

The Biocultural Trauma Feedback Loop

Michelle Irvine

mli12@humboldt.edu

It is widely known that trauma is repeated throughout a victim's life, but the biological mechanisms of its recurrence (revictimization), even though understood biologically, are not accepted or discussed in all disciplines. A combination of socio-cultural and biological perspectives is needed to understand this cycle of revictimization and to offer help for sufferers and public health agencies. In order to better understand these issues, I conducted a synthesis of existing scientific research regarding the discrepancies between biological and sociological studies on revictimization. Reviews of sociological research revealed that initial trauma and revictimization are clearly understood as a positive feedback loop, with one increasing the other over a victim's life. In biology, however, this loop has been acknowledged but the study of the recurrence of trauma has not been integrated into these disciplines. In humans, biology and sociology are inseparable, a fact acknowledged by both fields of study. Therefore, a recognition in these disciplines that a positive feedback loop exists regarding revictimization is key. Recognizing the existence of this biological feedback loop has the potential to mitigate the damage of past, present, and future trauma. Devastated sufferers, with a better understanding of the biological aspects of their recurring trauma, are empowered against damaging ideologies, such as biological determinism and victim blaming.

Key Terms: revictimization, trauma, positive feedback loop

Works Cited:

- [1]Giberovitch, M., & Barry, R. (2014). Impact of Trauma: Vulnerability and Resilience. In *Recovering from Genocidal Trauma* (pp. 67-88). Toronto: University of Toronto.
- [2]Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfield, C., Perry, B. D., . . . Giles, W. H. (2005). The enduring effects of abuse and related adverse experiences in childhood. *European Archives of Psychiatry and Clinical Neuroscience*, 256(3), 174-186. doi:10.1007/s00406-005-0624-4
- [3]Becker-Blease, K. A., Turner, H. A., & Finkelhor, D. (2010). Disasters, Victimization, and Children's Mental Health. *Child Development*, 81(4), 1040-1052. doi:10.1111/j.1467-8624.2010.01453.x
- [4]Cecil, C. A., Viding, E., Fearon, P., Glaser, D., & Mccrory, E. J. (2017). Disentangling the mental health impact of childhood abuse and neglect. *Child Abuse & Neglect*, 63, 106-119. doi:10.1016/j.chiabu.2016.11.024
- [5]Chattarji, S., & Rao, R. P. (2014). Blood-brain biomarkers for stress susceptibility. *Proceedings of the National Academy of Sciences*, 111(37), 13253-13254. doi:10.1073/pnas.1414663111
- [6]Copeland, W. E., Wolke, D., Lereya, S. T., Shanahan, L., Worthman, C., & Costello, E. J. (2014). Childhood bullying involvement predicts low-grade systemic inflammation into adulthood. *Proceedings of the National Academy of Sciences*, 111(21), 7570-7575. doi:10.1073/pnas.1323641111
- [7]Elovainio, M., Pulkki-Råback, L., Hakulinen, C., Ferrie, J. E., Jokela, M., Hintsanen, M., . . . Keltikangas-Järvinen, L. (2015). Childhood and adolescence risk factors and development of depressive symptoms: The 32-year prospective Young Finns follow-up study. *Journal of Epidemiology and Community Health*, 69(11), 1109-1117. doi:10.1136/jech-2014-205352
- [8]Fairchild, B. (2016, January 03). Part 1:How Stress Affects the Brain, Digestive System, Immune System, and Overall Health. Retrieved March 5, 2019, from <http://peaandthepodchiropractic.com/part-1how-stress-affects-the-brain-digestive-system-immune-system-and-overall-health/>
- [9]Feodorova, Y. N., & Sarafian, V. S. (2012). Psychological Stress – Cellular and Molecular Mechanisms. *Folia Medica*, 54(3), 5-13. doi:10.2478/v10153-011-0091-9
- [10]Graves, J. L., Jr. (2015). Great Is Their Sin: Biological Determinism in the Age of Genomics. *The Annals of the American Academy of Political and Social Science*, 661(1), 24-50. doi:10.1177/0002716215586558
- [11]Hagan, J., & Foster, H. (2001). Youth Violence and the End of Adolescence. *American Sociological Review*, 66(6), 874. doi:10.2307/3088877
- [12]Harris, K. M., & Medade, T. W. (2018). The Biosocial Approach to Human Development, Behavior, and Health Across the Life Course. *The Russell Sage Foundation Journal of the Social Sciences*, 4(4), 2-26. doi:10.7758/rsf.2018.4.4.01
