frontiers in
PSYCHOLOGY

ORIGINAL RESEARCH ARTICLE
published: 13 October 2011
doi: 10.3389/fpsyg.2011.00258

The impact of oxytocin administration on charitable donating is moderated by experiences of parental love-withdrawal

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Oxytocin has been implicated in a variety of prosocial processes but most of this work has used laboratory tasks (such as the ultimatum game or the dictator game) to evaluate oxytocin's prosocial effects. In a double blind randomized trial we examined the influence of intranasal administration of oxytocin on real, high-cost donating money to a charity without any expectation for reciprocation. Participants in the current study were 57 female undergraduate students, aged 18–30 years, who received a nasal spray containing either 24 IU of oxytocin or a placebo, and were then given the opportunity to make a charitable donation. The participants reported how often their parents used love-withdrawal as a disciplinary strategy involving withholding love and affection after a failure or misbehavior. Oxytocin appeared to increase the participants' willingness to donate money to a charity but only in participants who experienced low levels of parental love-withdrawal. In contrast, oxytocin administration was ineffective in enhancing donating behavior in individuals who experienced high levels of parental love-withdrawal. We conclude that the positive effect of oxytocin administration on prosocial behavior may be limited to individuals with supportive backgrounds.

Keywords: oxytocin, donation, UNICEF, love-withdrawal, intranasal administration

INTRODUCTION

Oxytocin has been implicated in a variety of prosocial processes but most of this work has used social dilemma type tasks to evaluate oxytocin's prosocial effects (for a review, see Bartz et al., 2011). While these tasks offer a high degree of experimental control they might lack ecological validity. Furthermore, laboratory tasks (such as the ultimatum game or the dictator game) have a game-like dimension, in which empathic concern with the co-players is made difficult because they usually are anonymous or fictional. The first aim of the current study is to investigate the influence of oxytocin on real, high-cost donating to charity (UNICEF) without a game-like dimension. A number of studies found that oxytocin facilitates prosocial behavior (for a meta-analysis, see Van IJzendoorn and Bakermans-Kranenburg, in press), but individual differences in early caregiving experiences may moderate its positive effects (Bartz et al., 2011). The second aim of the study is thus to examine whether experiences of parental love-withdrawal moderate the oxytocin effects. Love-withdrawal is a disciplinary strategy that involves withholding love and affection when a child misbehaves or fails at a task. Parental use of love-withdrawal has been associated with low self-esteem and low emotional well-being, which may hamper empathic concern and donating behavior. To our knowledge this is the first randomized trial examining the influence of intranasal administration of oxytocin on donating money to a charity that takes participants' experiences of parental discipline into account as a potential moderator.

In previous studies on donating behavior in singletons and twins we found that differences in donating were partly determined by situational determinants and by shared environment but genetic influences seemed to be absent (Van IJzendoorn et al., 2010a). Further exploring the neurobiological underpinnings of charitable donating we test here whether oxytocin administration affects the amount of money participants are willing to donate to a charity as oxytocin has been found to enhance emotional empathy for other individuals' distress (Hurlemann et al., 2010). Donating to a charity might be considered an example of altruistic, prosocial behavior. Altruism is giving up a value (a reward or benefit) with no expectation of any compensation or benefits (Van IJzendoorn et al., 2010a). If individuals donate from their hard-earned money to the cause of a well-known charity, e.g., UNICEF, that behavior is a phenotypical expression of underlying altruism (Barraza et al., 2011). If watching a video of a poor child triggers donating, this altruistic behavior may be taken to express empathic concern with the deprived child. From an evolutionary perspective one might argue that such altruistic behavior is in the end self-serving (for a discussion see De Waal and Suchak, 2010), but here we take donating as the behavioral manifestation of altruism for granted whatever the ultimate, evolutionary function of altruism might be.

