**Study design/data analysis plan**

Preliminary analyses will check for randomisation of gender, age, SES, experience in VR, cybersickness, and immersion in VR environments. If a significant difference between the groups shows on one of these variables, the models will be re-ran with the inclusion of that variable as covariate. Any differences in results between the original model and covariate model will be reported.

Furthermore, multilevel models will be ran to test the research questions 1 and 2. Specifically.

* 1. Three multilevel models with a physiological measure as DV and ‘looking at cue’ as a binary fixed effect; smoking status and vaping status as fixed effects; a random effect for participants and a random slope for VR scenario.
  2. A multilevel model with subjective craving as DV and ‘number of cues seen’ as a fixed effect; smoking status and vaping status as fixed effects; a random effect for participants and a random slope for VR scenario.
  3. A multilevel model with subjective craving as DV and ‘time spent looking at cues’ as a fixed effect; smoking status and vaping status as fixed effects; a random effect for participants and a random slope for VR scenario.
  4. Multilevel model with subjective craving at the end of a scenario as DV and craving at the start of the scenario as fixed effect; smoking status and vaping status as fixed effects; a random effect for participants and a random slope for VR scenario.
  5. Three multilevel models with a physiological measure as DV and subjective craving as fixed effect; smoking status and vaping status as fixed effects; a random effect for participants and a random slope for VR scenario.
  6. Four multilevel model with either of the physiological measures or subjective craving ad DV and the PSECDI as fixed effect; random effect for participants and random slope for VR scenario
  7. Four multilevel model with either of the physiological measures or subjective craving ad DV and the PSCDI as fixed effect; random effect for participants and random slope for VR scenario

A detailed data analysis plan is currently under construction to be logged prior to data collection at the OSF (open science framework) registry.