

Oxytocin Promotes Positive Relational Behaviour Among Individuals with Major Depressive Disorder During Interpersonal Therapy

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Introduction

- Oxytocin (OT) is both a neuropeptide and hormone that is involved in the development of mother-offspring attachment and pair bonding across a variety of animal species through its actions in the central nervous system [1].
- In humans, exogenous OT is involved in the formation and maintenance of bonds [2], and is associated with increased trust [3, 4], cooperation [5], pro-social communication [6], and empathy [7].
- Given OT's role in social functioning, it is likely implicated in disorders of social dysfunction, such as Major Depressive Disorder [8].
- OT, in conjunction with the warm and supportive context of psychotherapy, has been shown to improve the efficacy of therapeutic outcomes [9]. However, little is known about OT's influence on behaviours within the therapeutic process.

Study Aim

To examine how the administration of oxytocin prior to each therapy session, relative to placebo, influences relational behaviour during psychotherapy.

Hypothesis

Participants administered intranasal oxytocin will display more positive social behaviours during therapy, compared to participants in the placebo condition.

Methods

Participants

Twenty-four participants (12 males) between the ages of 20 and 46 years old ($M = 28.5$, $SD = 6.46$), with major depressive disorder, were recruited from a community sample and randomly assigned to receive intranasal oxytocin ($n = 12$) or placebo ($n = 12$).

Diagnoses

All participants were diagnosed with major depressive disorder (MDD) by experienced doctoral students using Structured Clinical Interview for DSM-IV-R [10].

Paradigm:

Participants self administered 24 International Units (i.e., six sprays from a nasal spray bottle) of either Syntocinon solution (active ingredient oxytocin), or an identical placebo solution. Administration occurred 30 minutes prior to the beginning of participants' therapy sessions. All participants received Interpersonal Therapy, which focuses on altering the social dysfunction that is characteristic of MDD [11].

Behavioural Coding Scheme

After consulting with clinical psychologists, we adapted the Specific Affective Coding System (SPAFF) [12] and the Segmented Working Alliance Inventory Observer Measure (S-WAI-O) [13] to design a coding scheme that captures 8 positive and negative (verbal and non-verbal) behaviours typically seen within therapeutic sessions.

Positive Behaviours: Leaning towards the speaker; arms open; reminiscing about oneself and/or personal experiences; expressions of positive affect (e.g., smiling, laughing)

Negative Behaviours: Leaning away from speaker; arms crossed; expression of fear and/or tension during therapy; expressions of negative affect (e.g., crying, yelling)

- **Higher scores indicate more instances** of relational behaviour.

Data Analysis

A 2×3 (Drug X Time) mixed-design ANOVA was conducted to assess the differences between experimental conditions over time. We compared the mean instances of behaviour during the first two sessions, middle two sessions, and last two sessions to assess behavioural changes over time. The between-subjects independent variable was group assignment (i.e., drug vs. placebo). The within-subjects independent variable was time (i.e., first, middle, and last two available sessions of psychotherapy).