The neuropeptide oxytocin has in the popular press been called the "love hormone" and researchers have increasingly been interested in studying the role of oxytocin in modulating feelings, attitudes, behavior, and neural responses. In particular its positive role in parenting (Feldman et al., 2007; Naber et al., 2010) and interpersonal trust (Baumgartner et al., 2008; Theodoridou et al., 2009; De Dreu et al., 2010; Declerck et al., 2010) has been documented. In addition, some studies have related oxytocin to empathy (Rodrigues et al., 2009; Hurlemann et al., 2010; Riem et al., 2011; but see Singer et al., 2008). A recent meta-analysis of experiments with intranasal administration of oxytocin showed positive effects of oxytocin on the recognition of facial expressions of emotions. Moreover, oxytocin administration elevated the level of trust in members of the in-group (Van IJzendoorn and Bakermans-Kranenburg, in press).

With respect to members of the out-group, results are more mixed. De Dreu et al. (2010) suggested that oxytocin drives a "tend and defend" response promoting in-group trust and cooperation, but at the same time enhancing defensive aggression toward competing out-groups. Meta-analytic data however did not support the hypothesis of lower out-group trust after oxytocin administration (Van IJzendoorn and Bakermans-Kranenburg, in press; see also Chen et al., 2011). Pertinent to our current study, a fMRI experiment examining neural responses to infant crying (Riem et al., 2011) showed that oxytocin administration reduced activation in the neural circuitry for anxiety and aversion (amygdala), and increased activation in regions involved in empathy (insula and inferior frontal gyrus). Since the infant crying sounds were taken from baby's unknown to the participants, the results suggest that oxytocin may increase empathy for unknown children in need of help. Similarly, oxytocin administration has been shown to increase donations to a charity among male students (Barraza et al., 2011).

At the same time, oxytocin might not be the panacea promoting love, trust, and prosocial behavior for all people but its effects may instead be moderated by situational as well as personal characteristics (Bartz et al., 2010a, 2011). Individuals were found to be more willing to maintain involved in a social-interactive computer game after oxytocin administration, unless they were confronted with a manipulation that made them feel rejected (Alvares et al., 2010). Bartz et al., 2010b; see also Bartz et al., in press) found that effects of oxytocin administration were moderated by participants' attachment representations. Less anxiously attached individuals remembered their mother as more caring and close after oxytocin (versus placebo) but more anxiously attached individuals remembered their mother as less caring after oxytocin (versus placebo).

From previous attachment research we know that parental love-withdrawal is one of the components of insensitive parenting leading to insecure attachments (Bowlby, 1973; Van IJzendoorn, 1997). The effect of oxytocin on prosocial tendencies may thus be affected by experiences with parents, in particular by parental sensitive responsiveness or rejection (Van IJzendoorn, 1997) and dimensions of parental discipline (Van der Mark et al., 2002). Love-withdrawal is a parental disciplinary strategy that involves withholding love and affection when a child misbehaves or fails at a task. When used excessively, it is considered psychological maltreatment (Euser et al., 2010). By using love-withdrawal the parent communicates to the child that his or her love is conditional upon the child's performance. It is a very effective means to force the child to comply with parental wishes, as is the use of psychological maltreatment (Assor et al., 2004; Elliot and Thrash, 2004). The emotional costs may however be high. Parental use of love-withdrawal has been associated with high concern over mistakes, low emotional well-being, and feelings of rejection and resentment toward the parents (Goldstein and Heaven, 2000; Assor et al., 2004; Elliot and Thrash, 2004; Renk et al., 2006). These feelings may hinder empathic concern for others in distress, and thus lead to lower levels of altruistic behavior (Koenig et al., 2004).

Because (prosocial) effects of oxytocin may be altered or hindered by the social and emotional characteristics of the individual (Bartz et al., 2011), particularly by experiences of rejection, we expect that oxytocin administration may elevate the level of donating to a charity in individuals with few or no experiences of parental love-withdrawal, but may show no effect for participants who experienced high levels of parental love-withdrawal. As suggested above experiences of parental love-withdrawal may result in lower emotional well-being and feelings of rejection and parental resentment (e.g., Assor et al., 2004), and in elevated levels of concern over mistakes or anxiety in performance situations (e.g., Elliot and Thrash, 2004; Soenens et al., 2005). We controlled for these variables as our main focus is the influence of oxytocin administration on charitable donating potentially moderated by parental love-withdrawal.

