Minimally-Invasive Methods of Examining Biological Changes in Response to Chronic Stress

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Background

- Chronic stress = repeated or constant exposure to psychological stressors
- Chronic stress can lead to negative health outcomes (physical and mental)
- Process occurs through behavioral pathways (sleep, diet) as well as underlying changes to key biological processes
  - Hypothalamic-pituitary-adrenal (HPA) axis
  - Immune & inflammatory pathways
  - Neuroplasticity
- Minimally invasive measures can be collected outside of the clinical setting with a low risk of mortality or complications
  - May increase ease of use in the field vs. research lab setting
- Current study is a scoping with a low risk of mortality or complications
- Minimally invasive measures can be measured using minimally-invasive methods

Methods

- Followed guidelines established in the Joanna Briggs Institute Manual
- Literature search of PubMed, PsycINFO, and Scopus (through 2016)
- Covidence online tool used for title/abstract and full text screens
- Data extracted using standardized extraction tool
- Compiled into single spreadsheet
- Coded for relevant findings

Results

HPA axis markers (e.g. cortisol), inflammatory markers (e.g. cytokines), and neuropeptides (e.g. BDNF) have been recommended as biological Common Data Elements to the National Institute of Nursing Research at NIH.

All three can be impacted by exposure to chronic stress and can be measured using minimally-invasive methods, providing opportunities for nurse researchers to study “difficult to reach” populations in community settings.

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