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| **Question** | **Hypothesis** | **Sampling plan (e.g. power analysis)** | **Analysis Plan** | **Interpretation given to different outcomes** |
| 1.) Do ER strategies reduce emotional arousal? (Manipulation check) | 1a) Subjective arousal (arousal rating) is lower after using an emotion regulation strategy (distraction, distancing, suppression) compared to active viewing. | F tests - ANOVA: Repeated measures, within factors  Analysis: A priori: Compute required sample size  Input:  Effect size f = 0.50 (ηp² = 0.20) (Scheffel et al., 2021)  α err prob = 0.05  Power (1-β err prob) = 0.95  Number of groups = 1  Number of measurements = 4  Corr among rep measures = 0.5  Nonsphericity correction ε = 1  Output:  Noncentrality parameter λ = 20.0  Critical F = 2.9603513  Numerator df = 3.0  Denominator df = 27.0  Total sample size = 10  Actual power = 0.95210128 | Repeated measures ANOVA with four linear contrasts, comparing the subjective arousal ratings of four blocks (active viewing, distraction, distancing, suppression).  ANOVA is calculated using aov\_ez() function of the afex-package, estimated maginal means are calculated using emmeans() function from the emmeans-package, pairwise contrasts are calculated using pairs().  Bayes factors are computed for the ANOVA and each contrast using the BayesFactor-package. | ANOVA yields *p* < .05 is interpreted as arousal ratings changing significantly with blocks. Values of arousal ratings are interpreted as equal between blocks if *p* > .05.  Each contrast yielding *p* < .05 is interpreted as arousal ratings being different between those two blocks, magnitude and direction are inferred from the respective estimate. Values of arousal ratings are interpreted as equal between blocks if *p* > .05.  The Bayes factor *BF10* is reported alongside every *p*-value to assess the strength of evidence. |
| 1b) Physiological arousal (*corrugator* muscle activity) is lower after using an emotion regulation strategy (distraction, distancing, suppression) compared to active viewing. | F tests - ANOVA: Repeated measures, within factors  Analysis: A priori: Compute required sample size  Input:  Effect size f = 0.1605 (Zaehringer et al., 2020)  α err prob = 0.05  Power (1-β err prob) = 0.95  Number of groups = 1  Number of measurements = 4  Corr among rep measures = 0.5  Nonsphericity correction ε = 1  Output:  Noncentrality parameter λ = 17.5169700  Critical F = 2.6404222  Numerator df = 3.0  Denominator df = 252  Total sample size = 85  Actual power = 0.9509128 | Repeated measures ANOVA with four linear contrasts, comparing the *corrugator* muscle activity of four blocks (active viewing, distraction, distancing, suppression).  ANOVA is calculated using aov\_ez() function of the afex-package, estimated maginal means are calculated using emmeans() function from the emmeans-package, pairwise contrasts are calculated using pairs().  Bayes factors are computed for the ANOVA and each contrast using the BayesFactor-package. | ANOVA yields *p* < .05 is interpreted as *corrugator* muscle activity changing significantly with blocks. Values of *corrugator* muscle activity are interpreted as equal between blocks if *p* > .05.  Each contrast yielding *p* < .05 is interpreted as *corrugator* muscle activity being different between those two blocks, magnitude and direction are inferred from the respective estimate. Values of *corrugator* muscle activity are interpreted as equal between blocks if *p* > .05.  The Bayes factor *BF10* is reported alongside every *p*-value to assess the strength of evidence. |
| 1c) Physiological arousal (*levator* muscle activity) is lower after using an emotion regulation strategy (distraction, distancing, suppression) compared to active viewing. | F tests - ANOVA: Repeated measures, within factors  Analysis: A priori: Compute required sample size  Input:  Effect size f = 0.1605 (Zaehringer et al., 2020)  α err prob = 0.05  Power (1-β err prob) = 0.95  Number of groups = 1  Number of measurements = 4  Corr among rep measures = 0.5  Nonsphericity correction ε = 1  Output:  Noncentrality parameter λ = 17.5169700  Critical F = 2.6404222  Numerator df = 3.0  Denominator df = 252  Total sample size = 85  Actual power = 0.9509128 | Repeated measures ANOVA with four linear contrasts, comparing the *levator* muscle activity of four blocks (active viewing, distraction, distancing, suppression).  ANOVA is calculated using aov\_ez() function of the afex-package, estimated maginal means are calculated using emmeans() function from the emmeans-package, pairwise contrasts are calculated using pairs().  Bayes factors are computed for the ANOVA and each contrast using the BayesFactor-package. | ANOVA yields *p* < .05 is interpreted as *levator* muscle activity changing significantly with blocks. Values of *levator* muscle activity are interpreted as equal between blocks if *p* > .05.  Each contrast yielding *p* < .05 is interpreted as *levator* muscle activity being different between those two blocks, magnitude and direction are inferred from the respective estimate. Values of *levator* muscle activity are interpreted as equal between blocks if *p* > .05.  The Bayes factor *BF10* is reported alongside every *p*-value to assess the strength of evidence. |
