Biology Underlying Social and Emotional Profiles

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Introduction

Moral elevation is a specific emotional state triggered by witnessing displays of profound compassion and virtue (Haidt, 2003). Previous work has shown that moral elevation can induce distinct physiological events (Piper, Saslow, & Saturn, 2015), as well as increase oxytocin in new mothers (Silvers & Haidt, 2008), an oxytocin-driven phenomenon. Oxytocin is a hormone and neurotransmitter that is pivotal to social bonds and parental care (Carter & Porges, 2013). Circulating levels of oxytocin directly relate an array of prosocial emotions (Keltner et al., 2014), including affective mother behaviors (Gordon, et al., 2016). In addition, naturally-occurring genetic variations of the oxytocin receptor are associated with individual differences in socioemotional sensitivity (Bakermans-Kranenburg & van IJzendoorn, 2008). More recently, it has been shown that epigenetic regulation of the oxytocin receptor is related to emotional profiles (Reiner et al., 2015) and neural activation to emotional stimuli (Puglia et al., 2015). Such epigenetic patterns may be due to the birthing process (Bell, Erickson, & Bakermans-Kranenburg, 2008) and maternal sensitivity (Bakermans-Kranenburg & van IJzendoorn, 2006). In addition, epigenetic changes in the oxytocin receptor have been linked to empathy and stress reactivity in humans (Rodrigues, Saslow, Garcia, John, & Keltner, 2009). Oxytocin receptor genetic variation relates rs53576 genotype.

Results – Preliminary study

Table 1. Pearson Correlations of physiological and emotional responses to moral elevation and various predictors.

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<tr>
<td>'How much did this video affect you physically?'</td>
<td>.207**</td>
<td>.039</td>
<td>.293**</td>
<td>.118</td>
<td>.023</td>
<td>.217**</td>
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<tr>
<td>'Eyes watering/tearing up'</td>
<td>.228*</td>
<td>.087</td>
<td>.254**</td>
<td>.045</td>
<td>.044</td>
<td>.283**</td>
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<tr>
<td>'Warm or expansive feelings in chest'</td>
<td>.264**</td>
<td>.065</td>
<td>.305**</td>
<td>.037</td>
<td>.031</td>
<td>.278**</td>
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<tr>
<td>'How much did this video affect you emotionally?'</td>
<td>.251**</td>
<td>.180*</td>
<td>.353**</td>
<td>.104</td>
<td>.033</td>
<td>.235**</td>
</tr>
<tr>
<td>'Optimistic about humanity'</td>
<td>.260**</td>
<td>.177*</td>
<td>.422**</td>
<td>.133</td>
<td>.032</td>
<td>.294**</td>
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<tr>
<td>'Wanted to help others'</td>
<td>.193*</td>
<td>.215**</td>
<td>.347**</td>
<td>.175*</td>
<td>.056</td>
<td>.314**</td>
</tr>
<tr>
<td>'More open and loving towards people in general'</td>
<td>.295*</td>
<td>.202**</td>
<td>.498**</td>
<td>.204**</td>
<td>.048</td>
<td>.356**</td>
</tr>
<tr>
<td>'More curious about the world'</td>
<td>.220**</td>
<td>.183*</td>
<td>.429**</td>
<td>.277**</td>
<td>-.030</td>
<td>.335**</td>
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</tbody>
</table>

*p<0.01; **p<0.001

Current Discoveries & Future Explorations

- Resilience (family cohesion), trust (honesty, risk, dependability, and faith), love, meaning in life, and post-traumatic growth are all predictors of physiological and emotional responses to moral elevation.
- To know whether or not oxytocin levels are increased after moral elevation.
- To provide evidence to support or negate that check cell activity is congruent with what is happening in the blood stream.
- To show a relationship between oxytocin release and vagal tone in the context of moral elevation.
- To show bio-behavioral synchrony between grandma, mom, and baby.
- To underscore the importance of considering different factors of resilience.

Acknowledgements

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Materials & Methods

**Part 1:** At-home survey: Grandmas and moms take survey on Qualtrics designed to capture their personality traits and life experiences.

**Part 2:** In lab portion: expected to take about 2 hours.

- Participants watch elevation (or control) video.
- Initial blood and saliva samples to study the relationships between oxytocin and the vagus nerve.

Analyze SNPs and methylation of the oxytocin receptor gene. Analyze physiological data. Analyze behavioral data.

Analyze second saliva and blood samples after inducing the state of elevation (or amusement control).

References