Supporting Information

Oxytocin amplifies evolutionary sex differences in human mate choice

Lei Xu, Benjamin Becker, Ruixue Luo, Xiaoxiao Zheng, Weihua Zhao, Qiong Zhang and Keith M. Kendrick[*]

The Clinical Hospital of Chengdu Brain Science, MOE Key Laboratory for NeuroInformation, University of Electronic Science and Technology of China, Chengdu 611731, China.

A separate analysis of face attractiveness and likeability ratings revealed similar findings to those reported in the main paper using the two combined. In placebo control group, (marginal) type x sex interactions were found for face attractiveness ($F(1,76) = 3.873$, $p = 0.053$, $\eta^2_p = 0.048$) and likeability ratings ($F(1,76) = 4.786$, $p = 0.032$, $\eta^2_p = 0.059$). Post-hoc comparisons showed that women give higher face attraction ($p = 0.071$, $d = 0.136$) and likeability ($p = 0.001$, $d = 0.366$) rating scores to men who showed emotional fidelity or infidelity than those who showed sexual fidelity or infidelity. For oxytocin effects, significant fidelity x treatment x sex interactions were found for both face attractiveness ($F(1,152) = 8.244$, $p = 0.005$, $\eta^2_p = 0.051$) and likeability ratings ($F(1,152) = 6.021$, $p = 0.015$, $\eta^2_p = 0.038$). Post-hoc comparisons showed that in men oxytocin increased both face attraction ($p = 0.032$, $d = 0.455$) and likeability of previously unfaithful women ($p = 0.016$, $d = 0.511$), while in women oxytocin decreased attractiveness ($p = 0.016$, $d = 0.529$) but not likeability ($p = 0.183$) of previously unfaithful men (see Fig. S1). There were no significant oxytocin effects on face attractiveness or likeability of previously faithful men and women (all $ps > 0.458$).

Repeated-measures ANOVAs on the percentage of "yes/maybe" responses for mate choice reveals similar finding to those reported in the main paper using interest index. In placebo control group, there was a significant fidelity x sex interaction on mate choice for a short-term relationship ($F(1,76) = 10.621$, $p = 0.002$, $\eta^2_p = 0.123$, see Fig. 2). For the effect of oxytocin there was a significant fidelity x type x treatment x sex x relationship status interaction ($F(1,152) = 4.398$, $p = 0.038$, $\eta^2_p = 0.028$) in short-term relationship preference and a significant fidelity x treatment x sex x relationship status interaction ($F(1,152) = 4.811$, $p = 0.030$, $\eta^2_p = 0.031$) in long-term relationship preference were found (see Fig. S2).