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Results

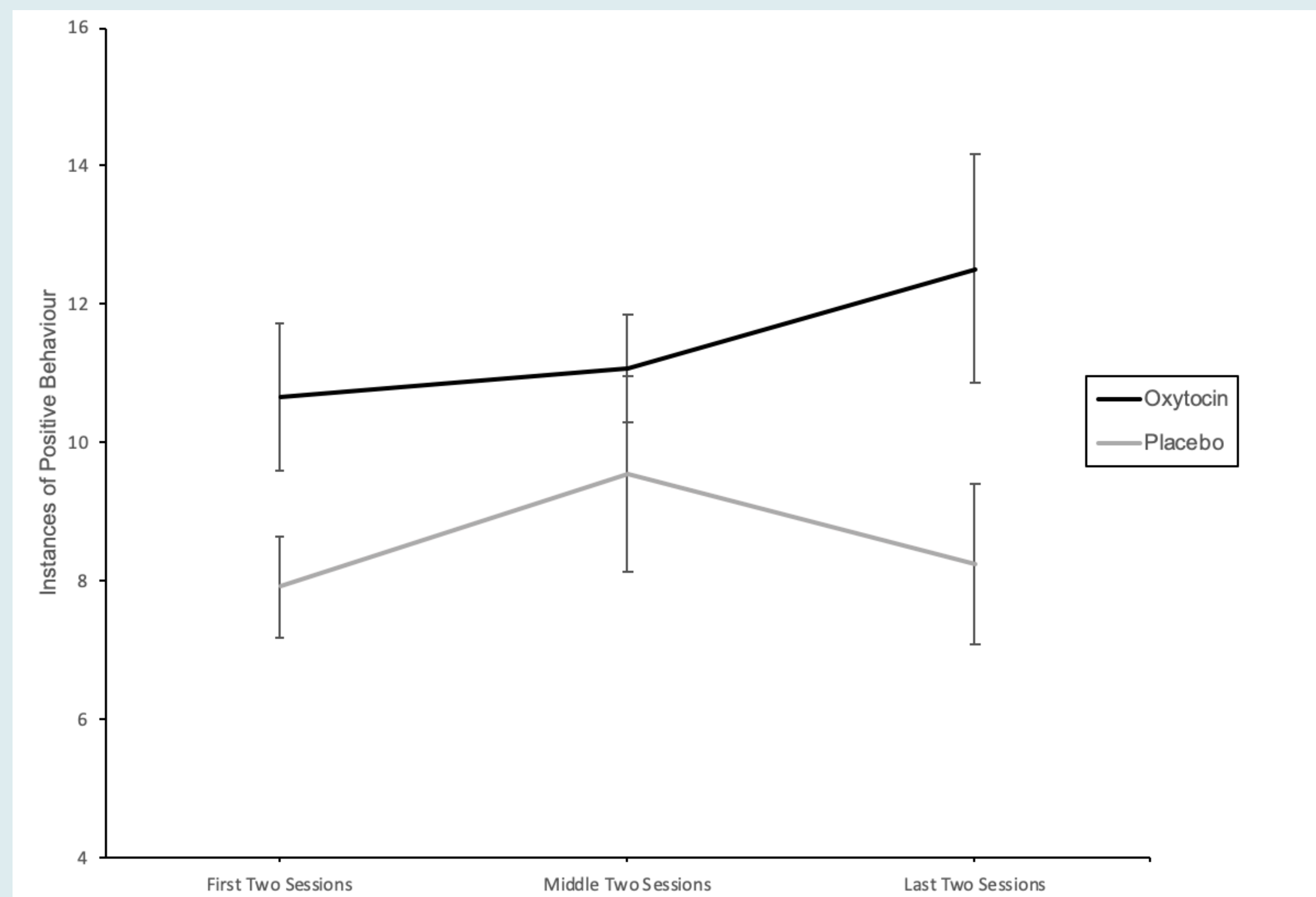


Figure 1. Instances of Positive Behaviour Over Time

- Mixed design ANOVA revealed a main effect of drug on positive behaviour (Drug X Time; ($F(1, 22) = 5.41$, $p = .03$, $\eta^2 p = .20$).
- There was no main effect of drug on negative behaviour (Drug X Time; ($F(1, 22) = 0.35$, $p = .56$, $\eta^2 p = .02$).

Discussion

- In support of our hypothesis, results indicate that participants who were administered OT exhibited more positive relational behaviour during therapy compared to participants who received a placebo.
- Our results add to previous literature, suggesting that oxytocin administration is linked to increased pro-social behaviour and positive affect [6, 14].
- Our findings improve upon past research that has used proxies for pro-social behaviour (e.g., viewing emotional pictures), rather than directly measuring behaviour [7].
- Such findings strengthen the view that OT promotes pro-social behaviour and may be a useful therapeutic tool to help attenuate interpersonal dysfunction among patients with Major Depressive Disorder.
- Future research should attempt to implement computerized coding schemes that measure affect based on facial expressions (e.g., Facial Action Coding System) [15].
- Additionally, future research should explore how individual differences such as attachment styles [16], social proficiency [7], and certain personality traits like extraversion [17, 18] may influence the effects of OT within a therapeutic context.