MATERIALS AND METHODS

PARTICIPANTS

Participants in the current study were 59 female undergraduate students, aged 18–30 years ($M = 20.5$, $SD = 2.89$). The donating task was the last part of a series of experiments involving EEG/ERP assessments (EEG/ERP results are reported elsewhere Huffmeijer et al., 2011). Two subjects did not complete the donating task (because they did not participate in the second session, in which donating took place), resulting in an effective sample of 57 participants. Exclusion criteria included colorblindness (because colored stimuli were presented during EEG recording), smoking, alcohol and drug abuse, neurological and psychiatric disorders, pregnancy, breastfeeding, and use of medication (except oral contraceptives). The study was approved by the ethical committee of the Leiden University Medical Center, and each participant provided informed consent.

PROCEDURE

Questionnaires on parental use of love-withdrawal and concern over mistakes were administered to 391 18- to 30-year-old female students. Within this large, non-clinical sample, the distribution of scores on this questionnaire was skewed toward the right, indicating that in this pool of students high maternal love-withdrawal was (relatively) underrepresented. To ensure coverage of the full range of scores on love-withdrawal for the current study, half of the participants were selected randomly from the group scoring in the upper quartile of the questionnaire, and half of the participants were selected randomly from the group scoring in the other three

quartiles. The participants were asked to come to our laboratory for two experimental sessions (1 month apart, starting between 12 a.m. and 3 p.m.) that included, among other assessments, an ERP experiment (Huffmeijer et al., 2011). Here we report on the second session, which ended with the donating task. Participants were instructed to abstain from alcohol and excessive physical activity during the 24-h before the start of each session, and from caffeine on the day the session took place. To minimize influences of diurnal variations in oxytocin levels, all sessions took place in the afternoon (starting between 12.00 and 15.00).

Participants were told that they would receive oxytocin during one session and a placebo during the other, but that the order was not known even to the experimenter. The participants received nasal spray containing either 24 IU of oxytocin or a placebo (saline solution). All participants received both substances once in random order in a double blind experiment. Thus during the second session with the donating task a random half of the participants received oxytocin, and the other half the placebo in a between-subjects design. Participants were paid 50 Euros for participation after the ERP experiment of the second session, before they saw the videotaped call for donation to UNICEF. The compensation was standardized so that all participants were working with the same amount of money and the same denominations since this could affect their charitable donations. At the end of this session they were asked to guess whether during that session they had received oxytocin or placebo.

DONATING TO UNICEF

Participants were not informed beforehand that the donating task was part of the experiment. They were simply asked to "watch the video" while the experimenter "cleaned up in the other room." All doors were closed during the donating task, so the participant could not see the experimenter (the experimenter did not come back until the participant had made a donation or at least 1 min had passed after the end of the video). The experimenter could see the participant through a one-way mirror, but participants were not aware of this. The money box was covered (with a slit for the coins) and always contained five 1-Euro coins prior to the donating task (which the participants could hear when putting money in or shaking the box), so the experimenter could not directly see whether and how much the participant had donated. We did not ask the participants whether they thought donating was part of the experiment, but many expressed surprise when they were debriefed.

Donating behavior was measured by the amount of money the participant donated in response to a videotaped call for donation to UNICEF. After having received 50 Euros (one 20-Euro note, two 10-Euro notes, and ten 1-Euro coins) for their cooperation in our experiments, participants were left alone and shown a 2-min UNICEF promotional film of a child in a "resource-limited" country (Bangladesh) who desperately wanted to go to school but had to work in a stone pit instead. Immediately following the promo a text appeared on screen in which the participant was asked to donate money; and a money box had been positioned next to the video screen. The money box was filled with five 1-Euro coins in order to enhance credibility (see Van IJzendoorn et al., 2010a, for a similar task).

Thus, the donating task was standardized, without the presence of an experimenter, and with a fixed amount of money in a fixed number of notes and coins. The donating task used in the Barraza et al. (2011) study was similar in terms of participants donating their own money to a real charity but it differed in terms of the standard amount of money available, and in the choice between two different charities (Red Cross, and Red Crescent). Donated money was transferred to the UNICEF bank account after data collection.

