

PARENTAL LOSS: CRISIS OR GROWTH?

EPIGENETIC INSIGHTS INTO THE ROLE OF OXYTOCIN AND DOPAMINE SYSTEMS IN ADAPTING TO PARENTAL LOSS

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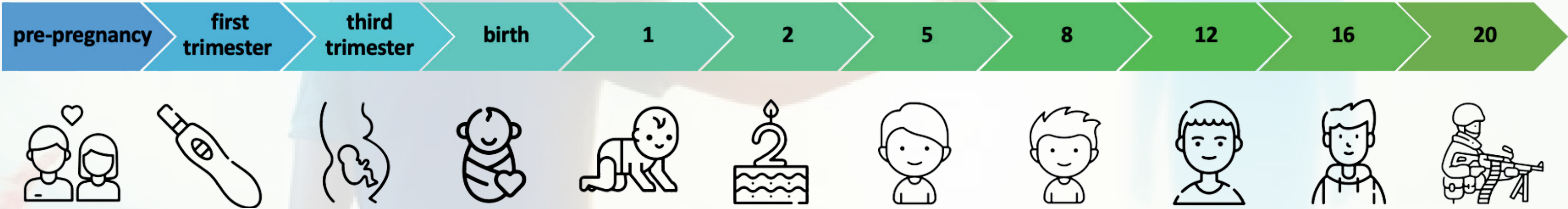
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INTRODUCTION

- Over the past year, the state of Israel has faced an unparalleled scale of loss, deeply impacting its population.
- Contemporary research shows that parental loss in childhood or adolescence increases the risk of mental health issues, behavioral problems, and higher mortality (1). It also reduces competence in work and education planning.
- This study challenges this view and explores whether parental loss only links to negative effects or could foster growth from crisis (2).
- We investigate this issue at both psychological and epigenetic levels through the oxytocin and dopamine systems (3).
- We hypothesize that parental loss will result in alterations in the attachment system, as well as in openness to experience. These changes are expected to be supported by modifications in the dopamine and oxytocin systems.

