Oxytocin influences taste placebo effects

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Introduction: Previous research showed that marketing actions such as branding or pricing can change the experienced utility (ExU) of an otherwise identically composed product (see Plassmann and Wager, 2014 for a review). Such effects do not only alter reported measures of ExU but also their neural signatures and related subsequent behaviors. This phenomenon has been coined “marketing placebo effects” (MPEs). Past studies revealed that the strength of the belief in the marketing action (Shiv et al. 2005), and also dispositional optimism (Geers et al., 2010) increased responsivity to placebo effects. This might be linked to studies showing that frequently used marketing cues, such as brands, high prices or organic labels, increased consumer trust in the product (Delgado-Ballester and Munuera-Alemán, 2001; Pivato et al., 2008). Oxytocin (OXT) is a hormone that has been linked to social behavior, trust, social attachment and stress relief (e.g., Ditzen et al., 2009; Kosfeld et al., 2005). Interestingly, a recent clinical study found that pain analgesia due to placebo treatments could be enhanced by the application of OXT (Kessner et al., 2013). The authors in this study argue that the effects may be driven by an increase in trust in the treating physician. Taken together, there is first evidence that OXT might play a role in placebo responses. However, it remains an open question whether these effects may generalize to other placebo-domains. In this research, we investigated whether OXT also increases MPE, that is, expectancy effects in the positive domain for every-day consumer decisions.

Methods: 113 male participants (mean age=22.8 years (SD=2.66)) were included in the study. Volunteers were randomly assigned in a double-blind procedure to either intranasal administration of OXT (Syntocinon Spray; Novartis, Basel, Switzerland) with a total dose of 24 IU, or PLC, a sodium chloride solution, that was used as sham spray. We presented three product samples across five categories in a random order and subjects tasted and rated the product’s taste pleasantness and intensity. Two of the product samples were identical, but presented with a different label (“marketing label”, “plain label”), the third one was a control product.

Results: First, independent of treatment, we found significant MPEs on taste pleasantness i.e., reported measures of ExU (F(1, 549)=36.1, p<0.001), and on taste intensity ratings (F(1, 549)=20.75, p<0.001). Second, the linear mixed effects regression analysis revealed that OXT increased MPE on taste pleasantness (F(1,113)=4.1, p=0.045), whereas it lowered expectancy effects on taste intensity ratings (F(1,113)=3.9, p=0.05). We did not observe a significant effect of OXT on taste ratings for the control products given only once (pleasantness: F(1,113)=0.94, p>0.25; intensity: F(1,113)=0.20, p>0.25).

Discussion: The study provides evidence that OXT more generally influences placebo effects across domains for everyday consumption decisions. In ongoing work, we are investigating whether these effects are mediated by trust in marketing actions and what role reward processing (and through it dopamine functioning) might play for these effects to occur.

A full reference list is omitted from this abstract due to space constraints.