Corrigendum

Genetic Influences on Hormonal Markers of Chronic HPA Function in Human Hair – CORRIGENDUM

E. M. Tucker-Drob et al.

Key words: Cortisol, gene–age interaction, hair hormones, hypothalamic–pituitary–adrenal axis, quantitative genetics.

In the above article (Tucker-Drob et al. (2017) the authors mistakenly reported 90% in place of 95% confidence intervals. The article has been corrected below to report 95% confidence intervals in Table 1, Table 3, and Table S1 of the online supplement. In addition, Figure 1 of the article has been updated so that the gray bands reflect 95% confidence intervals. All parameter estimates and p values originally reported are correct. All inferences and conclusions are therefore unchanged.

Table 1. *Descriptive statistics, phenotypic correlations, and cross-twin correlations*

	Males		Females		
Means (+/−1 SD range)					
cortisol (pg/mg)	3.39 (1.08, 10.69)		2.95 (0.92, 9.44)		
cortisone (pg/mg)	6.50 (2.28, 12.90)		5.21 (1.42, 11.40)		
Age (years)	12.08 (9.44, 14.72)		12.65 (9.80, 15.48)		
Phenotypic Correlations (95% CI's)					
cortisol-cortisone	.54 (.42, .67)		.57 (.46, .67)		
SES-cortisol	.02 (−.11, .16)		.04 (−.06, .13)		
SES-cortisone	−.06 (−.17, .04)		.00 (−.09, .10)		
age-cortisol	.01 (−.07, .09)		.23 (.14, .32)		
age-cortisone	.06 (−.03, .15)		.30 (.22, .37)		
Cross-Twin Correlations (95% CI's)					
	MZ	DZ	MZ	DZ	DZ Opposite-Sex
cortisol-cortisol	.74 (.51, .97)	.53 (.31, .76)	.58 (.41, .76)	.34 (.14, .54)	.26 (.10, .43)
cortisone-cortisone	.56 (.37, .75)	.47 (.30, .65)	.49 (.33, .66)	.36 (.17, .56)	.22 (.01, .43)
cortisol-cortisone	.44 (.25, .63)	.21 (.03, .39)	.22 (.08, .36)	.32 (.17, .48)	.06 (−.08, .19)

Note. Sample means and +/-1 SD range were computed after cortisol and cortisone were square root and log transformed, respectively, and winsorized. We then exponentiated (cortisol) or squared (cortisone) the calculated values in order to return them to their original metric. Cross-twin and phenotypic correlations were estimated from models that controlled for sex-specific linear effects of age. For cross-twin and phenotypic correlations cortisone and cortisol were square root and log transformed, respectively, and winsorized.

Table 3. *Unstandardized Parameter Estimates from Sex, Age, and SES Moderation Models*