METHODOLOGY

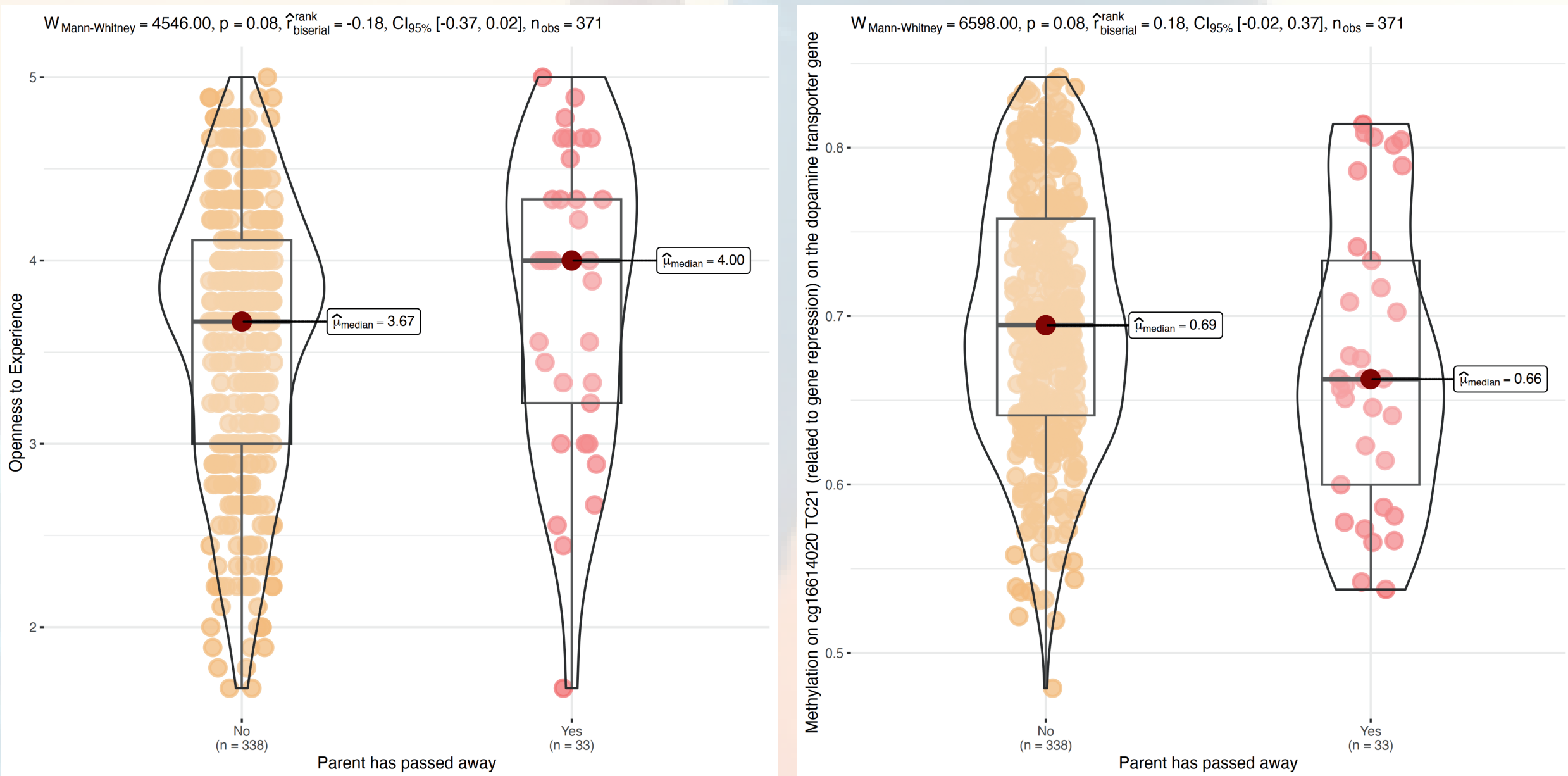
The sample consisted of 371 participants, of whom 33 had lost a parent at a young age ($M=31.06$, $SD=3.67$) and 338 had not ($M=29.35$, $SD=3.28$). Both groups had a similar gender ratio, with 51.2% women in the group that did not lose a parent and 51.5% women in the group that did. Saliva samples were collected using the OG-600 collection kit and analyzed with the Methylation EPIC V2 kit to uncover epigenetic information. This analysis included examining methylation levels at 63 sites within the oxytocin system and 32 sites within the dopamine system. To assess participants' attachment patterns, we used the ECR-RS questionnaire, and for openness to experience, we utilized the HEXACO-60 questionnaire.



