Patients with Schizophrenia & the Prosocial Effects of Oxytocin

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“To be kept in solitude is to be kept in pain, and put on the road to madness.”

E.O. Wilson
Schizophrenia

- **Devastating neurodevelopmental disorder**
  - Social, employment, and health costs

- **Symptoms**
  - Positive: hallucinations and delusions
  - Negative: flat affect, asociality, social withdrawal

- **Treatments:**
  - Ineffective for negative symptoms
Social Isolation is Bad for Your Health

Social Relationships: Overall findings from this meta-analysis
Social Relationships: High vs. low social support contrasted
Social Relationships: Complex measures of social integration
Smoking < 15 cigarettes daily
Smoking Cessation: Cease vs. Continue smoking among patients with CHD
Alcohol Consumption: Abstinence vs. Excessive drinking ( > 6 drinks/day)
Flu Vaccine: Pneumococcal vaccination in adults (for pneumonia mortality)
Cardiac Rehabilitation (exercise) for patients with CHD
Physical Activity (controlling for adiposity)
BMI: Lean vs. obese
Drug Treatment for Hypertension (vs. controls) in populations > 59 years
Air Pollution: Low vs. high
Oxytocin, a Natural Hormone
Oxytocin’s Prosocial Effects

- ↑ Recognition of emotion
- ↑ Face memory
- ↑ Eye contact
- ↑ Positive parenting behaviors
- ↑ Trust behavior
Oxytocin Increases Trust

N = 60, p ≤ .001

Mikolajczak et. al., Biological Psychology (2010)
Oxytocin improves symptoms

**PANSS Total**

**PANSS Negative**

![Graph showing PANSS Total and PANSS Negative scores over three weeks for Placebo and Oxytocin groups.](chart_image)
People who sniffed oxytocin had a decreased fear response in the amygdala.
Does intranasal oxytocin have prosocial effects in people with schizophrenia?

**Day 1**

40 IU Intranasal OT or Placebo

Testing

**Day 7**

CROSSOVER

40 IU Intranasal OT or Placebo

Testing
Pick the most accurate adjective that describes the emotion displayed in the eye region of the face:

(A) Joking  (B) Flustered  (C) Desire  (D) Convinced
Oxytocin increases ability to read emotions just from eyes in healthy participants
The Awareness of Social Inference (TASIT)

Vignettes of method actors:

- Part 1: Recognition of emotion
- Part 2: Detection of sarcasm versus sincere statements
  - Sincere: target actors mean what they say
  - Simple sarcasm: target actor means the opposite of what is said
- Part 3: Detection of complex sarcasm and white lies
Oxytocin Improves High-Level Social Cognition

The graph shows the percentage of correct responses across different tasks (Control Task, Low-Level, High-Level) for Placebo and Oxytocin conditions. The graph indicates a significant improvement in high-level social cognition tasks under the Oxytocin condition compared to Placebo, with a p-value of 0.001.
Oxytocin increases facial expression in people with schizophrenia
Social Motivation in Adolescents with Schizophrenia?

- Participants asked how much time they would be willing to donate to different organizations:
  - Human
  - Animals
  - Non-Animate
Sometimes it can be hard to see eye to eye
Family Therapy & Education

- **Addresses the whole family system of the individual**
  - Increases the individual’s support system
  - Patients and family members gain tools for helpful communication
  - May reduce hospitalizations and relapses

- **However**
  - Expensive and time-intensive!
  - High Refusal Rates (> 40%)
### Current Interventions

<table>
<thead>
<tr>
<th>Psychotherapy</th>
<th>Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Labor intensive</td>
<td>• Ineffective for:</td>
</tr>
<tr>
<td>• Costly</td>
<td>○ Negative symptoms</td>
</tr>
<tr>
<td>• Only partially effective</td>
<td>○ Social symptoms</td>
</tr>
<tr>
<td></td>
<td>○ Family environment</td>
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Novel Intervention

- Caretaker

↓ Symptoms
↑ Clinical Outcomes
Caretakers feel closer to child on oxytocin day

![Diagram showing feelings of closeness with oxytocin](image)

Feelings of Closeness

- **Parent**
  - Change in Subjective Closeness Pre and Post Drug
  - p < 0.05

- **Child**
  - Change in Subjective Closeness Pre and Post Drug
  - p < 0.3
Child reports decreased relationship tension when parent receives oxytocin
Oxytocin given to the parent increases the amount that the child speaks.
Why Participate?

- Contribute to groundbreaking research
- Actively participate in your own treatment
- Help improve the lives of other people with schizophrenia