PARENTAL LOVE-WITHDRAWAL

To measure parental use of love-withdrawal, the participants completed a questionnaire including 11 items. We used seven items from the Withdrawal of Relations subscale of the Children's Report of Parental Behavior Inventory. Two of the items were slightly adapted for a smooth translation (CRPBI; Schludermann and Schludermann, 1988; Beyers and Goossens, 2003). However, to obtain a more comprehensive measurement of parental love-withdrawal, we included four items from the Parental Discipline Questionnaire (PDQ; Patrick and Gibbs, 2007). See Section "Appendix" for the resulting Parental Love-Withdrawal Scale. Participants rated how well each of the 11 statements described their mother and father separately (e.g., "My mother is a person who, when I disappoint her, tells me how sad I make her") on a 5-point scale ranging from 1 (not at all) to 5 (very well). Scores for maternal and paternal love-withdrawal were summed, and the resulting scale was unidimensional in the larger sample and normally distributed in the selected subsample. Cronbach's alpha was 0.87 for the current sample. The scale has been successfully used in a study on ERP responses to facial expressions with performance feedback (Huffmeijer et al., 2011).

COVARIATE

Participants completed the 9-item Concern over Mistakes subscale of the Multidimensional Perfectionism Scale (Frost et al., 1990). Participants rated their agreement with nine statements (e.g., "People will probably think less of me when I make a mistake") on a 5-point scale ranging from 1 (completely disagree) to 5 (completely agree). Cronbach's alpha was 0.85 for the current sample.

RESULTS

DESCRIPTIVES

Forty-six participants donated some money (81%). The average amount of donated money was 2.89 Euros (SD = 2.86, range 0.00–15.00). The somewhat skewed distribution was transformed to normal using a square root transformation, showing no outliers ($z < 3.29$, Tabachnick and Fidell, 2001). Mean scores for love-withdrawal and for concern over mistakes were $M = 49.38$, SD = 12.49, and $M = 23.12$, SD = 6.28, respectively. Donating was not associated with love-withdrawal, $r(55) = -0.15$, $p = 0.28$, nor with concern over mistakes, $r(55) = 0.14$, $p = 0.30$. Concern over mistakes was related to love-withdrawal [$r\ (55) = 0.29$, $p = 0.03$], and therefore included in the analyses as a covariate. Age was not related to love-withdrawal, concern over mistakes, or donation.

EFFECTS OF OXYTOCIN AND LOVE-WITHDRAWAL

To test the effects of oxytocin versus placebo administration and parental love-withdrawal we conducted a hierarchical regression analysis with concern over mistakes in the first step, centered condition (oxytocin versus placebo) and centered love-withdrawal in the second step, and the interaction between condition and love-withdrawal in the third step. The model was significant, $F(4, 52) = 3.37$, $p = 0.016$, $R^2 = 0.21$. Main effects for condition ($\beta = -0.09$, $p = 0.47$), love-withdrawal ($\beta = -0.13$, $p = 0.34$), and concern over mistakes ($\beta = 0.20$, $p = 0.12$) were not significant. The interaction between condition and love-withdrawal was significant, $\beta = 0.39$, $p = 0.004$, $R^2_{\text{change}} = 0.14$. Results were similar when concern over mistakes was not included in the analysis [overall regression model $F(3, 53) = 3.57$, $p = 0.02$, interaction between condition and love-withdrawal $\beta = 0.38$, $p = 0.004$]. Although participants guessed their condition correctly somewhat more often than chance (*adjusted standardized residual* 2.7), including participants' guessing about the condition or the correctness of their guess, menstrual cycle, and use of oral contraceptives did not yield different results. Love-withdrawal was unrelated to participants' guess of their condition ($p = 0.93$) and the correctness of their guess ($p = 0.96$).

Including the interaction between condition and concern over mistakes in the third step of the regression did not lead to a significant contribution to the regression equation, $\beta = -0.07$, $p = 0.60$. To explore the interaction effect we distinguished a low love-withdrawal and a high love-withdrawal group using a median split. As expected, participants in the low love-withdrawal group donated significantly more in the oxytocin versus placebo condition ($p = 0.04$, effect size $r = 0.35$) whereas for participants reporting high love-withdrawal there was no significant difference in donation between the two conditions ($p = 0.23$, effect size $r = -0.25$), see **Figure 1**. Oxytocin significantly increased the donation, but only in the low love-withdrawal group. In fact, in the oxytocin condition participants who experienced low levels of love-withdrawal donated significantly more than all three other groups together ($p = 0.04$, effect size $r = 0.27$).