RESULTS

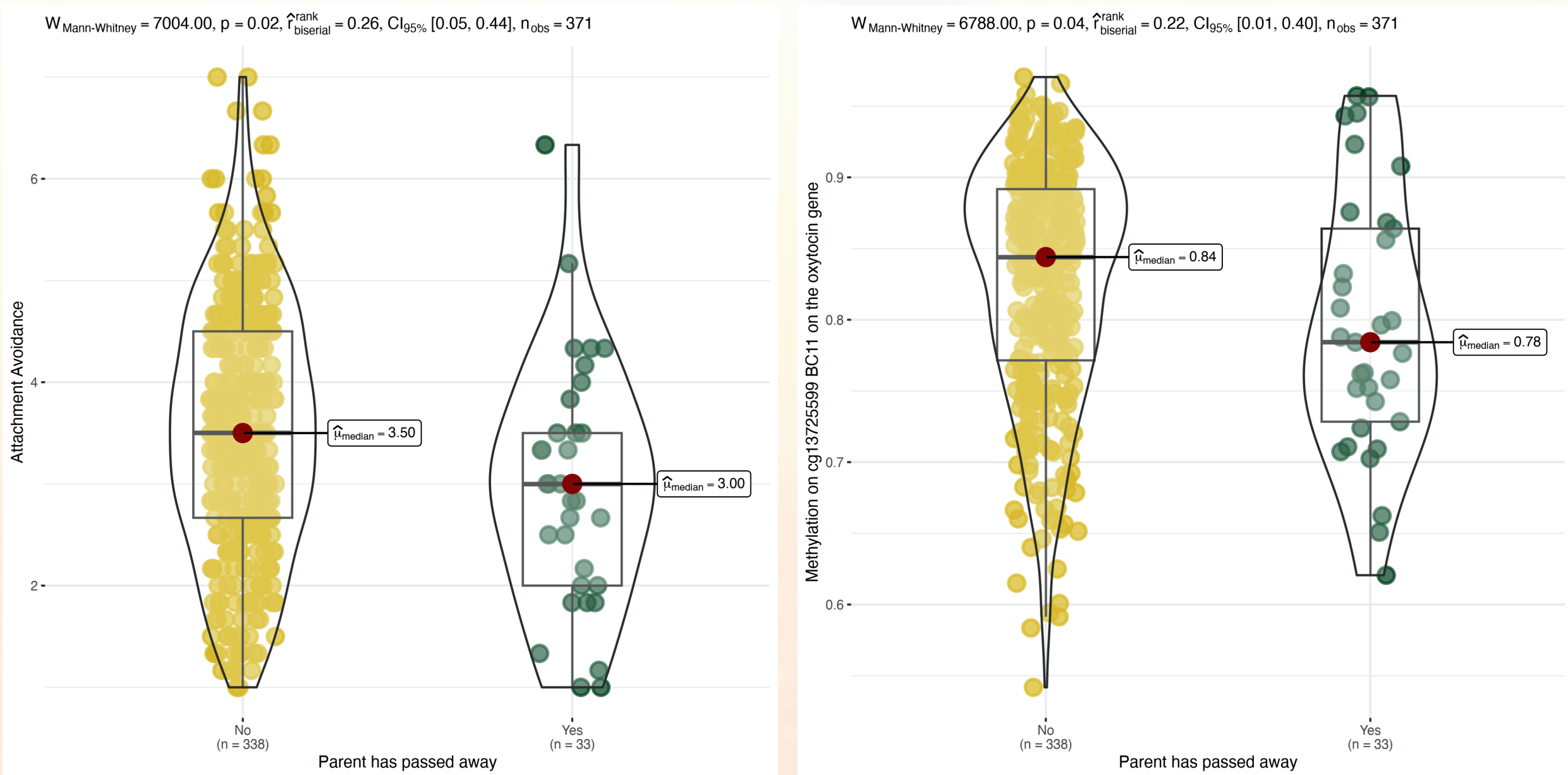
OPENNESS TO EXPERIENCE

AMONG INDIVIDUALS WHO LOST A PARENT, LOW LEVELS OF METHYLATION IN THE SLC6A3 DOPAMINE TRANSPORTER GENE WERE FOUND, IN ADDITION TO HIGHER LEVELS OF OPENNESS TO EXPERIENCE.



ATTACHMENT

AMONG INDIVIDUALS WHO LOST A PARENT, LOW LEVELS OF METHYLATION IN THE OXT OXYTOCIN GENE WERE FOUND, AS WELL AS LOWER LEVELS OF AVOIDANT ATTACHMENT.



DISCUSSION

- The results support the growth-out-of-crisis hypothesis.
- We found that participants who lost a parent at a young age showed lower avoidant attachment and a corresponding methylation pattern associated with higher expression of oxytocin.
- Additionally, these individuals demonstrated higher openness to experience and a methylation pattern associated with more dopamine in the synaptic cleft.
- These findings reflect growth in both the social-relational aspect and the aspect of openness to experiences. Therefore, especially in these difficult times, we believe that these findings may shed light on another aspect of loss and its effects.

