Universität Marburg

Introducing openESM: A database of openly available experience sampling datasets

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February 24th, 2026

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ESM Research: Scattered Landscape

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N = 150
Affect

Logos from (Freepik, 2025a,b; Google, 2025; GitHub, 2018)

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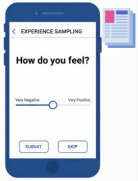
Affect



N = 104
Life Events

Logos from (Freepik, 2025a,b; Google, 2025; GitHub, 2018)

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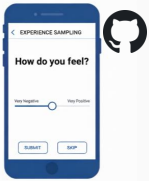
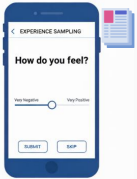


N = 79
Personality



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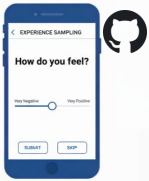

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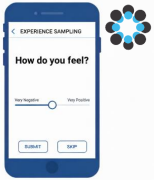
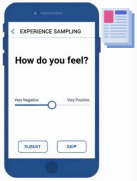


N = 243
Depression



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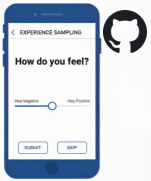

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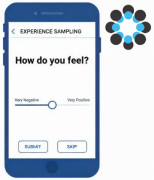

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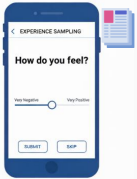

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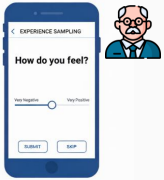
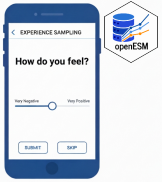


N = 150
Work Stress

Logos from (Freepik, 2025a,b; Google, 2025; GitHub, 2018)

The Solution: openESM



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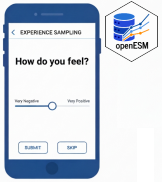

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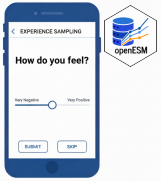

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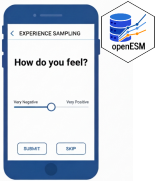

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Introducing openESM

60 harmonized datasets • 16k+ participants • 740k+ observations

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[2] Python logo: https://www.python.org/community/logos/

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Test theories across contexts

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Optimize measurement choices

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Substantive Research
Test theories across contexts

Design Research
Optimize measurement choices

Statistical Methods
Benchmark and develop methods

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Why This Matters for SEM Research

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Ready-made data for Dynamic SEM

Intensive longitudinal structure for DSEM, mlVAR, network models

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Measurement Invariance

Test factor structures across datasets and populations

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Benchmark models on diverse real-world data

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Model Comparison

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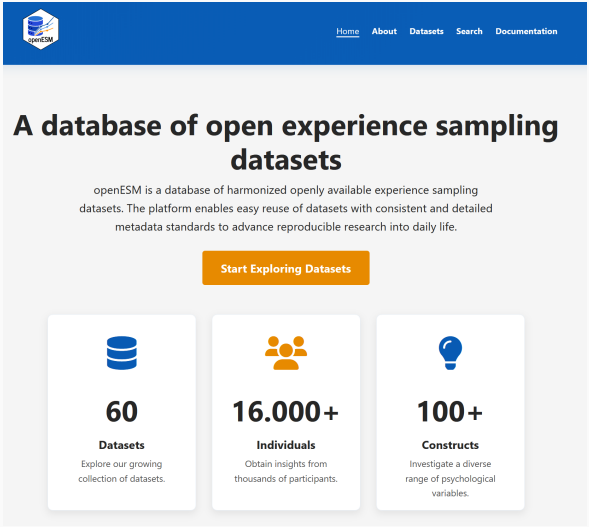
Replication

Validate findings across independent samples

Live Demo


openESM
Home
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Datasets
Search
Documentation
A database of open experience sampling datasets
openESM is a database of harmonized openly available experience sampling datasets. The platform enables easy reuse of datasets with consistent and detailed metadata standards to advance reproducible research into daily life.
Start Exploring Datasets
60
Datasets
Explore our growing collection of datasets.
16.000+
Individuals
Obtain insights from thousands of participants.
100+
Constructs
Investigate a diverse range of psychological variables.

