**Enhancing Self-Esteem in Adults with Body Dysmorphic Symptoms: Experimental Testing and Initial Evaluation of a Brief Internet-Based Training**

**Supplement**

**Figure S1**

*Estimated Marginal Means and Standard Errors of the Linear Mixed Model for Pre-Intervention, Post-Intervention, and Follow-Up Assessment of the Three Domains of Self-Esteem in Study 1*



*Note.* The Figure shows the estimated marginal means of the linear mixed model. SSES ranged from one to five. There are significant time effects for all three domains of self-esteem. Time point\*intervention group interaction is significant for SSES-social. SSES = State Self-Esteem Scale; SSES-appearance = appearance self-esteem; SSES-performance = performance self-esteem; SSES-social = social self-esteem.

**Figure S2**

*The Flow of Participants (Study 2)*



**Table S1**

*Content of the Unguided* *Self-Esteem and Attention Training Evaluated in Studies 1 and 2*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Study 1: Self-Esteem | Study 1: Attention | Study 2: Self-esteem |
| First Week |  |  |  |
| Monday | pre-measure | pre-measure | pre-measure |
| Tuesday | *psychoeducation:* model of unstable self-esteem  | *psychoeducation:* role of self-focused attention | *psychoeducation:* model of unstable self-esteem |
| Wednesday | *reality-check:* self-attacking thoughts, inner rules, and ideals | *reality-check:* observing self-focused attention | *reality-check:* inner rules and ideals |
| Thursday | *behavior-change:* facets of self-esteem | *behavior-change:* shifting attention-focus (mindful walking) | *behavior-change:* pillars of self-esteem |
| Friday and weekend | *behavior-change:* intentional self-care | *behavior-change:* behavioral experiment on self-focused attention | *behavior-change:* intentional self-care |
| Second Week |  |  |  |
| Monday | overall reflectionpost-measure | post-measure | mid-treatment-measurereflection on self-care |
| Tuesday | - | - | *reality-check:* exploring self-attacking thoughts |
| Wednesday | - | - | *behavior-change:* introducing self-serving thoughts |
| Thursday | - | - | *behavior-change:* developing self-serving thoughts |
| Friday | - | - | overall reflectionpost-measure |
| Third Week |  |  |  |
| Monday | follow-up-measure | follow-up-measure |  |

**Table S2**

*Adherence to Internet-based Trainings of Participants in Study 1 and 2*

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Study 1: Self-esteem (*n* = 112) | Study 1: Attention (*n* = 108) | Study 2:Self-esteem (*n* = 58) |
|  | *M* (*SD*) | *M* (*SD*) | *M* (*SD*) |
| Adherence (active training days)  | 4.5 (1.06) | 4.35 (1.23) | 8.93 (2.42) |
| Adherence | *n* | % | *n* | % | *n* | % |
|  1 active training day  2 active training days 3 active training days 4 active training days 5 active training days  6 active training days 7 active training days 8 active training days 9 active training days 10 active training days | 459787 | 3.474.468.046.2577.68 | 8311779 | 7.412.7810.196.4873.15 | 22110012841 | 3.453.451.721.72001.723.4513.7970.69 |

*Note.* In study 1, there were a maximum of five active training days, and in study 2, there were a maximum of ten active training days. A day was counted as active as soon as the participants logged in and had access to the training content.

**Table S3**

*Fixed Effects Estimates of the Linear Mixed Model for Pre-Intervention, Post-Intervention, and Follow-Up Assessment of Appearance Self-Esteem in Study 1*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | Estimate *(B)* | *SE* | *df* | *t* | *p* |
| Intercept | -0.050 | .075 | 322.436 | -0.660 | .510 |
| SSESa baseline value | 0.958 | .027 | 230.662 | 35.273 | <.001 |
| Intervention group | 0.019 | .042 | 426.201 | 0.439 | .661 |
| Time point | 0.183 | .022 | 372.816 | 8.390 | <.001 |
| Time point \* intervention group | -0.015 | .022 | 375.291 | -0.689 | .491 |

*Note. B =* unstandardized estimator of the fixed effects*; SE =* Standard Error*; df =* degrees of freedom; estimate of *df* withSatterthwaite approximation; SSESa = appearance state self-esteem.