Parameter Variance in Cortisone	Preferred Sex Moderation Model			Preferred Age Moderation Model			Preferred SES Model (No Moderation)			Full SES Moderation		
	Estimate	(95% CI)	p-value	Estimate	(95% CI)	p-value	Estimate	(95% CI)	p-value	Estimate	(95% CI)	p-value
Main A effect (A_{CN0})	.68	(.46, .90)	< .001	.42	(.03, .80)	.04	.63	(.37, .88)	< .001	.70	(.52, .89)	< .001
$A \times$ Sex Interaction (A_{CN1})	−.05	(−.28, .17)	.64	–	–	–	–	–	–	–	–	–
$A \times$ Age Interaction (A_{CN1})	–	–	–	.03	(−.02, .09)	.25	–	–	–	–	–	–
$A \times$ SES Interaction (A_{CN1})	–	–	–	–	–	–	–	–	–	−.13	(−.26, .01)	.08
Main C effect (C_{CN0})	.35	(−.02, .71)	.06	.67	(.37, .97)	< .001	.41	(.10, .72)	.009	.26	(−.12, .64)	.17
$C \times$ Sex Interaction (C_{CN1})	.19	(−.03, .40)	.08	–	–	–	–	–	–	–	–	–
$C \times$ Age Interaction (C_{CN1})	–	–	–	−.05	(−.11, .02)	.14	–	–	–	–	–	–
$C \times$ SES Interaction (C_{CN1})	–	–	–	–	–	–	–	–	–	.12	(.02, .22)	.02
Main E effect (E_{CN0})	.64	(.56, .72)	< .001	.57	(.44, .71)	< .001	.63	(.54, .73)	< .001	.61	(.53, .69)	< .001
$E \times$ Sex Interaction (E_{CN1})	−.13	(−.27, .01)	.07	–	–	–	–	–	–	–	–	–
$E \times$ Age Interaction (E_{CN1})	–	–	–	.02	(−.01, .05)	.13	–	–	–	–	–	–
$E \times$ SES Interaction (E_{CN1})	–	–	–	–	–	–	–	–	–	.04	(−.04, .12)	.37
Main Sex effect	.63	(39, .87)	< .001	.62	(.38, .85)	< .001	.55	(.32, .79)	< .001	.56	(.32, .80)	< .001
Main Age effect	.08	(.06, .11)	< .001	.08	(.06, .11)	< .001	.08	(.05, .10)	< .001	.08	(.05, 10)	< .001
Age × Sex Interaction	−.06	(−.11, < −.01)	.04	−.06	(−.11, −.01)	.03	−.04	(−.09, .01)	.14	−.04	(−.09, .01)	.11
Main SES effect	–	–	–	–	–	–	−.01	(−.09, .07)	.84	−.01	(−.08, .08)	.92
Race (Hispanic)	.31	(.09, .53)	.01	.30	(.08, .52)	.01	.21	(−.01, .43)	.06	.21	(−.01, .44)	.06
Race (African American)	.33	(−.04, .71)	.08	.33	(−.05, .71)	.08	.26	(−.11, .64)	.17	.28	(−.10, .67)	.15
Race (Other)	.11	(−.12, .34)	.34	.10	(−.13, .33)	.40	.09	(−.13, .32)	.42	.10	(−.13, .32)	.40
Variance in Cortisol												
Main A effect (A_{C0})	.79	(.65, .94)	< .001	.79	(.44, 1.13)	< .001	.72	(.52, .92)	< .001	.75	(.63, .86)	< .001
$A \times$ Age Interaction (A_{C1})	–	–	–	−.02	(−.08, .04)	.49	–	–	–	–	–	–
$A \times$ SES Interaction (A_{C1})	–	–	–	–	–	–	–	–	–	−.03	(−.20, .14)	.77
Main C effect (C_{C0})	−.06	(−1.36, 1.24)	.93	.69	(.32, 1.06)	< .001	.32	(−.03, .66)	.07	.09	(−.24, .43)	.59
$C \times$ Age Interaction (C_{C1})	–	–	–	−.13	(−.17, −.08)	< .001	–	–	–	–	–	–
$C \times$ SES Interaction (C_{C1})	–	–	–	–	–	–	–	–	–	.24	(.08, .41)	.004
Main E effect (E_{C0})	.58	(.51, .66)	< .001	.69	(.54, .84)	< .001	.58	(.50, .66)	< .001	.57	(.50, .65)	< .001
$E \times$ Age Interaction (E_{C1})	–	–	–	−.02	(−.05, .01)	.16	–	–	–	–	–	–
$E \times$ SES Interaction (E_{C1})	–	–	–	–	–	–	–	–	–	−.02	(−.11, .07)	.66
Main Sex effect	.57	(.31, .83)	< .001	.54	(.29, .79)	< .001	.55	(.32, .79)	< .001	.54	(.28, .80)	< .001
Main Age effect	.05	(.02, .08)	< .001	.05	(.02, .08)	< .001	.05	(.02, .08)	.001	.05	(.02, .08)	< .001
Age × Sex Interaction	−.07	(−.11, −.02)	.009	−.06	(−.11, −.01)	.01	−.05	(−.10, −.01)	.02	−.05	(−.10, −.01)	.03
Main SES effect	–	–	–	–	–	–	.04	(−.04, .12)	.38	.02	(−.06, .10)	.58

Table 3 (*cont.*)

Parameter Variance in Cortisone	Preferred Sex Moderation Model			Preferred Age Moderation Model			Preferred SES Model (No Moderation)			Full SES Moderation		
	Estimate	*(95% CI)*	*p-value*	*Estimate*	*(95% CI)*	*p-value*	*Estimate*	*(95% CI)*	*p-value*	*Estimate*	*(95% CI)*	*p-value*
Race (Hispanic)	.02	(−.16, .20)	.83	.04	(−.15, .22)	.70	.02	(−.17, .20)	.86	.01	(−.17, .19)	.90
Race (African American)	.81	(.37, 1.26)	< .001	.83	(.40, 1.27)	< .001	.66	(.19, 1.13)	.01	.68	(.21, 1.16)	.01
Race (Other)	−.08	(−.33, .17)	.51	−.08	(-30, .15)	.50	−.10	(−.36, .15)	.43	−.09	(−.35, .17)	.50
Cortisone with Cortisol												
Main A Correlation (r_{a0})	.78	(.51, 1.04)	< .001	.74	(−.05, 1.52)	.07	.73	(.39, 1.07)	< .001	.65	(.40, .91)	< .001
r_A × Age Interaction (r_{a1})	–	–	–	< .01	(−.12, .13)	.96	–	–	–	–	–	–
r_A × SES Interaction (r_{a1})	–	–	–	–	–	–	–	–	–	−.03	(−.45, .39)	.89
Main C Correlation (r_{c0})	2.76	(−59.63, 65.11)	.93	.58	(.01, 1.15)	.05	.23	(−.81, 1.27)	.67	1.33	(−.24, 2.90)	.10
r_C × Age Interaction (r_{c1})	–	–	–	−.10	(−.31, .11)	.35	–	–	–	–	–	–
r_C × SES Interaction r_{c1}	–	–	–	–	–	–	–	–	–	−.99	(-2.40, .41)	.17
Main E Correlation (r_{e0})	.42	(.28, .56)	< .001	.19	(−.07, .44)	.15	.40	(.24, .56)	< .001	.41	(.26, .55)	< .001
r_E × Age Interaction (r_{e1})	–	–	–	.06	(.02, .10)	.001	–	–	–	–	–	–
r_E × SES Interaction (r_{e1})	–	–	–	–	–	–	–	–	–	< .01	(−.20, .19)	.99

