leads to disease. They focus on four major diseases: clinical depression, cardiovascular disease, human immunodeficiency virus (HIV)/AIDS, and cancer. This work is drawn upon to suggest the importance of studying chronic stress and to highlight the potential benefit of intervening to reduce chronic stress.

Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York: Springer Publishing.

Lazarus and Folkman's influential appraisal theory suggests that the degree to which a stressor is "stressful" is dependent upon how the stressor is perceived (e.g., if it holds the capacity for threat, harm, or challenge) and whether or not an individual feels they have the ability and resources to cope with the demands of the situation. This seminal work helps to explain how two individuals can be placed in the same environment, experience the same objective stressor, and yet have very divergent responses. This work is drawn upon to suggest the importance of the perceptions of the environment and lends support to the notion that the inability to adapt to stressors could be a contributing factor to chronic stress.

McEwen, B. S. (2006). Stress, adaptation, and disease: Allostasis and allostatic load. *Annals of the New York Academy of Sciences*, 840, 33–44. doi: 10.1111/j.1749-6632.1998.tb09546.x

McEwen develops a pioneering notion that major life stressors are not the primary cause of disease, but rather that it is the repeated activation of the stress response that leads to disease, which occurs to both major traumatic and mild stressors. Specifically, this work proposes that the number of times a person cycles through a stress response (i.e., one's allostatic load) accumulates to place a burden on the physiological systems. McEwen then discusses four independent types of allostatic load. This work is drawn upon to explain the different forms that chronic stress takes, and extended to consider what conditions may give rise to these different forms.

Schetter, C. D., & Dolbier, C. (2011). Resilience in the context of stress and health in adults. *Social and Personality Psychology Compass*, 5, 634–652. doi: 10.1111/j.1751-9004.2011.00379.x

Schetter and Dolbier review the literature on resilience, which refers to the ability to withstand and cope with ongoing and repeated demands and maintain healthy functioning. Chronic stress is then discussed as a prime example where resiliency would mitigate (or “buffer”) the negative effect on health. They then present a taxonomy of five types of resiliency (i.e., personality resources, self and ego-related resources, interpersonal resources, world views and culturally-based values, and behavioral and cognitive skills). This work helps inform how interventions can be developed to enhance personal resources and reduce chronic stress.

Online Materials

Stress by health radio

<https://itunes.apple.com/us/podcast/stress-healthradio.net/id260901935>

This video provides a listing of free podcasts produced by HealthRadio.net that discuss aspects of stress. For example, some describe the relationship between stress and aging, stress and anxiety, or stress and health more generally. In addition, many topics revolve around reducing stress and improving well-being.

Fight or flight response

<http://www.youtube.com/watch?v=m2GywoS77qc>

This video describes the basic components of how the body physiologically responds to stress namely the fight-or-flight response. It also sets up how the fight or flight response may not be an adaptive response to many of the stressors that are faced in modern life.

Stress response: savior to killer

<http://www.youtube.com/watch?v=sPS7GnromGo>

This website discusses the research by Dr. Robert Sapolsky, author of *Why Zebras Don't Get Ulcers*, which examines how long-term acute physiological responding leads to poor health. A comparison is made between human and animal responding focusing specifically on how humans activate the same stress response when encountering mental stressors as they do physical threats in the environment. The video provides a nice snapshot of how the acute stress response is adaptive in the short-term but has negative consequences in the long-term.

How worrying affects the body

<http://www.webmd.com/balance/guide/how-worrying-affects-your-body>

This website provides a synopsis of the health dangers associated with worry including how worry is connected with negative emotional states (i.e., anxiety) and increased physiological responding. Subsequent pages on the website provide lists of the short- and long-term consequences that can be associated with chronic activation of the body as can occur due to one's worrying.

WebMD: Quick ways to reduce stress

<http://www.webmd.com/balance/diet-exercise-stress-10/slideshow-stress>

This website provides a slide show of 10 activities that a person can do to reduce stress in their lives. Importantly, both preventative and proactive stress management techniques are presented.

Sample Syllabus Component

This work could serve as an introduction to the topic of stress for a range of classes including Introduction to Biobehavioral Health, Psychology of Health, and Stress and Disease.

Week 1: What is Stress?

Definitions, issues with understanding acute versus chronic stress

Readings:

Baum, A., O'Keefe, M. K., & Davidson, L. M. (1990). Acute stressors and chronic responses: The case of traumatic stress. *Journal of Applied Social Psychology*, 20, 1643–1654. doi: 10.1111/j.1559-1816.1990.tb01499.x

Smyth, J. M., Zawadzki, M. J., & Gerin, W. (2013). Stress and health: a structural and functional analysis of chronic stress. *Social and Personality Compass*, 7, 217–227. doi: 10.1111/spc3.12020

Week 2: Stress and Health

The connection between chronic stress and poor health

Byrne-Davis, L. M. T., & Vedhara, K. (2008). Psychoneuroimmunology. *Social and Personality Psychology Compass*, 2, 751–764. doi: 10.1111/j.1751-9004.2007.00069.x

Cohen, S., Janicki-Deverts, D., & Miller, G. E. (2007). Psychological stress and disease.