Repeated-measures ANOVAs added menstrual cycle as a between-subjects factor in female subjects suggested that the stage of their menstrual cycle did not influence our findings. There were no significant interactions related to menstrual cycle for mate choice, memory and rating scores in the placebo group (all $ps > 0.089$). For the effects of oxytocin there were also no significant interactions involving menstrual cycle, treatment and fidelity for either mate choice or rating scores or recognition memory accuracy (all $ps > 0.128$).
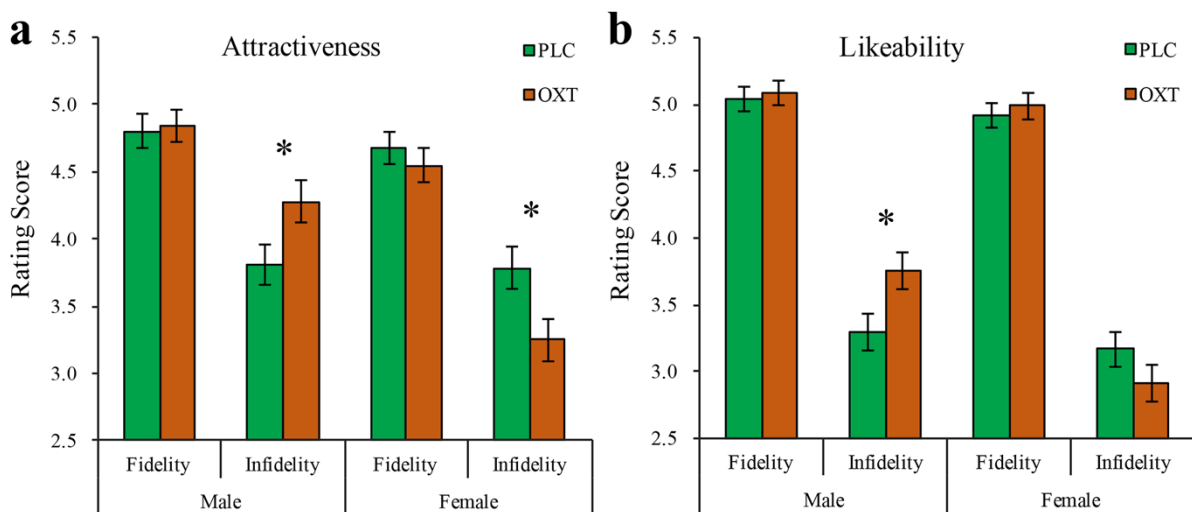
Fig. S1. Effects of oxytocin (OXT) on attractiveness (**a**) and likeability (**b**) for faces of the opposite sex associated with previous fidelity or infidelity in all male and female subjects. Bars represent means and standard errors. *$p < 0.05$ OXT vs. placebo (PLC).
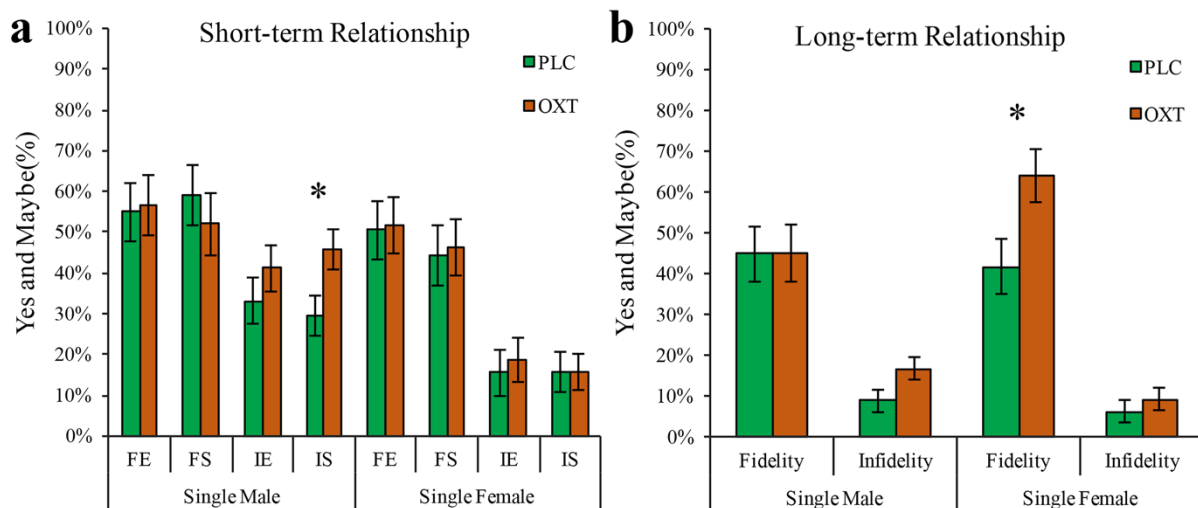

Fig. S2. Effect of oxytocin (OXT) on percentage of yes/maybe responses in single male and female subjects for having a short-term (**a**) or long-term relationship (**b**) with an individual of the opposite sex associated with previous (emotional or sexual) fidelity or infidelity (FE = emotional fidelity; FS = sexual fidelity; IE = emotional infidelity; IS = sexual infidelity). Bars represent means and standard errors. *$p < 0.05$ OXT vs. placebo (PLC).

Table S1. Ages and questionnaire scores in the four experimental groups (mean±S.E.M.)

