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Reporting Summary

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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	
☐	☒	The exact sample size (*n*) for each experimental group/condition, given as a discrete number and unit of measurement
☐	☒	A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
☐	☒	The statistical test(s) used AND whether they are one- or two-sided *Only common tests should be described solely by name; describe more complex techniques in the Methods section.*
☐	☒	A description of all covariates tested
☐	☒	A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
☐	☒	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)
☐	☒	For null hypothesis testing, the test statistic (e.g. *F*, *t*, *r*) with confidence intervals, effect sizes, degrees of freedom and *P* value noted *Give P values as exact values whenever suitable.*
☒	☐	For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
☐	☒	For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
☒	☐	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	movisensXS, version 0.6.3658 (movisens GmbH, Germany, https://xs.movisens.com); Geocoder software (movisens GmbH, Germany, www.movisens.com)
Data analysis	SPSS (IBM), version 21.0.0.0; SAS 9.4., SAS software, SAS Institute Inc., Cary, NC, USA; SPM12 (www.fil.ion.ucl.ac.uk/spm); ArcGIS, version 10.5.1 (Environmental Systems Research Institute, Redland, 2015, ArcGIS Desktop: Release 10); zonal statistics in ArcGIS 10.5 (http://www.esri.com/); skyline tool in the 3D Analyst extension of ArcGIS (https://www.arcgis.com/); Gaussian kernel estimator in ArcGIS (https://www.esri.com/); geoprocessing functionality of PostGIS, version 2.4 (https://postgis.net/); R, version 3.5.3 (https://www.Rproject.org/); PostgreSQL, version 9.6 (https://www.postgresql.org/) with the PostGIS extension, version 2.1 (https://postgis.net/); Feature Analyst extension for ArcGis®, version 5.0 (Exelis Visual Information Solutions, Boulder, Colorado); DataAnalyzer, version 1.6.12129 (movisens GmbH, Germany, www.movisens.com); DataMerger, version 1.6.3868 (movisens GmbH, Germany, www.movisens.com); MATLAB and Statistics Toolbox Release 2013b, The MathWorks, Inc., Natick, Massachusetts, United States.

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/reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Research 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 list of figures that have associated raw data
- A description of any restrictions on data availability

Data supporting the findings of this study are available upon reasonable request from the corresponding authors. The Figures 1-3 and S1-3 have associated raw data.

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

Behavioural & social sciences study design

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

Study description	Quantitative study combining methods from epidemiology, psychology (Ambulatory Assessment), geo-informatics, and neuroscience (fMRI).
Research sample	We aimed to investigate urban residents an thus we recruited two representative, community-based samples of young adults residing in the city of Mannheim, Germany. The final samples thus consisted of 33 individuals in the discovery study and 52 individuals in the replication study with an age-range from 18-28 years (see Tab. S1 for details on the sample characteristics).
Sampling strategy	All participants were randomly drawn from the local population registry of the city of Mannheim based on a two-stage proportionally layered procedure taking into account specific population stratifications such as age, sex, and nationality. We followed recent recommendations for the sufficient number of level 2 units suggested for multilevel models and thus the final representative samples consisted of 33 individuals in the discovery study (21 females; mean age = 23.64 ± 2.42 years) and 52 individuals in the replication study (28 females; mean age = 23.38 ± 2.14 years).
Data collection	We studied participants for seven consecutive days in daily life. Affective valence was measured with Ecological Momentary Assessment by smartphones (Motorola Moto G, Motorola Mobility LLC, Libertyville, Illinois, USA), a two-item e-diary short scale and an optimized location- and time-based sampling strategy. For physical activity, we quantified non-exercise activity with hip accelerometers (Move II/ Move III, movisens GmbH, Karlsruhe, Germany) and exercise activity with geolocation-guided day reconstruction methods. For tracking of geographical coordinates, we used an algorithm optimizing the trade-off between spatial accuracy and battery life. The percentage of urban green space around geolocations was quantified using multispectral digital orthophotos, a vector layer representing land use, supervised feature classification, and intersection of geolocations with the green space layer data. Blood-oxygen-level-dependent fMRI was performed on a 3 Tesla Siemens Trio scanner using an echo-planar-imaging sequence. Further details on all methods are provided in the ONLINE METHODS.
Timing	Participants were recruited from September 2014 to January 2017 by the Psychiatric Epidemiological Center PEZ at the Central Institute of Mental Health (CIMH) in Mannheim, Germany (https://www.zi-mannheim.de/forschung/forschungsverbuende/pez.html).
Data exclusions	After data quality control, we included all participants in the final data analysis fulfilling the following criteria: (a) e-diary compliance above 30%, (b) more than 12 e-diary assessments within the city limits of Mannheim in daily life during day time (see ONLINE METHODS 1.6.) - outside of time frames related to exercise activities (see ONLINE METHODS 1.2.5.) - and good quality geolocation information (see also ONLINE METHODS 1.4.), and (c) good quality of MRI data (replication sample). Based on these criteria, we excluded two subjects from the discovery and eight subjects from the replication sample. The final samples thus consisted of 33 individuals in the discovery study and 52 individuals in the replication study (Tab. S1 for details on sample characteristics and neuroimaging quality parameters).
Non-participation	No participants dropped out/declined participation.
Randomization	Randomization was not relevant because we conducted an observational and no intervention study.