McEwen, B. S. (2006). Stress, adaptation, and disease: Allostasis and allostatic load. *Annals of the New York Academy of Sciences*, 840, 33–44. doi: 10.1111/j.1749-6632.1998.tb09546.x

Focus Questions

1. Describe how the body physiologically responds to a stressor (i.e., the fight or flight response). Discuss how this responding can be both adaptive and detrimental to health.
2. Discuss the relationship between acute and chronic stress. Describe when an acute stressor might start to become what was defined in the paper as chronic stress. Give examples of how the same stressor may give rise to acute stress for one person but chronic stress for another.
3. People are able to mentally remember, anticipate, and even create events and stressors in their minds. The article discusses ruminating and worrying as examples. What are the benefits and drawbacks to being able to mentally represent events and stressors?
4. Individual difference factors can influence the intensity and duration of chronic stress. The article discusses social support as one such example. Identify another factor (whether positive or negative) and explain how it could influence chronic stress. Examples of this factor can include a demographic variable (e.g., gender, age and race), a personality variable (e.g., neuroticism and extraversion), or how a person tends to respond to situations (e.g., emotionally reactive person). Be sure to discuss how the chosen factor could impact the experience of chronic stress through the conditions that give rise to chronic stress (i.e., repeated activations, low or slow adaptation, failure to return to homeostasis, and perseverative cognitions).
5. Important to understanding chronic stress is to better design and implement interventions to reduce stress. Identify a possible intervention that could reduce chronic stress. Explain how the intervention works, what it is designed to target and influence, and how it would or would not influence each of the conditions that give rise to chronic stress (i.e., repeated activations, low or slow adaptation, failure to return to homeostasis, and perseverative cognitions).

Seminar/Project Idea

Stress Journal: The goals of this project are to better understand how acute and chronic stress are related, and to better understand the different ways a person can experience chronic stress. For one week, keep track of the stressors and stress responses that you experience throughout the day. In addition to noting the presence of stressors and stress responses, try to elaborate

on the various features of these experiences. For instance, you might record what caused the stressor (for example, was it a thought – about something past, present, or that might occur, an argument, something you witnessed, etc.), when it occurred, who was around/involved in the stressor (if anybody), and how long you felt your body having a stress response (that is, how long did it take before you felt calm again, or how long did it take for you to feel as you did before the stressor). Do your best to keep track of each stressor and stress response as it happens each day for the full week.

At the end of the week, take some time and review your stress journal – are there patterns that emerge (e.g., in the type, nature, frequency of stressors, and stress responses)? What factors from the paper help you understand and explain these patterns? Next, organize your stressors in terms of whether they elicited responses that were more acute versus more chronic stress. Assign a value between 1 and 10 to each stress response, where 1 would indicate that the stress response was a pure form of acute stress and 10 would indicate that the stress response was the most severe possible form of chronic stress. To help you do this, refer back to the article and Figure 1. Recall that the article describes acute and chronic stress as opposite ends of a continuum, and then describes the different factors that influence when chronic stress arises (repeated activations, slow or no adaptation, delayed or failure to return to homeostasis, and perseverative cognitions).

After you have your stressors organized, identify 3–5 of your stress responses that differ in how acute and chronic they were. For each stress response, write a paragraph about the stressor in which you first briefly describe the stressor and your response, and then describe how you knew it was an instance of acute or chronic stress. For example, if you list the stressor and your response as representing some degree of chronic stress, explain which of the factors that give rise to chronic stress were present.

Finally, design an intervention that aims to reduce your particular profile of acute and chronic stress (i.e., design a personally tailored intervention). Describe what that intervention looks like and why you propose it would be effective for you (that is, what does the intervention target for change and why did you select that). Furthermore, discuss how you would implement the intervention to reduce your experiences of chronic stress.

Short Biographies

Matthew J. Zawadzki received his PhD in Social Psychology from The Pennsylvania State University. He is currently a post-doctoral fellow in Biobehavioral Health at The Pennsylvania State University. His research investigates how psychological processes affect health both indirectly (e.g., how beliefs and stereotypes influence the delivery of health care) and directly (e.g., how rumination raises blood pressure and predicts the onset and progression of cardiovascular disease). A recent publication of his in *Health Psychology* examines the effect of rumination and anxiety as mediators of the relationship between loneliness and poor sleep and depression.

Joshua M. Smyth received his PhD in Health–Social Psychology from Stony Brook University. He is a Professor of Biobehavioral Health and Medicine at The Pennsylvania State University. His work encompasses three broadly defined areas: (1) What are the effects of stress on health? (2) Can we assess stress, affect, and health in an ecologically relevant manner? and (3) Can psychological interventions improve health and well-being? His recent work synthesizes these areas to use real-time, ambulatory data capture to dynamically tailor the implementation and delivery of *in situ* interventions to promote health and well-being.