Comparing the suitability of 6 implicit measures for individual use

*Supplementary Materials*

# 

**Elaborated information on in-text analyses**

**RQ1**

***Plot data***

Table S1 provides the numerical information plotted in Figure X in the paper.

**Table S1.** Data from Figure X in the manuscript.

| measure | estimate | ci\_lower | ci\_upper | pi\_lower | pi\_upper |
| --- | --- | --- | --- | --- | --- |
| IAT | 0.67 | 0.59 | 0.75 | 0.55 | 0.79 |
| Brief IAT | 0.55 | 0.46 | 0.64 | 0.43 | 0.67 |
| SC-IAT | 0.37 | 0.29 | 0.45 | 0.25 | 0.49 |
| AMP | 0.18 | 0.11 | 0.25 | 0.07 | 0.30 |
| GNAT | 0.11 | 0.04 | 0.17 | 0.00 | 0.22 |
| EPT | 0.10 | 0.03 | 0.16 | -0.01 | 0.20 |

**RQ2**

***Plot data***

Table S2 provides the numerical information plotted in Figure X in the paper.

**Table S2.** Data from Figure X in the manuscript.

| measure | estimate | ci\_lower | ci\_upper | pi\_lower | pi\_upper |
| --- | --- | --- | --- | --- | --- |
| IAT | 0.52 | 0.42 | 0.61 | 0.39 | 0.64 |
| Brief IAT | 0.38 | 0.28 | 0.48 | 0.25 | 0.51 |
| SC-IAT | 0.33 | 0.23 | 0.43 | 0.20 | 0.46 |
| AMP | 0.21 | 0.11 | 0.31 | 0.08 | 0.34 |
| GNAT | 0.08 | 0.00 | 0.17 | -0.04 | 0.20 |
| EPT | 0.09 | 0.01 | 0.18 | -0.03 | 0.22 |

**RQ2**

***Plot data***

Table S3 provides the numerical information plotted in Figure X in the paper.

**Table S3.** Data from Figure X in the manuscript.

| measure | estimate | ci\_lower | ci\_upper | pi\_lower | pi\_upper |
| --- | --- | --- | --- | --- | --- |
| IAT | 0.21 | 0.18 | 0.24 | 0.12 | 0.30 |
| Brief IAT | 0.23 | 0.21 | 0.26 | 0.14 | 0.32 |
| SC-IAT | 0.23 | 0.20 | 0.25 | 0.14 | 0.32 |
| AMP | 0.24 | 0.20 | 0.27 | 0.14 | 0.33 |
| GNAT | 0.34 | 0.31 | 0.36 | 0.24 | 0.43 |
| EPT | 0.32 | 0.30 | 0.34 | 0.23 | 0.41 |

**Unreported logit-transformed linear mixed-model analyses**

As mentioned in the deviations from preregistration document, we had originally preregistered that we would model our data using logit-transformed linear mixed-effects models before realising that modelling the untransformed proportion data would be both more appropriate (based on simulations from Kubinec, 2023) and more interpretable. For transparency, we report the results from the originally preregistered analyses below.

**RQ1. Proportion of effects detectable from zero effect**

#### **Meta-analytic model**

In order to compare the proportion of detectable effects between measures, the data from individuals was logit transformed and meta-analyzed. For each measure and domain, we calculated the proportion of detectable effects and its variance. We then entered the proportions into a linear mixed-effects model using the R package lme4. The Wilkinson notation for the model was as follows:

proportion\_diff\_zero\_logit ~ 1 + measure + (1 | domain), weights = 1/variance

That is, we entered measure as a fixed effect in order to estimate the logit-transformed proportions for each measure and make inferences about differences between them (i.e., measures are an exhaustive set for our purposes). Domain was entered as a random intercept in order to acknowledge the non-independence of attitudes within each domain, and the fact that there are other domains to be generalized to in principle (i.e., domain is non-exhaustive, and attitude domain is the data generating signal). We weighted by inverse variance, as is common in meta-analytic models. A forest plot of the individual effect sizes for each domain and the meta-analyzed effect size for each measure can be found in Figure S1. Table S4 provides the numeric values which are plotted is Figure S1. Table S5 provides the pairwise comparisons for the estimated marginal means of each measure for RQ1.

A graph with black and green lines

Description automatically generated

**Figure S1.** Plot of estimates from the logit-transformed linear mixed-effects model for RQ1.

**Table S4.** Results from the logit-transformed linear mixed-effects model for RQ1.

| **measure** | **estimate** | **ci\_lower** | **ci\_upper** | **pi\_lower** | **pi\_upper** |
| --- | --- | --- | --- | --- | --- |
| IAT | 0.67 | 0.54 | 0.79 | 0.47 | 0.83 |
| Brief IAT | 0.55 | 0.40 | 0.70 | 0.34 | 0.75 |
| SC-IAT | 0.37 | 0.24 | 0.51 | 0.20 | 0.58 |
| AMP | 0.18 | 0.11 | 0.26 | 0.09 | 0.32 |
| GNAT | 0.09 | 0.06 | 0.14 | 0.04 | 0.18 |
| EPT | 0.09 | 0.06 | 0.14 | 0.05 | 0.18 |

**Table S5.** Pairwise comparisons of the estimated marginal means from the logit-transformed linear mixed-effects model for RQ1.