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

n/a	Involved in the study
☒	☐ Antibodies
☒	☐ Eukaryotic cell lines
☒	☐ Palaeontology
☒	☐ Animals and other organisms
☐	☒ Human research participants
☒	☐ Clinical data

Methods

n/a	Involved in the study
☒	☐ ChIP-seq
☒	☐ Flow cytometry
☐	☒ MRI-based neuroimaging

Human research participants

Policy information about studies involving human research participants

Population characteristics	see above "Behavioural & social sciences study design" and Tab. S1 for detailed participant characteristics
Recruitment	For the discovery and the replication study, we recruited two community-based samples of young adults in the age range of 18 to 28 years. All participants were randomly drawn from the local population registry of the city of Mannheim based on a twostage proportionally layered procedure taking into account specific population stratifications such as age, sex, and nationality. To the best of our knowledge, there was no self-selection bias.
Ethics oversight	Medical Ethics Committee II of the Medical Faculty Mannheim at the Ruprecht-Karls-University in Heidelberg, Germany

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

Magnetic resonance imaging

Experimental design

Design type	Faces Task created by Hariri et al. (2002): a well-established implicit emotion-processing paradigm with facial and nonfacial stimuli, block design.
Design specifications	Block design with 2 conditions presented in alternating order (matching of fearful and angry faces vs. matching of shapes); 4 blocks per condition , 6 trials per block; block length: 30 seconds (i.e. 15 TR); identity matching task: indicate by button press whether left or right probe matches a reference stimulus
Behavioral performance measures	Accuracy: number of correct button presses for each condition

Acquisition

Imaging type(s)	functional magnetic resonance imaging
Field strength	3 Tesla
Sequence & imaging parameters	Functional data were acquired with a gradient-recalled echo-planar imaging (GRE-EPI) sequence with the parameters TR 2000 ms, TE 30 ms, 28 oblique slices (descending acquisition) per volume, 4 mm slice thickness, 1 mm slice distance, 80° flip angle, 192 mm FOV, and a 64 × 64 matrix.
Area of acquisition	whole brain

Diffusion MRI ☐ Used ☒ Not used

Preprocessing

Preprocessing software	SPM12
Normalization	Indirect normalization based on unified segmentation (i.e. the structural image is warped onto tissue probability maps and resulting normalization parameters are applied to the functional images).
Normalization template	Montreal Neurological Institute (MNI) space with resampling to 3 × 3 × 3 mm voxels
Noise and artifact removal	6 rigid-body-transform motion parameters and time-courses from white-matter und cerebro-spinal fluid were used as nuissance regressors
Volume censoring	We used standard procedures for motion correction in activation analysis as implemented in SPM 12.

Statistical modeling & inference

Model type and settings	Mass univariate model; on the first level, a fixed effects analysis was computed for each subject on the basis of the general linear model; a high-pass filter with cut-off 128 s and an AR(1) model for the residual temporal autocorrelation were applied during model estimation; contrast images "faces > forms" were calculated and subjected to a second level random effects regression model, with greenslope as predictor and age and sex as covariates of no interest
Effect(s) tested	t-test for negative association of greenslope

Specify type of analysis: ☐ Whole brain ☒ ROI-based ☐ Both

Anatomical location(s)	The region of interest mask was created by merging labels covering the anterior cingulate cortex (ACC) and the dorsolateral and dorsomedial prefrontal cortex (DLPFC and dmPFC, defined as Brodman areas 9 and 46) from the WFU_PickAtlas (https://www.nitrc.org/projects/wfu_pickatlas/).

Statistic type for inference (See Eklund et al. 2016)	voxel-wise
Correction	FWE

Models & analysis

n/a	Involved in the study
☒	☐ Functional and/or effective connectivity
☒	☐ Graph analysis
☒	☐ Multivariate modeling or predictive analysis