- [13]Hashir, M. (2015, December 9). Emotions Make the World Go Round. Retrieved March 5, 2019, from <https://morebrainpoints.blogspot.com/2015/12/emotions-make-world-go-round.html>
- [14]Howe, T. R. (n.d.). Families in Crisis: Violence, Abuse, and Neglect. In *Marriages and Families in the 21st Century: A Bioecological Approach* (2nd ed., pp. 357-402). Sage Publications.
- [15]Lock, M. (2015). Comprehending the Body in the Era of the Epigenome. *Current Anthropology*, 56(2), 151-177. doi:10.1086/680350
- [16]Malabou, C. (2018). Is Psychic Phylogenesis Only a Phantasy? New Biological Developments in Trauma Inheritance. In *Freud and Monotheism* (pp. 177-198). Fordham University.
- [17]Merey, J. A., Butchart, A., Dahlberg, L. L., Zwi, A. B., & Krug, E. G. (2003). Violence and Mental Health. *International Journal of Mental Health*, 32(1), 20-35. doi:10.1080/00207411.2003.11449577
- [18]Mifsud, K. R., & Reul, J. M. (2016). Acute stress enhances heterodimerization and binding of corticosteroid receptors at glucocorticoid target genes in the hippocampus. *Proceedings of the National Academy of Sciences*, 113(40), 11336-11341. doi:10.1073/pnas.1605246113
- [19]M. P., McManus, M. J., Gray, J. D., Nasca, C., Moffat, C., Kopinski, P. K., . . . Wallace, D. C. (2015). Mitochondrial functions modulate neuroendocrine, metabolic, inflammatory, and transcriptional responses to acute psychological stress. *Proceedings of the National Academy of Sciences of the United States of America*, 112(48), 6614-6623. Retrieved March 5, 2019.
- [20]Picard, M., Mcewen, B. S., Epel, E. S., & Sandi, C. (2018). An energetic view of stress: Focus on mitochondria. *Frontiers in Neuroendocrinology*, 49, 72-85. doi:10.1016/j.yfme.2018.01.001
- [21]Pinti, M., Mussini, C., & Cossarizza, A. (2012). Mitochondrial DNA: A proinflammatory 'enemy from within' during HIV infection? *Cell Death and Disease*, 3(5), 307. doi:10.1038/cddis.2012.47
- [22]Raine, A., Fung, A. L., & Lam, B. Y. (2011). Peer Victimization Partially Mediates the Schizotypy-Aggression Relationship in Children and Adolescents. *Schizophrenia Bulletin*, 37(5), 937-945. doi:10.1093/schbul/sbr082
- [23]Reber, S. O., Siebler, P. H., Donner, N. C., Morton, J. T., Smith, D. G., Kopelman, J. M., . . . Halweg, A. L. (2016). Immunization with a heat-killed preparation of the environmental bacterium *Mycobacterium vaccae* promotes stress resilience in mice. *Proceedings of the National Academy of Sciences of the United States of America*, 113(22), 3130-3139. Retrieved March 5, 2019.
- [24]Roberts, A. L., Gilman, S. E., Fitzmaurice, G., Decker, M. R., & Koenen, K. C. (2010). Witness of Intimate Partner Violence in Childhood and Perpetration of Intimate Partner Violence in Adulthood. *Epidemiology*, 21(6), 809-818. doi:10.1097/ede.0b013e3181f39f03
- [25]Sas, K., Szabó, E., & Vécsei, L. (2018). Mitochondria, Oxidative Stress and the Kynurenine System, with a Focus on Ageing and Neuroprotection. *Molecules*, 23(1), 191-218. doi:10.3390/molecules23010191
- [26]Shonkoff, J. P. (2017). Breakthrough Impacts: What Science Tells Us About Supporting Early Childhood Development. *Young Children*, 72(2), 8-16. Retrieved March 5, 2019.
- [27]Sinha, R., Lacadie, C. M., Constable, R. T., & Seo, D. (2016). Dynamic neural activity during stress signals resilient coping. *Proceedings of the National Academy of Sciences*, 113(31), 8837-8842. doi:10.1073/pnas.1600965113
- [28]Smith, D. (2019). The Epigenetics of Being Black and Feeling Blue: Understanding African American Vulnerability to Disease. In *The Handbook of Research on Black Males* (pp. 259-265). Michigan State University Press.
- [29]Todd, R. M., Ehlers, M. R., Muller, D. J., Robertson, A., Palombo, D. J., Freeman, N., . . . Anderson, A. K. (2015). Neurogenetic Variations in Norepinephrine Availability Enhance Perceptual Vividness. *Journal of Neuroscience*, 35(16), 6506-6516. doi:10.1523/jneurosci.4489-14.2015
- [30]Turanovic, J. J., & Pratt, T. C. (2012). "Can't Stop, Won't Stop": Self-Control, Risky Lifestyles, and Repeat Victimization. *Journal of Quantitative Criminology*, 30(1), 29-56. doi:10.1007/s10940-012-9188-4

[31]Vaughn-Coaxum, R. A., Wang, Y., Kiely, J., Weisz, J. R., & Dunn, E. C. (2017). Associations Between Trauma Type, Timing, and Accumulation on Current Coping Behaviors in Adolescents: Results from a Large, Population-based Sample. *Journal of Youth and Adolescence*, 47(4), 842-858. doi:10.1007/s10964-017-0693-5