

Release from American Psychosomatic Society Meeting, Savannah, GA

Contact: Abir Aldhalimi, MA, PhD Candidate

Email: aaldhal@med.wayne.edu

Aldhalimi A, Sen A, Wright MA, Arnetz, JE., Hill, E., Hikmet J, Ghosh S, Stemmer PM, Park SK, Morishita M, Ruden D, Arnetz BB. (2015). Lead enhances the effect of trauma on HPA axis-associated gene expression. *Psychosomatic Medicine*, 77(3).

Savannah, GA - Trauma has adverse effects on refugee mental health and has been implicated in the impaired function of the body's stress response system, the pituitary-adrenal-cortical axis (HPA). We investigated the singular and combined effect of psychological trauma and lead, common exposures in Iraq, on DNA methylation in HPA axis-associated genes, like FKBP5. DNA methylation regulates normal gene functioning and impairment is associated with disease development. We studied the metal lead because it affects cognitive function and is associated with neuropsychological symptoms, similar to that of PTSD. We surveyed 48 male war refugees from Iraq, known to have high lead exposure. Questions concerned trauma experienced in Iraq and current posttraumatic stress symptoms (PTSD). Lead concentration and DNA methylation were determined using venous blood. We found that participants with high trauma and high PTSD symptoms had higher methylation in FKBP5 than those with high trauma but low PTSD symptoms. Also, lead and trauma interacted to enhance methylation change in FKBP5. Our study suggests that both singular and combined effects of environmental exposures impact DNA functioning. It is suggested that future studies of refugees, and other war-exposed populations, account for exposures to both trauma as well as heavy metal.