Measurements	Placebo		Oxytocin		Sex x Treatment
	Male	Female	Male	Female	p-value
Age(years)	23.0±0.3	22.8±0.3	22.9±0.3	22.7±0.3	0.905
Beck Depression Inventory (BDI-II)	8.2±0.8	7.9±1.2	8.9±1.2	7.2±0.9	0.516
Autism Spectrum Quotient (ASQ)	20.1±0.7	20.7±0.9	20.9±0.6	19.7±0.8	0.221
General Trust Scale (GTS)	32.0±0.5	31.6±0.6	31.1±0.6	31.8±0.7	0.380
Tendency to Forgive Scale (TFS)	32.8±0.9	32.5±0.9	32.2±0.8	30.9±1.0	0.585
Trait Forgivingness Scale (TTF)	14.4±0.5	14.3±0.5	14.1±0.6	13.9±0.7	0.896
Attitudes toward Forgiveness Scale (ATF)	28.6±0.6	27.9±0.7	27.4±0.6	26.5±0.7	0.895
Passionate Love Scale (PLS)	103.1±2.4	99.0±2.3	97.9±2.0	96.7±2.5	0.531

Self-Esteem Scale (SES)	30.5±0.7	31.3±0.6	30.5±0.6	30.8±0.8	0.755
Interpersonal Reactivity Index (IRI)	50.3±1.6	51.9±1.5	45.8±1.4	50.8±1.6	0.256
Positive and Negative Affective Scale (PANAS) -Positive	31.5±0.8	29.2±0.9	28.9±0.9	28.5±1.0	0.285
Positive and Negative Affective Scale (PANAS) -Negative	21.6±1.3	18.1±1.1	19.3±1.1	18.0±1.0	0.337
Liebowitz's Social Anxiety Scale (LSAS)-Avoid	20.9±1.9	19.1±1.8	20.7±1.4	21.5±1.9	0.476
Liebowitz's Social Anxiety Scale (LSAS)-Fear	24.3±2.0	21.6±1.6	22.6±1.5	25.3±2.1	0.143
NEO-Five Factor Inventory-Agreeableness	42.3±0.7	41.4±0.6	40.6±0.6	40.9±0.8	0.355
NEO-Five Factor Inventory-Conscientiousness	42.5±0.8	41.7±0.7	41.4±0.8	42.3±0.8	0.252
NEO-Five Factor Inventory-Extraversion	41.1±0.8	38.8±1.0	40.0±1.0	40.8±0.8	0.090
NEO-Five Factor Inventory-Neuroticism	34.2±1.3	34.5±1.1	34.4±1.1	34.1±1.2	0.770
NEO-Five Factor Inventory-Openness	40.4±0.7	38.2±0.9	39.9±0.8	39.3±0.8	0.326
Love Attitude Scale (LAS)-Agape	26.9±0.6	22.0±0.5	25.3±0.6	20.8±0.5	0.781
Love Attitude Scale (LAS)-Eros	24.0±0.5	23.5±0.5	23.5±0.6	23.6±0.6	0.633
Love Attitude Scale (LAS)-Ludus	19.4±0.7	19.0±0.6	19.8±0.5	18.9±0.5	0.683
Love Attitude Scale (LAS)-Mania	21.3±0.7	19.7±0.7	21.1±0.6	19.9±0.7	0.734
Love Attitude Scale (LAS)-Pragma	22.6±0.7	23.1±0.6	20.9±0.7	23.0±0.6	0.207
Love Attitude Scale (LAS)-Storge	22.9±0.8	21.5±0.7	21.3±0.8	21.7±0.8	0.243

Table S2. Examples of sentences describing sexual and emotional fidelity or infidelity

Type	Sentence Examples
Emotional Fidelity	He/She always ignored other women/men who tried to flirt with him/her. He/She always refused to go out on a date with other women/men.
Sexual Fidelity	He/She threw wine on his/her female/male client's face when she/he tried to seduce him/her. He/She refused to have sex with his/her boss even though that would have resulted in gaining a promotion.
Emotional Infidelity	He/She expressed his/her love to another woman/man without his/her girlfriend/boyfriend knowing. He/She sent many romantic text messages to another woman/man.
Sexual Infidelity	He/She had sex with girlfriend's/boyfriend's best friend. He/She gave another woman/man oral sex.