

# Covariation in Salivary Cortisol and IL-6

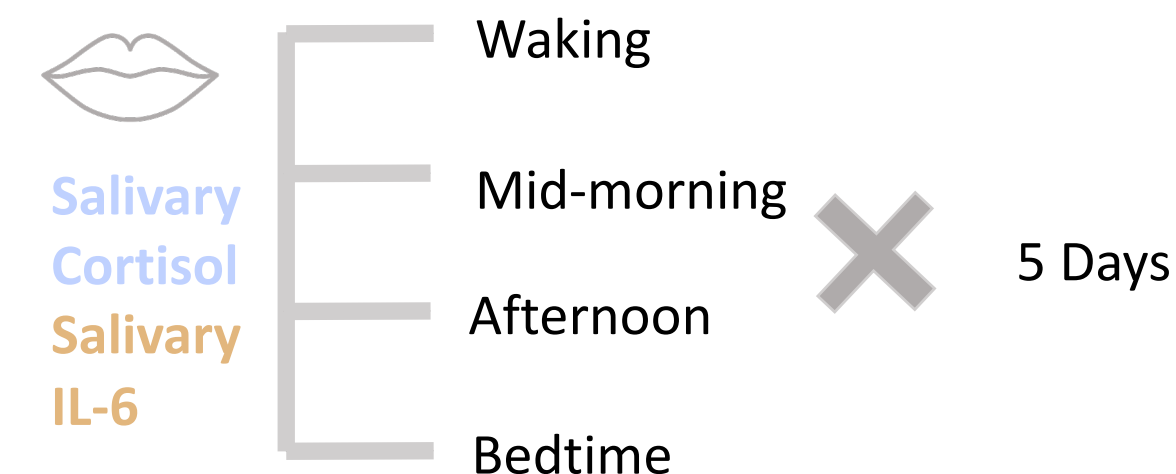
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## Background

- Experimental stress paradigms suggest a negative association between salivary cortisol and IL-6.
- Their associations in daily life are likely more complex.
- The current analysis used repeated measures of cortisol and IL-6 to explore their associations by both sex and time in daily life.

## Methods

24 men and 24 women provided 20 saliva samples that were analyzed using ELISAs.

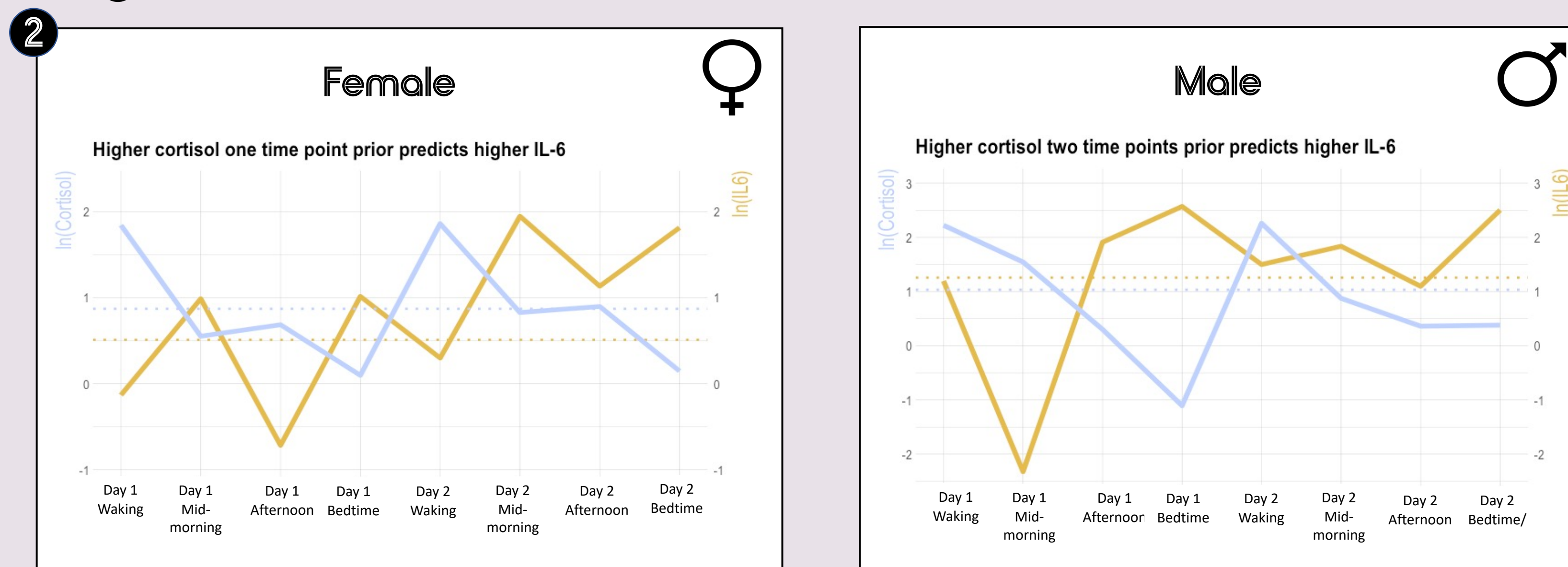


## Data Analysis

Multilevel models that accounted for repeated days within person and controlled for age and BMI tested the following questions:

- 1 Between people, do overall levels of cortisol predict overall levels of IL-6?
- 2 Within person, are there concurrent or lagged associations between cortisol and IL-6?

