

Reporting Summary

Nature Portfolio wishes to improve the reproducibility of the work that we publish. This form provides structure and transparency in reporting. For further information on Nature Portfolio policies, see our [Editorial Policies](#) and the [Editorial Policy Checklist](#).

Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

n/a Confirmed

- | | | |
|-------------------------------------|-------------------------------------|--|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | The exact sample size (n) for each experimental group/condition, given as a discrete number and unit of measurement |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | The statistical test(s) used AND whether they are one- or two-sided
<i>Only common tests should be described solely by name; describe more complex techniques in the Methods section.</i> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | A description of all covariates tested |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals) |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | For null hypothesis testing, the test statistic (e.g. F , t , r) with confidence intervals, effect sizes, degrees of freedom and P value noted
<i>Give P values as exact values whenever suitable.</i> |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Estimates of effect sizes (e.g. Cohen's d , Pearson's r), indicating how they were calculated |

Our web collection on [statistics for biologists](#) contains articles on many of the points above.

Software and code

Policy information about [availability of computer code](#)

Data collection

The data was collected using a web application that was specifically created using HTML, JavaScript, and jsPsych 7.1.2. The web application was hosted on Google Firebase. The code used for the experiment is available on Github at https://github.com/huyslab/emotioncon_public/experiment.

Data analysis

The analyses were conducted in Python version 3.9.5. For the modelling we used the PyKalman 0.9.2 package. The Github repository https://github.com/huyslab/emotioncon_public/ analyses includes a requirements.txt file containing all the necessary packages and all code used in the analyses.

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Portfolio [guidelines for submitting code & software](#) for further information.

Data

Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A description of any restrictions on data availability
- For clinical datasets or third party data, please ensure that the statement adheres to our [policy](#)

Fully anonymised data and code for experiment and data analyses of this study is available from a Github repository (<https://github.com/huyslab/>)

emotioncon_public/).

Human research participants

Policy information about [studies involving human research participants and Sex and Gender in Research.](#)

Reporting on sex and gender

This information has not been collected.

Population characteristics

see above

Recruitment

Participants were recruited online on Prolific Academic (www.prolific.co).

Ethics oversight

The UCL research ethics committee approved the study procedures (REC No 21029/001).

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☐ Life sciences ☒ Behavioural & social sciences ☐ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see [nature.com/documents/nr-reporting-summary-flat.pdf](https://www.nature.com/documents/nr-reporting-summary-flat.pdf)

Behavioural & social sciences study design

All studies must disclose on these points even when the disclosure is negative.

Study description

mixed-methods cross-sectional study

Research sample

Participants were 18 years or older with current UK residence.

Sampling strategy

To estimate the sample size, we collected pilot data online (N=40). In the pilot study, 3 participants failed the attention checks leaving 37 participants for the analyses. Two main hypotheses were tested: that 1) the first eigenvector of the dynamics matrix and 2) the first unit vector of the controllability matrix differ between intervention groups after the intervention. The lower effect size across both tests in the pilot study (Hotelling T2 effect size = 0.81) was used for our power analysis, which suggests that a sample of N=102 is sufficient to reach 90% power for both hypotheses (G*Power; Hotelling T2: Two group mean vectors). We added 7 extra participants because we observed an exclusion rate of 7% due to failed attention checks.

Data collection

After indicating interest in the online recruitment platform (Prolific Academic), participants were forwarded to an electronic form of the participant information sheet. They could then provide electronic consent through an online form before being redirected to the experiment. Participants were reimbursed through Prolific Academic after completion of study procedures.

Timing

Whole sample was acquired on the 29 of September 2022.

Data exclusions

Out of the 109 participants, one participant was excluded due to failed attention checks. After using a computational model to model the data, two additional subjects were excluded due to outliers in dynamical characteristics.

Non-participation

Out of the 137 participants who started the experiment, 28 did not finish it and thus we do not have any data or information about those.

Randomization

Two random assignments were made to each participant. Firstly, each participant in the experiment was randomly assigned one of the two video sequences with a 50% chance of watching that video sequence first and the other one afterwards. Additionally, each subject was randomly assigned to either a distancing or control intervention with a 50% chance.

Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

Materials & experimental systems

Methods

n/a	Involved in the study
<input checked="" type="checkbox"/>	<input type="checkbox"/> Antibodies
<input checked="" type="checkbox"/>	<input type="checkbox"/> Eukaryotic cell lines
<input checked="" type="checkbox"/>	<input type="checkbox"/> Palaeontology and archaeology
<input checked="" type="checkbox"/>	<input type="checkbox"/> Animals and other organisms
<input checked="" type="checkbox"/>	<input type="checkbox"/> Clinical data
<input checked="" type="checkbox"/>	<input type="checkbox"/> Dual use research of concern

n/a	Involved in the study
<input checked="" type="checkbox"/>	<input type="checkbox"/> ChIP-seq
<input checked="" type="checkbox"/>	<input type="checkbox"/> Flow cytometry
<input checked="" type="checkbox"/>	<input type="checkbox"/> MRI-based neuroimaging