Design Process

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1. Cleaning

Harmonized NAs, removed redundant columns

E.g., standardized ID, beep, day

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Same variable names for same questions

E.g., “depressed” across datasets

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2. Harmonization

Same variable names for same questions

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3. Annotation

Hierarchical construct tags

E.g., "angry" → anger, negative affect

What’s inside

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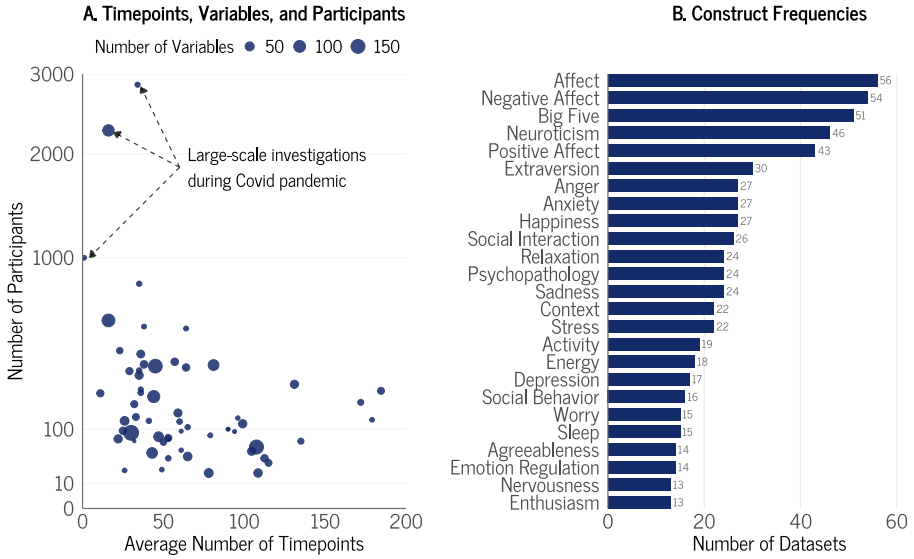
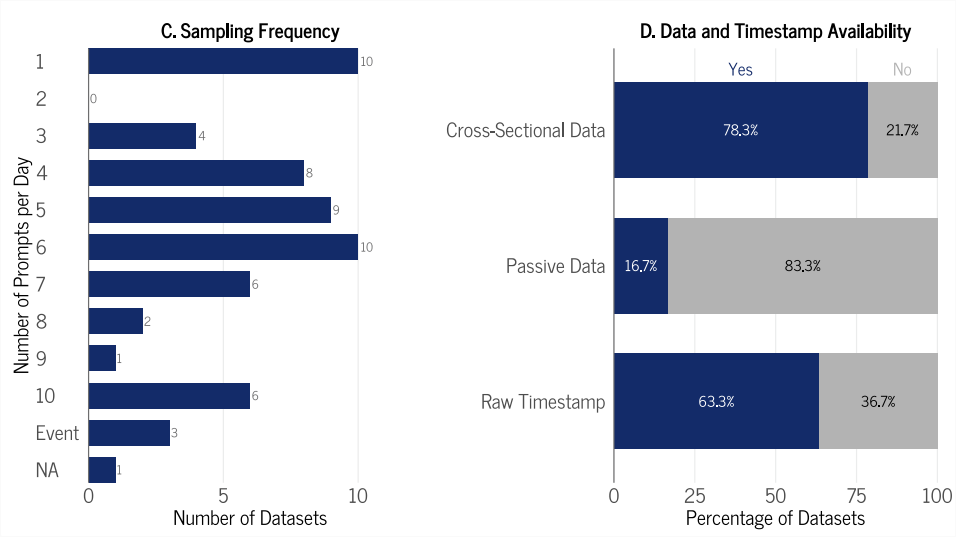