# Within people, higher cortisol at previous time points, compared to their average, predicts higher IL-6 in women and men but effects vary by lag.



Graphs above depict trends in cortisol and IL-6 within one person across the first two sampling days and represent the lagged effect of cortisol on IL-6. In females, cortisol at the previous time point was positively associated with IL-6 at the following time point ( $\gamma=0.42$ ,  $p=0.009$ ), and in males, cortisol at two previous time points was positively associated with IL-6 ( $\gamma=0.41$ ,  $p=0.015$ ). The dashed lines represent the average within person cortisol and IL-6 levels across the sampling period.

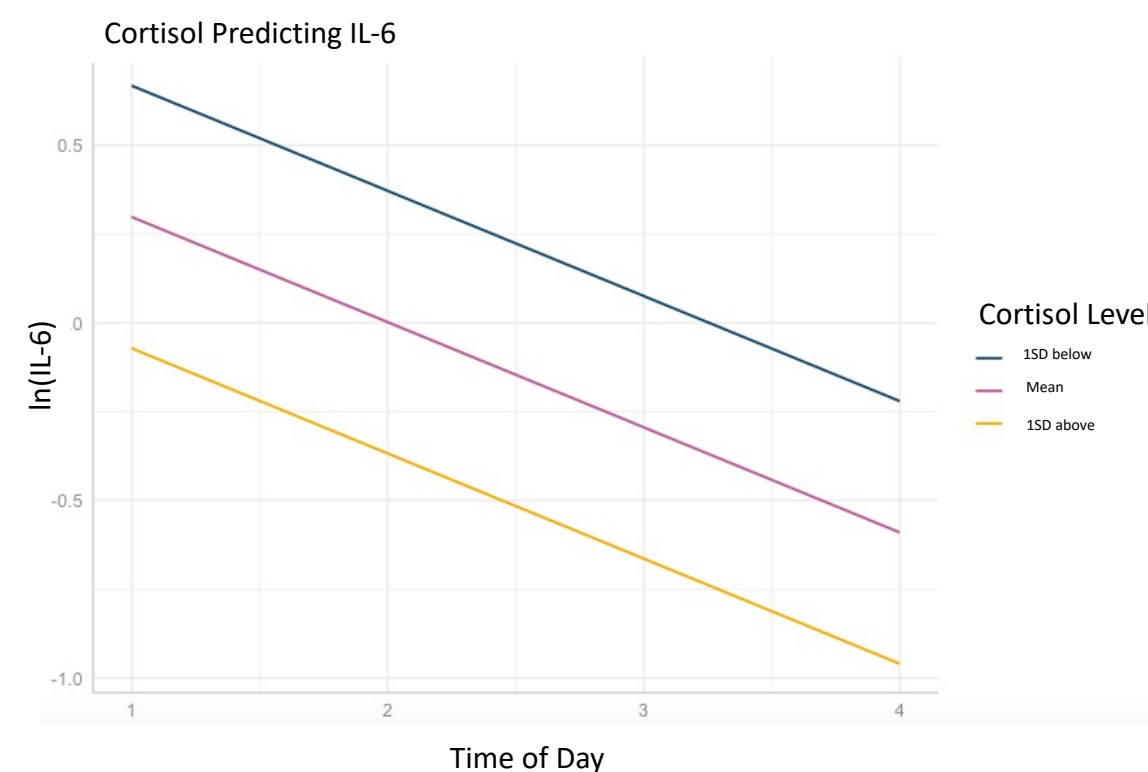
## Results

	Female	Male
Age (mean)	34.88	36.79
BMI (mean)	23.23	24.71
Cortisol Intercept (nmol/L, ln)	2.00	2.04
Cortisol Slope	-0.16	-0.13
Cortisol Grand Mean (nmol/L, ln)	1.07	1.23
IL-6 Intercept (pg/mL, ln)	0.66	0.70
IL-6 Slope	-0.33	-0.33
IL-6 Grand Mean (pg/mL, ln)	-0.16	-0.23

Sample descriptives for females and males. Slopes and intercepts are fixed effects estimates from growth curve models.

### 1

The graph to the right depicts a non-significant negative association between cortisol levels, with respect to the grand mean, and overall levels of IL-6 in women ( $\gamma=-1.30$ ,  $p=0.073$ ). Men also demonstrated an overall negative trend that was not significant ( $\gamma=-.05$ ,  $p=0.255$ ).



## Highlights

- The association between cortisol and IL-6 at the between person level may be negative.
- Within person associations indicate that when probing time points within people, there are positive associations that may differ by sex.
- Replication in larger studies is needed to better understand this relationship.