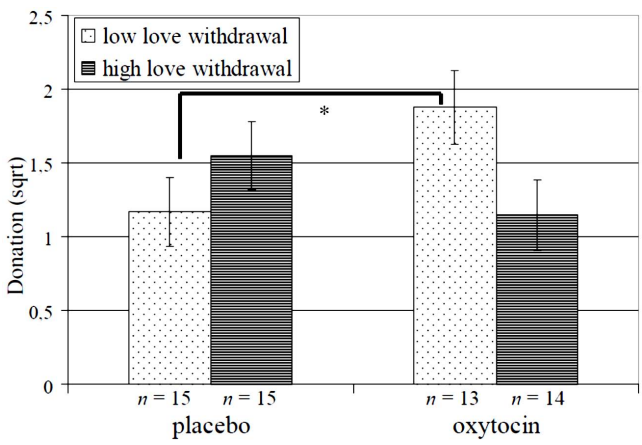

FIGURE 1 | Amount of money (square root) donated to UNICEF (*M*, SE) by participants reporting high versus low love-withdrawal in the oxytocin and placebo conditions.

DISCUSSION

We studied the influence of oxytocin on real, high-cost donating to charity without a game-like dimension with chances of reciprocation or compensation, and examined the moderating role of experienced parental love-withdrawal. Participants were asked to donate after they received money earned by participating in a time-consuming, somewhat monotonous task for measuring ERPs (Huffmeijer et al., 2011). Oxytocin increased the participants' donations to a charity after having watched a promotional video of a deprived child, but only when participants experienced low levels of parental love-withdrawal. There was no main effect of parental love-withdrawal on donating.

Our findings on the effects of oxytocin on donating in females add in various ways to a recent pioneering experiment with male participants. In male college students Barraza et al. (2011) found that infusion of 40 IU of oxytocin elevated the amount of donated money to a familiar charity (Red Cross) but not to an unfamiliar charity (Red Crescent). In this study no particular motivational stimulus such as a video-clip was used to trigger donating behavior. In our study we used a lower dose of oxytocin (24 IU), in line with most experimental studies on intranasal administration of oxytocin (Van IJzendoorn and Bakermans-Kranenburg, in press). Combined with a moving video-clip of a child suffering from poverty this lower dose appeared to be effective in enhancing donations. Importantly, our study involved females and thus contributes to filling a remarkable and unfortunate gap, given that the majority of research trials with oxytocin administration involve males (79%, MacDonald et al., 2011) and that results for males may not be generalizable to females (Bos et al., in press). Because of potential menstrual cycle influences oxytocin experiments are more difficult to conduct with female participants. Lastly, we examined the moderating role of caregiving experiences, i.e., experiences with parental love-withdrawal to test recent ideas about differential oxytocin effects depending on personal and situational characteristics. Consistent with prior work (Bartz et al., 2011, in press), we found that the prosocial effects of oxytocin were critically moderated by characteristics of the individual.

A picture emerges that suggests that oxytocin stimulates empathic, prosocial behavior, but not in every individual. Previous studies showed that exaggerated claims about oxytocin being an empathogenic love hormone should be qualified. Situational and personal factors might modulate the effects of oxytocin on perception and behavior (Bartz et al., 2010; Bartz et al., 2011, in press; De Dreu et al., 2010). We propose that oxytocin may facilitate prosocial behavior most effectively in participants with supportive backgrounds. Bartz et al. (2010) showed that individuals who feel anxious and rejected are more inclined to see past social relationships in a more negative light than usual after oxytocin administration, whereas subjects who feel secure perceive social relationships in an even more positive light after oxytocin administration.

