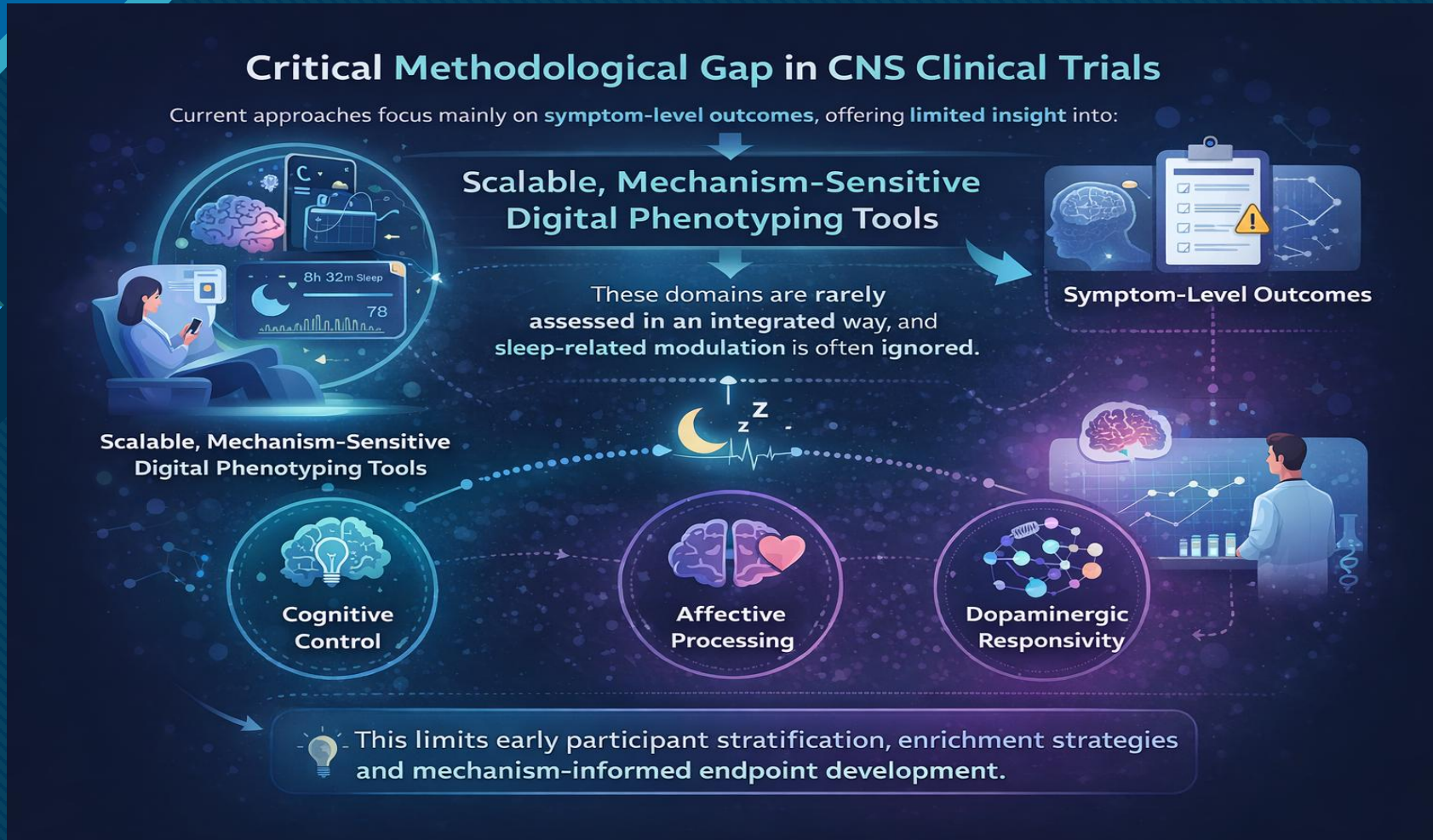


CREATE: A Multimodal Digital Platform for Emotion Regulation, Working Memory and Dopaminergic Target Engagement in CNS Clinical Trials



*Our aim was to address this gap by developing and piloting **CREATE**, a multimodal digital platform designed for clinical trial readiness, not as a diagnostic tool.*