| **comparison** | **p.value** |
| --- | --- |
| IAT - Brief IAT | 0.256 |
| IAT - (SC-IAT) | < .001 |
| IAT - AMP | < .001 |
| IAT - GNAT | < .001 |
| IAT - EPT | < .001 |
| Brief IAT - (SC-IAT) | 0.115 |
| Brief IAT - AMP | < .001 |
| Brief IAT - GNAT | < .001 |
| Brief IAT - EPT | < .001 |
| (SC-IAT) - AMP | 0.005 |
| (SC-IAT) - GNAT | < .001 |
| (SC-IAT) - EPT | < .001 |
| AMP - GNAT | 0.008 |
| AMP - EPT | 0.008 |
| GNAT - EPT | 0.917 |

**RQ2. Proportion of scores discriminable from other scores**

***Meta-analytic model***

The individual level proportions were entered into a similar logit-transformed linear mixed-effects model to the previous one:

proportion\_discriminable\_logit ~ 1 + measure + (1 | domain),

weights = 1/variance

A forest plot of the individual effect sizes for each domain and the meta-analyzed effect size for each measure can be found in Figure S2. Data corresponding to the plot in Figure S2 can be found in Table S6. Table S7 contains the estimates for the pairwise comparisons of the estimated marginal means.

A graph with black and green lines

Description automatically generated

**Figure S2.** Plot of the estimated mean probabilities of difference between two participants’ scores using the logit-transformed meta-analytic model.

**Table S6.** Coefficients from the meta-analytic model for RQ2.

| **measure** | **estimate** | **ci\_lower** | **ci\_upper** | **pi\_lower** | **pi\_upper** |
| --- | --- | --- | --- | --- | --- |
| IAT | 0.51 | 0.36 | 0.66 | 0.26 | 0.75 |
| Brief IAT | 0.37 | 0.23 | 0.53 | 0.16 | 0.64 |
| SC-IAT | 0.33 | 0.20 | 0.49 | 0.14 | 0.60 |
| AMP | 0.20 | 0.12 | 0.33 | 0.08 | 0.44 |
| GNAT | 0.05 | 0.03 | 0.09 | 0.02 | 0.14 |
| EPT | 0.09 | 0.05 | 0.15 | 0.03 | 0.22 |

**Table S7.** Pairwise comparisons of the estimated marginal means for RQ2.

| **comparison** | **p.value** |
| --- | --- |
| IAT - Brief IAT | 0.115 |
| IAT - (SC-IAT) | 0.047 |
| IAT - AMP | < .001 |
| IAT - GNAT | < .001 |
| IAT - EPT | < .001 |
| Brief IAT - (SC-IAT) | 0.58 |
| Brief IAT - AMP | 0.047 |
| Brief IAT - GNAT | < .001 |
| Brief IAT - EPT | < .001 |
| (SC-IAT) - AMP | 0.115 |
| (SC-IAT) - GNAT | < .001 |
| (SC-IAT) - EPT | < .001 |
| AMP - GNAT | < .001 |
| AMP - EPT | 0.001 |
| GNAT - EPT | 0.03 |

### **RQ3. Coverage of Individuals’ Confidence Intervals**

#### **Meta-analytic model**

The proportions were entered into a similar logit-transformed linear mixed-effects model to the previous two:

ci\_width\_proportion\_mean\_logit ~ 1 + measure + (1 | domain),

weights = 1/variance

A forest plot of the individual effect sizes for each domain and the meta-analyzed effect size for each measure can be found in Figure S3. Table S8 contains the data plotted in Figure S3. Table S9 reports the pairwise comparisons of the estimated marginal means.

A graph of a number of individuals

Description automatically generated

**Figure S3.** Plot of the estimated mean coverage of participants’ scores using the logit-transformed meta-analytic model.

**Table S8.** Coefficients from the meta-analytic model for RQ3.

| **measure** | **estimate** | **ci\_lower** | **ci\_upper** | **pi\_lower** | **pi\_upper** |
| --- | --- | --- | --- | --- | --- |
| IAT | 0.21 | 0.18 | 0.23 | 0.17 | 0.25 |
| Brief IAT | 0.23 | 0.21 | 0.26 | 0.20 | 0.28 |
| SC-IAT | 0.23 | 0.21 | 0.25 | 0.19 | 0.27 |
| AMP | 0.24 | 0.21 | 0.27 | 0.19 | 0.29 |
| GNAT | 0.33 | 0.30 | 0.37 | 0.29 | 0.39 |
| EPT | 0.32 | 0.29 | 0.34 | 0.27 | 0.37 |

**Table S9.** Pairwise comparisons of the estimated marginal means for RQ3.

| **comparison** | **p.value** |
| --- | --- |
| IAT - Brief IAT | 0.121 |
| IAT - (SC-IAT) | 0.32 |
| IAT - AMP | 0.32 |
| IAT - GNAT | < .001 |
| IAT - EPT | < .001 |
| Brief IAT - (SC-IAT) | 0.876 |
| Brief IAT - AMP | 0.876 |
| Brief IAT - GNAT | < .001 |
| Brief IAT - EPT | < .001 |
| (SC-IAT) - AMP | 0.876 |
| (SC-IAT) - GNAT | < .001 |
| (SC-IAT) - EPT | < .001 |
| AMP - GNAT | < .001 |
| AMP - EPT | < .001 |
| GNAT - EPT | 0.582 |