What's inside



Architecture Behind It

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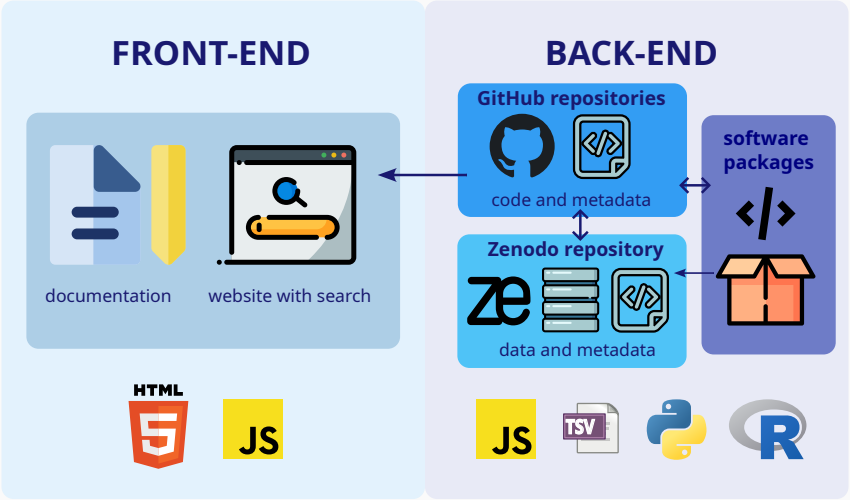

Example Analysis

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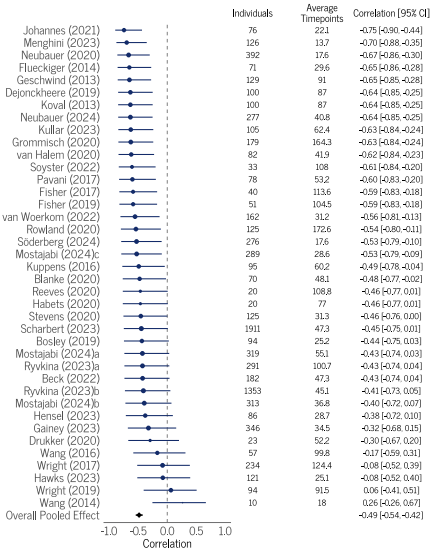
- **Result:** Pooled $r = -0.49$ [95% CI: -0.54, -0.42]



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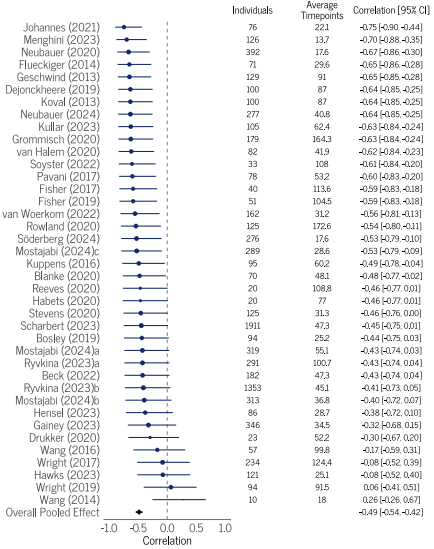
- **Design insight:** More prompts/day → stronger negative correlation



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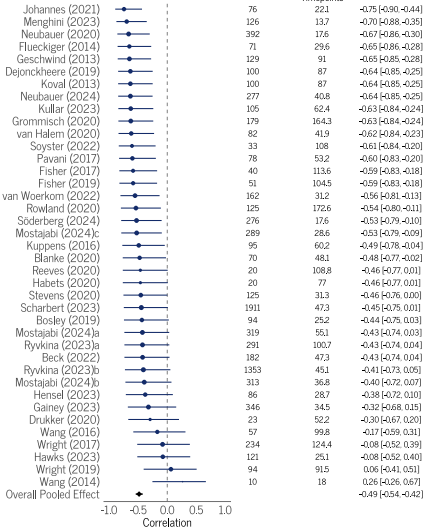
- **Design insight:** More prompts/day → stronger negative correlation
- **Robustness:** Stable across 12 preprocessing/modeling choices



Next Steps

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Community

Involve researchers, expand non-WEIRD data

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Data & Metadata

Extend coverage and documentation

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Add benchmarking and filtering tools

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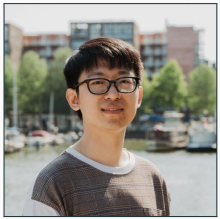
Goal: Turn openESM into a continuously evolving community resource for cumulative ESM research

Thanks to the team

Jonas Haslbeck

Matthias Kloft

Anabel Büchner



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Eiko Fried

Daniel Heck

Get In Touch

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- https://bsiepe.github.io/
- bsiepe

Paper & Slides

References i

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