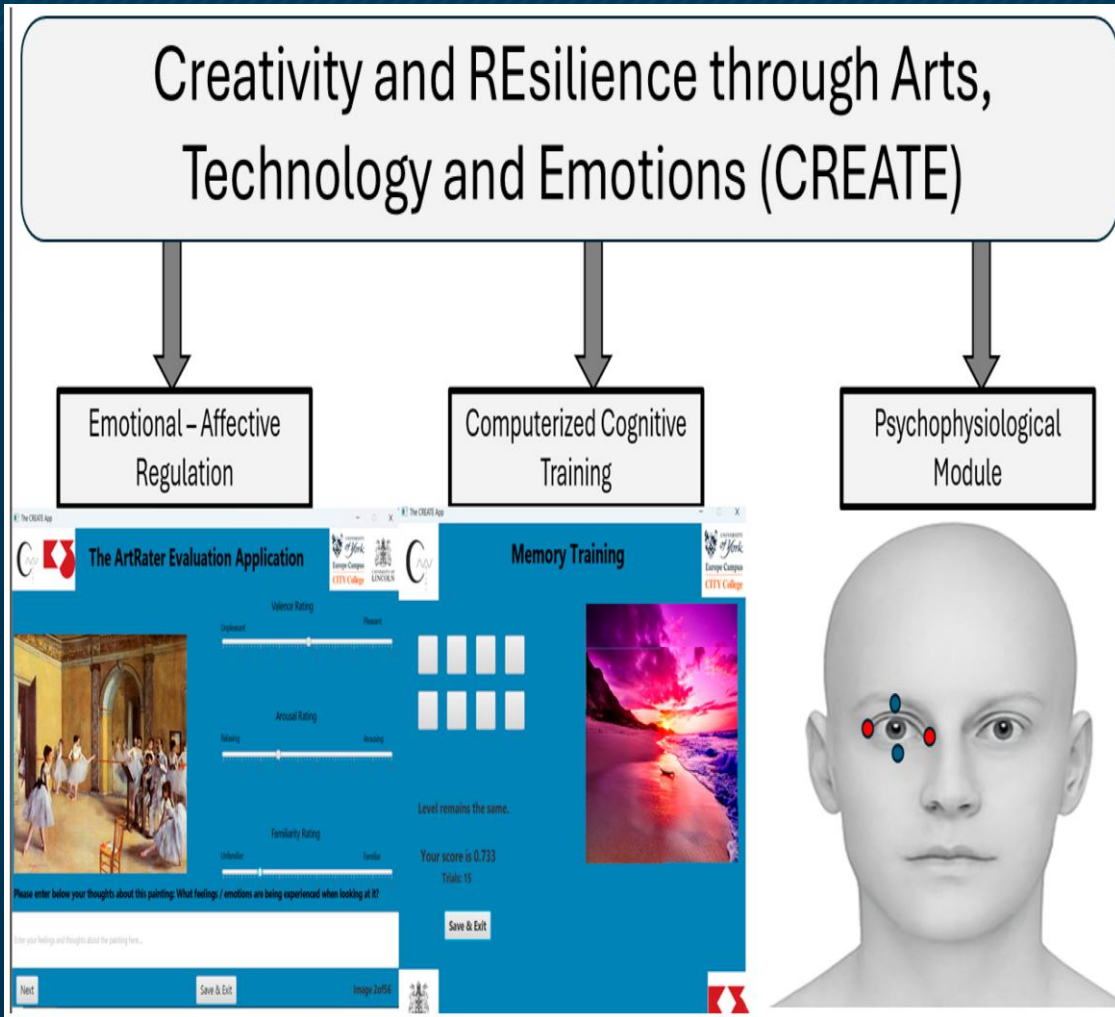
Aikaterini Stravoravdi¹, Christos Frantzidis², Aristeia Ladas³, Georgios Papazisis¹

¹ Clinical Research Unit, Papageorgiou General Hospital, School of Medicine, Aristotle University of Thessaloniki, Greece

² School of Engineering and Physical Sciences, University of Lincoln, Lincoln, UK

³ Department of Psychology, University of York, Europe Campus Thessaloniki, Greece

Methodology & Results



What we did:

- Pilot study** in 27 healthy adults (21 - 44 years).
- 60-minute multimodal digital protocol**, including:
 - Adaptive Corsi-based working memory task**
 - Art-driven affective evaluation** with valence—arousal ratings
 - Expressive writing**; analysed for sentiment and linguistic features
 - Spontaneous eye-blink rate (sEBR)** pre- and post-task as a dopaminergic proxy
 - Sleep quality assessment (PSQI)**

Analyses Included:

- Non-parametric and partial correlations** (controlling for baseline sEBR)
- Regression models** linking affective deviation to WM performance

What we found:

- Working memory performance** correlated with emotion regulation capacity.
- Post-task sEBR** correlated with **emotion regulation**, indicating dopaminergic sensitivity.
- Lower sleep efficiency** attenuated sEBR gain, showing a moderating sleep effect.
- High-arousal affective deviation predicted** reduced working memory performance.
- CREATE** demonstrated **feasibility** and state-dependent signal variability relevant for early-phase CNS trials.

Overall, CREATE demonstrated feasibility, interpretability and state-dependent signal variability, supporting its use as a mechanism-informed digital phenotyping framework for early-phase CNS trials.