

The psychophysiology of positive psychology

Results:

Well-being was associated with attachment style: securely attached people exhibited better well-being. However neither well-being nor attachment style were associated with the cortisol awakening response (CAR), the cortisol diurnal decline or mean levels of cortisol across the day in a population of healthy young females. These findings led us to explore age-related effects using hair measures of cortisol.

Hair cortisol (HC) provides a retrospective trait measure of cortisol secretion. Again there was no association between HC and well-being in young healthy females. The older females had higher HC than the healthy young, which is interpreted as a consequence of aging. Surprisingly we found that older females with higher HC had higher levels of well-being. This finding suggests that cortisol acts as an ‘energiser’ in healthy older females. Together these results question the validity of cortisol as a useful biomarker in the healthy young. It also provides evidence for the neurotoxicity hypothesis of cortisol secretion: well-being did not relate to cortisol secretion in early adulthood with effects emerging in late adulthood.

A subsidiary methodological finding from the study was that previously considered ‘safe’ saliva sampling delays of around 8 min between awakening and the start of sampling resulted in erroneous over-estimated CAR magnitude and earlier CAR peak timing. Five min saliva sampling in the post-awakening period suggested this was a consequence of a 10 min time lag between awakening and the start of the cortisol rise (previously considered to be linear). In contrast, non-adherence 3-12 hours post-awakening did not impact on diurnal cortisol measures. This can usefully inform future CAR studies.

Peer-reviewed papers:

Smyth, N., Clow, A., Thorn, L., Hucklebridge, F., & Evans, P. (2013). Delays of 5-15min between awakening and the start of saliva sampling matter in assessment of the cortisol awakening response. *Psychoneuroendocrinology*, 38(9), 1476-1483.

Smyth, N., Hucklebridge, F., Thorn, L., Evans, P., & Clow, A. (2013). Salivary cortisol as a biomarker in social science research. *Social and Personality Psychology Compass*, 7(9), 605-625.

Area(s) of interest:

Psychophysiology

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