Physiological and Social Stress on Cognitive Performance

Doreet Nagatti
Worcester Polytechnic Institute


Creative Commons License

This work is licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 License.

Let us know how access to this document benefits you.
Follow this and additional works at: https://escholarship.umassmed.edu/cts_retreat

Part of the Health Psychology Commons, Mental and Social Health Commons, Physiological Processes Commons, Psychiatry and Psychology Commons, Social Psychology Commons, and the Social Psychology and Interaction Commons

This material is brought to you by eScholarship@UMMS. It has been accepted for inclusion in UMass Center for Clinical and Translational Science Research Retreat by an authorized administrator of eScholarship@UMMS. For more information, please contact Lisa.Palmer@umassmed.edu.
Title: Physiological and Social Stress on Cognitive Performance

Doreet Nagatti, Daniele Anina, Maria Daigle, & Kymberlee M. O'Brien

kmobrien@wpi.edu

508-831-5787

Abstract

Humans are highly social creatures and this provides us with a number of benefits, such as protection and support, but it also brings new avenues for stress from social sources. Basic and translational neuroendocrine research has yielded a rich set of findings and a general understanding of how acute and chronic stress can result in reduced health, earlier aging, and earlier death. Although stress can be indexed by level of cortisol, the major stress hormone in humans, many interrelated physiological systems are involved in a stress response, including the cardio and vascular systems. Research toward greater understanding of stress buffering mechanisms holds value for improved human health in the face of entrenched social stressors.

In particular, acute and chronic stress have consistently been found to impair cognitive performance. Many adults in high stress environments also face a changing social landscape during college years: changes in living partners, less control over noise, sleep, exercise, and nutrition. In this pilot investigation, we are interested in measuring the influences of acute stress on cognitive performance and whether social support, a factor that is modifiable, would be protective on the multi-systems relationships between stress and cognition.

Broadly, we found (1) that higher levels of cortisol measured in saliva was associated with a faster return to resting levels of salivary cortisol (a measure of flexible, adaptive functioning of the central HPA stress system) after the stressor is removed and may also be associated with lower cortisol in the initial response to the stressor. In parallel, we found (2) that higher levels of cortisol were associated with impaired cognitive performance after the stress task, (3) finally, we found that those reporting high social support showed faster recovery to baseline in the cardiovascular systems and greater social support produced some buffering of stress response on their post-stress cognitive performance.

Kymberlee M. O'Brien, MEd, Ph.D.
Assistant Teaching Professor in Health Psychology
Department of Social Sciences and Policy Studies
Worcester Polytechnic Institute

office: SL334
phone: 508-831-5787
e-mail: kmobrien@wpi.edu

http://www.wpi.edu/academics/facultydir/kmo.html
https://wpi.academia.edu/KymberleeOBrien/Papers