Note. 95% CI = 95% confidence interval. p-value = two-tailed probability of Type-I error. A = additive genetic; C = shared environment; E = non-shared environment. Results are presented for preferred (based on model comparisons) age and sex moderation models. Results are presented for the preferred age, sex, and SES moderation models based on model comparisons. The preferred sex model allowed for moderation of only cortisone ACE estimates, while the preferred age moderation model estimated age moderation for cortisol, cortisone, and the ACE correlations. The preferred SES model did not allow for moderation by SES of any parameters; however, results are also provided for a model that allowed SES to moderate cortisol, cortisone, and the ACE correlations. Sex was effects coded (female = −.5, male = .5) such that the main effects parameters of A, C, and E represent population-mean effects (assuming an equal sex distribution in the population) and interaction effects of sex by A, C, and E represent the sex difference in the corresponding parameter value. Age was centered at 8 years of age to reflect the lowest observed integer value in the sample. Thus the main effects parameters of A, C, and E represent model-implied biometric effects at age 8 years, and interaction effects of age by A, C, and E represent the difference in the corresponding parameter value for each additional year of age.
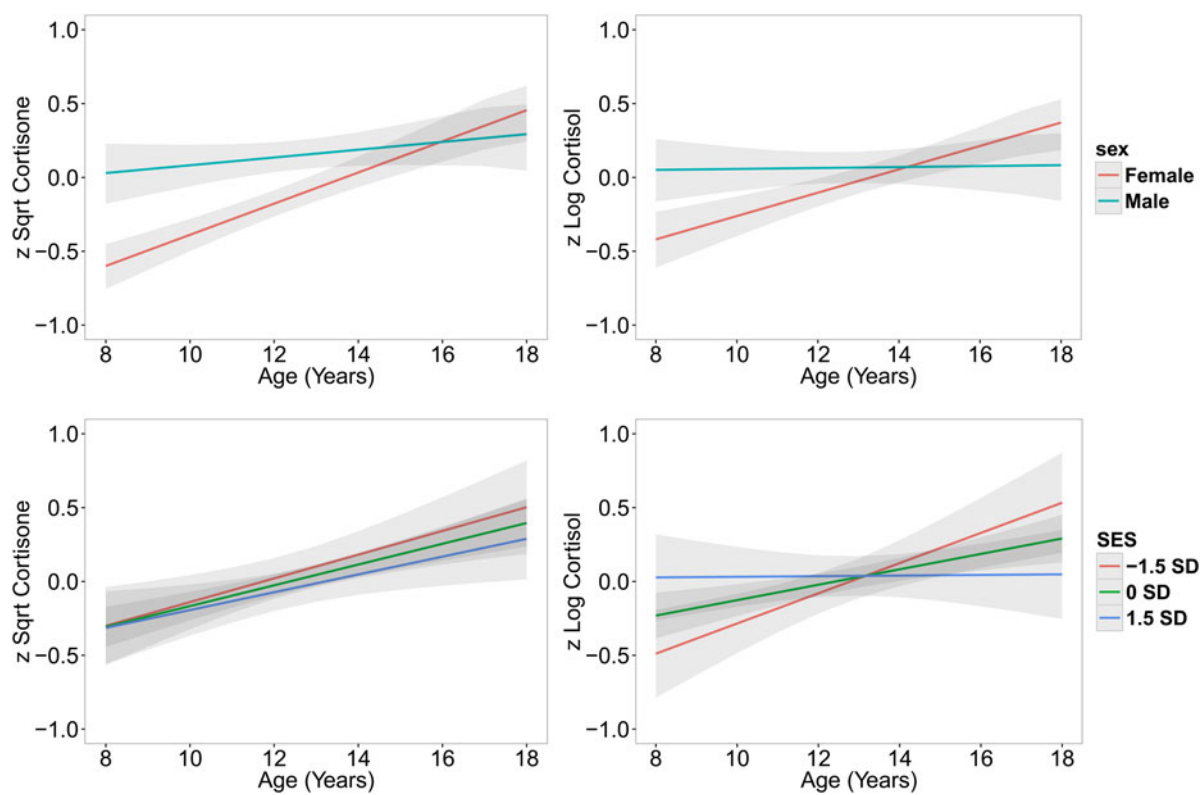
Fig. 1.

Supplementary Material

The supplementary material for this article can be found at https://doi.org/10.1017/S0033291717001325.

Reference

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