Similarly, in a recent between-subjects randomized control study with another sample we used a hand dynamometer task

to assess the use of excessive force during listening to infant crying. Excessive force as assessed with the dynamometer is considered to be an index for heightened reactivity to negative (infant) stimuli. We demonstrated that individuals less often used excessive force in the oxytocin condition, but only when they experienced low levels of parental harsh discipline – no effect of oxytocin was found for individuals who were disciplined harshly (Bakermans-Kranenburg et al., in press). As Fries et al. (2005) argued severe neglect experienced by children growing up in orphanages may lead to central defects in peptide synthesis. In their study they observed dysregulated peripheral oxytocin levels in post-institutionalized children after physical contact with their adoptive mother. Control children had higher OT levels after physical interaction with their mothers (an oxytocin enhancing condition, Feldman et al., 2007) than early neglected children. In a similar way we speculate that intranasal oxytocin administration might have reduced impact on participants with love-withdrawal experiences (see also Meinlschmidt and Heim, 2007), even though these are obviously less extreme than the severe neglect experiences of children in orphanages.

The moderating effect of caregiving experiences might explain why we found that oxytocin administration elevated the level of donating to a charity only in individuals who did not feel rejected by their parents. It should be noted that the UNICEF video shows a child who is not part of the participants' in-group, for which oxytocin studies have shown the strongest trust-enhancing effects (Van IJzendoorn and Bakermans-Kranenburg, in press). De Dreu et al. (2011) and colleagues suggested that oxytocin-induced goodwill would be limited to one's in-group and not extended to out-groups. Our results, however, are not inconsistent with the hypothesis of increased goodwill also to out-groups (i.e., a group of unknown children reached via UNICEF) after oxytocin administration, but the effect of oxytocin is limited to participants with supportive backgrounds.

In an attempt to reconcile these findings we speculate that participants with supportive backgrounds may be inclined to consider a larger part of the world as their "in-group." Based on their positive social experiences they might have a generalized bias toward trusting other individuals, even if they do not know them personally. In future studies altruism, as evident from donating money, should be tested with a paradigm that creates opportunities for participants with experiences of love-withdrawal to identify with the deprived child asking for help as if it would belong to their in-group. Or, as an alternative, priming techniques might be used to enhance participants' feelings of security and acceptance (Mikulincer and Shaver, 2001). It may be tested whether participants become more generous in the oxytocin condition after such priming compared to the oxytocin administration without priming. This would elucidate the difference in the moderating role of personal state (priming of feelings of parental acceptance) versus trait characteristics (experiences with parental love-withdrawal).

We note the use of self-reported love-withdrawal experiences as a limitation of our study. We were however able to differentiate love-withdrawal from concern over mistakes so that love-withdrawal was not identical to high or low motivation to please the experimenter by donating a certain amount of money. In future studies real interactions around conflict tasks (Ditzen et al., 2009) with parents might be coded for episodes of love-withdrawal, or data from longitudinal studies with observations of parent–child interactions might be used as more informative on participants' experiences with parental care and discipline strategies.

Furthermore, in the current study participants guessed their condition (oxytocin versus placebo) correctly somewhat more often than chance. In our meta-analysis of experiments with oxytocin administration we did not find a significant combined Odds ratio for the chance that participants guessed the type of administration right (Van IJzendoorn and Bakermans-Kranenburg, in press). Type of placebo (saline versus carrier minus the neuropeptide) did not moderate the awareness outcomes, nor did design (between- versus within-subjects) make a difference. In some of the experiments a significant majority of participants guessed wrong, showing that in general it is rather difficult for participants to know whether they received oxytocin or placebo. Most importantly, taking into account participants' guess or the correctness of their guess did not change our results, and if anything, guessing correctly would likely work counter our expectations, i.e., if the popular schema for oxytocin is that it should increase prosocial behavior, then if there was a demand bias a main effect of oxytocin would be more plausible than an interaction.

Lastly, although our study is a randomized control trial it might not exclude the possibility that parents using high levels of love-withdrawal are genetically biased to lower oxytocin sensitivity (e.g., fewer oxytocin receptors) which they might have transmitted to their daughters who in their turn would be neurobiologically less susceptible to effects of oxytocin because of their inherited neurobiological make-up. In fact, this alternative interpretation might point to a possible mechanism not incompatible with the one provided by Fries et al. (2005) if we speculate that the transmission of lower oxytocin sensitivity would be the result of epigenetic processes (Van IJzendoorn et al., 2010b). Parental rejection might lead to elevated levels of methylation and thus suppress genetic expression, not only in genetic areas related to the glucocorticoid system (McGowan et al., 2009) or the serotonin system (Van IJzendoorn et al., 2010a) but also to the oxytocinergic system, which may in its turn lead to less receptiveness to intranasal oxytocin administration (Van IJzendoorn et al., in press).