| 2.) Do ER strategies require cognitive effort? (Manipulation check) | 2a) Subjective effort (effort ratings) is greater after using an emotion regulation strategy (distraction, distancing, suppression) compared to active viewing. | F tests - ANOVA: Repeated measures, within factors  Analysis: A priori: Compute required sample size  Input:  Effect size f = 0.2041241 (ηp² = 0.04) (Scheffel et al., 2021)  α err prob = 0.05  Power (1-β err prob) = 0.95  Number of groups = 1  Number of measurements = 4  Corr among rep measures = 0.5  Nonsphericity correction ε = 1  Output:  Noncentrality parameter λ = 17.6666588  Critical F = 2.6625685  Numerator df = 3.0  Denominator df = 156.0  Total sample size = 53  Actual power = 0.95206921 | Repeated measures ANOVA with four linear contrasts, comparing the subjective effort ratings of four blocks (active viewing, distraction, distancing, suppression).  ANOVA is calculated using aov\_ez() function of the afex-package, estimated maginal means are calculated using emmeans() function from the emmeans-package, pairwise contrasts are calculated using pairs().  Bayes factors are computed for the ANOVA and each contrast using the BayesFactor-package. | ANOVA yields *p* < .05 is interpreted as effort ratings changing significantly with blocks. Values of effort ratings are interpreted as equal between blocks if *p* > .05.  Each contrast yielding *p* < .05 is interpreted as effort ratings being different between those two blocks, magnitude and direction are inferred from the respective estimate. Values of effort ratings are interpreted as equal between blocks if *p* > .05.  The Bayes factor *BF10* is reported alongside every *p*-value to assess the strength of evidence. |
| 2b) Majority of participants reuse the strategy that was least effortful for them. | - | Subjects are asked about the reasons for their choice in the follow-up survey. These answers are classified into categories and counted. |  |
| 3.) Which variables can predict individual subjective values of ER strategies? | 3a) Subjective effort ratings negatively predict subjective values of ER strategies. |  |  |  |
| 3b) Subjective arousal ratings negatively predict subjective values of ER strategies. |  |  |  |
| 3c) *Corrugator* muscle activity negatively predict subjective values of ER strategies. |  |  |  |
|  | 3d) *Levator* muscle activity negatively predict subjective values of ER strategies. |  |  |  |
| 4.) Is the effort required for an ER strategy the best predictor for subjective values of ER strategies? | 4a) Subjective values decline with increasing effort, even after controlling for task performance measured by subjective arousal ratings, *corrugator* and *levator* muscle activity. | t tests - Linear multiple regression: Fixed model, single regression coefficient  Analysis: A priori: Compute required sample size  Input:  Tail(s) = One  Effect size f² = 0.34  α err prob = 0.05  Power (1-β err prob) = 0.95  Number of predictors = 3  Output:  Noncentrality parameter δ = 3.4000000  Critical t = 1.6955188  Df = 31  Total sample size = 34  Actual power = 0.9534767 | Multilevel model of SVs with subjective effort as level-1-predictor controlling for subjective arousal, *corrugator*, and *levator* muscle activity using subject specific intercepts and allowing random slopes for ER strategies.  The null model and the random slopes model are calculated using lmer() of the lmerTest-package.  Bayes factors are computed for the MLM using the BayesFactor-package. | Fixed effects yield *p* < .05 are interpreted as subjective values changing significantly with ER strategy. Subjective values are interpreted as equal between ER strategies if *p* > .05.  The Bayes factor *BF10* is reported alongside every *p*-value to assess the strength of evidence. |
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| Exploratory: Are individual subjective values of ER strategies related to personality traits? |  |  | gleiches modell wie oben nur mit Traits |  |
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