

Interleukin-6 levels are associated with sleep quality in young females
Grecia Rodriguez*, Francisca Freire, Emely Diaz, Trinidad Arguelles, PhD, and Manuel D. Arana Rosainz, M.D., Ph.D. Miami Dade College West Campus, Miami, FL

Abstract

Obesity and overweight have been associated with sleep restriction and sleep quality in previous studies. However, mechanisms through which sleep loss or poor sleep quality influence weight gain remain unknown. The aim of this study is to determine the association of levels of inflammatory markers and stress-response hormones with sleep restriction, poor sleep quality, and body weight in young adults. Thirty-one female participants between the ages of 18 and 35 were included. Participants completed the PSQI questionnaire that explores sleep quality and self-reported their average sleep hours during the previous month. Saliva samples were obtained to measure interleukin-6 (IL-6), cortisol, leptin, and β -estradiol levels by using specific ELISA assays. The group of participants with BMI ≥ 25 that self-reported chronic sleep restriction had significantly higher PSQI scores (poor sleepers). Poor sleep was more frequently present in overweight and obese young female students. Individuals with detectable saliva IL-6 levels had significantly higher PSQI scores. Leptin levels were lower for participants with detectable IL-6 levels. Cortisol levels were higher in poor sleepers in comparison with good sleepers. These results suggest a link of poor sleep quality with low-grade inflammation and stress response stimulation. Further research is required to define a possible role in weight gain of deregulated inflammation and stress-related pathways for poor sleepers.