Our findings support proposals that interventions with oxytocin aiming at empathic concern (pharmacotherapy) should be combined with psychosocial interventions (Guastella et al., 2009; Bartz et al., 2011; Van IJzendoorn and Bakermans-Kranenburg, in press) or directed at individuals susceptible to such interventions because of their past childhood experiences with loving parents. We conclude that oxytocin makes some individuals more generous, but the empathogenic effect seems limited to those who feel accepted by their parents because of who they are instead of what they do.

ACKNOWLEDGMENTS

Marian J. Bakermans-Kranenburg and Marinus H. van IJzendoorn were supported by research awards from the Netherlands Organization for Scientific Research (Marinus H. van IJzendoorn: NWO SPINOZA prize; Marian J. Bakermans-Kranenburg: VIDI grant no. 452-04-306; VICI grant no. 453-09-003).

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Received: 30 June 2011; accepted: 18 September 2011; published online: 13 October 2011.

Citation: van IJzendoorn MH, Huffmeijer R, Alink LRA, Bakermans-Kranenburg MJ and Tops M (2011) The impact of oxytocin administration on charitable donating is moderated by experiences of parental love-withdrawal. Front. Psychology ***2****:258. doi: 10.3389/fpsyg.2011.00258*

This article was submitted to Frontiers in Developmental Psychology, a specialty of Frontiers in Psychology.

APPENDIX

PARENTAL LOVE-WITHDRAWAL SCALE

Below are a number of statements about the way your parents act toward you. The 1 to 5 scale determines how well each statement describes your parent. Read the statements carefully, and circle a number between 1 (not at all well) and 5 (very well) for each statement. Be sure to mark each answer for each parent.

	This statement describes my *mother*	**1 (not at all well)**	**2**	**3**	**4 (very well)**	**5**
MY MOTHER IS A PERSON WHO						
1	Will not talk to me when I displease her.	1	2	3	4	5
2	When I disappoint her, tells me how sad I make her.	1	2	3	4	5
3	Sometimes when she disapproves, does not say anything, but is cold and distant for a while.	1	2	3	4	5
4	Is less friendly with me, if I do not see things her way.	1	2	3	4	5
5	When I displease her, tells me how little she feels for people who do that sort of thing.	1	2	3	4	5
6	Will avoid looking at me when I have disappointed her.	1	2	3	4	5
7	When she disapproves, ignores me for a while.	1	2	3	4	5
8	If I've hurt her feelings, stops talking to me until I please her again.	1	2	3	4	5
9	When I disappoint her, tells me how sad people who do that sort of thing make her.	1	2	3	4	5
10	When she disapproves, is distant for a while.	1	2	3	4	5
11	When I displease her, tells me how little she feels for me.	1	2	3	4	5
	This statement describes my *father*	**1 (not at all well)**	**2**	**3**	**4 (very well)**	**5**
MY FATHER IS A PERSON WHO						
1	Will not talk to me when I displease him.	1	2	3	4	5
2	When I disappoint him, tells me how sad I make him.	1	2	3	4	5
3	Sometimes when he disapproves, does not say anything, but is cold and distant for a while.	1	2	3	4	5
4	Is less friendly with me, if I do not see things his way.	1	2	3	4	5
5	When I displease him, tells me how little he feels for people who do that sort of thing.	1	2	3	4	5
6	Will avoid looking at me when I have disappointed him.	1	2	3	4	5
7	When he disapproves, ignores me for a while.	1	2	3	4	5
8	If I've hurt his feelings, stops talking to me until I please him again.	1	2	3	4	5
9	When I disappoint him, tells me how sad people who do that sort of thing make him.	1	2	3	4	5
10	When he disapproves, is distant for a while.	1	2	3	4	5
11	When I displease him, tells me how little he feels for me.	1	2	3	4	5

Items were adapted from the Children's Report of Parental Behavior Inventory (CRPBI; Schludermann and Schludermann, 1988; Beyers and Goossens, 2003), and the Parental Discipline Questionnaire (PDQ; Patrick and Gibbs, 2007).