**Table S4**

*Fixed Effects Estimates of the Linear Mixed Model for Pre-Intervention, Post-Intervention, and Follow-Up Assessment of Performance Self-Esteem in Study 1*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | Estimate (*B*) | *SE* | *df* | *t* | *p* |
| Intercept | 0.200 | .100 | 303.364 | 1.989 | .048 |
| SSESp baseline value | 0.911 | .027 | 252.246 | 33.898 | <.001 |
| Intervention group | -0.027 | .042 | 424.227 | -0.635 | .526 |
| Time point | 0.112 | .022 | 377.094 | 5.130 | <.001 |
| Time point \* intervention group | 0.027 | .022 | 377.489 | 1.213 | .226 |

*Note. B =* unstandardized estimator of the fixed effects*; SE =* Standard Error*; df =* degrees of freedom; estimate of *df* withSatterthwaite approximation; SSESp = performance state self-esteem.

**Table S5**

*Fixed Effects Estimates of the Linear Mixed Model for Pre-Intervention, Post-Intervention, and Follow-Up Assessment of Social Self-Esteem in Study 1*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | Estimate (*B*) | *SE* | *df* | *t* | *p* |
| Intercept | 0.180 | .072 | 362.645 | 2.495 | .013 |
| SSESs baseline value | 0.848 | .025 | 226.572 | 33.996 | <.001 |
| Intervention group | 0.070 | .046 | 419.396 | 1.502 | .134 |
| Time point | 0.195 | .024 | 376.508 | 8.165 | <.001 |
| Time point \* intervention group | -0.070 | .024 | 377.713 | -2.945 | .003 |

*Note. B =* unstandardized estimator of the fixed effects*; SE =* Standard Error*; df =* degrees of freedom; estimate of *df* withSatterthwaite approximation; SSESs = social state self-esteem.

**Table S6**

*Fixed Effects Estimates of the Linear Mixed Model for Pre-Intervention, Post-Intervention, and Follow-Up Assessment of Self-Focused Attention in Study 1*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | Estimate (*B*) | *SE* | *df* | *t* | *p* |
| Intercept | 3.199 | .437 | 399.711 | 7.319 | <.001 |
| FAQs baseline value | 0.743 | .035 | 250.746 | 21.422 | <.001 |
| Intervention group | 0.043 | .283 | 417.061 | 0.151 | .880 |
| Time point | -0.926 | .145 | 372.957 | -6.364 | <.001 |
| Time point \* intervention group | 0.149 | .145 | 373.098 | 1.026 | .305 |

*Note. B =* unstandardized estimator of the fixed effects*; SE =* Standard Error*; df =* degrees of freedom; estimate of *df* withSatterthwaite approximation; FAQs = self-focused attention.

**Table S7**

*Fixed Effects Estimates of the Linear Mixed Model for Pre-Intervention, Post-Intervention, and Follow-Up Assessment of Other-Focused Attention in Study 1*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | Estimate (*B*) | *SE* | *df* | *t* | *p* |
| Intercept | 2.025 | .360 | 394.675 | 5.627 | <.001 |
| FAQo baseline value | 0.770 | .029 | 239.559 | 26.402 | <.001 |
| Intervention group | 0.265 | .235 | 415.739 | 1.128 | .260 |
| Time point | 0.221 | .121 | 373.584 | 1.822 | .069 |
| Time point \* intervention group | -0.280 | .121 | 373.352 | -2.301 | .022 |

*Note. B =* unstandardized estimator of the fixed effects; *SE* = Standard Error; *df* = degrees of freedom; estimate of *df* with Satterthwaite approximation; FAQo = other-focused attention.

**Table S8**

*Fixed Effects Estimates of the Linear Mixed Model for Pre-Intervention, Post-Intervention, and Follow-Up Assessment of Body Dysmorphic Symptom Severity in Study 1*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | Estimate (*B*) | *SE* | *df* | *t* | *p* |
| Intercept | 4.944 | .903 | 332.445 | 5.476 | <.001 |
| FKS baseline value | 0.919 | .028 | 238.335 | 32.426 | <.001 |
| Intervention group | -0.062 | .458 | 430.182 | -0.137 | .891 |
| Time point | -3.212 | .233 | 372.457 | -13.775 | <.001 |
| Time point \* intervention group | 0.138 | .233 | 372.725 | 0.592 | .554 |

*Note. B =* unstandardized estimator of the fixed effects*; SE =* Standard Error*; df =* degrees of freedom; estimate of *df* withSatterthwaite approximation; FKS = body dysmorphic symptom severity.

**Table S9**

*Fixed Effects Estimates of the Linear Mixed Model for Pre-Intervention, Post-Intervention, and Follow-Up Assessment of Euthymia in Study 1*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | Estimate (*B*) | *SE* | *df* | *t* | *p* |
| Intercept | 1.961 | .440 | 371.609 | 4.458 | <.001 |
| STADIeuth baseline value | 0.805 | .035 | 243.097 | 22.919 | <.001 |
| Intervention group | 0.098 | .277 | 415.909 | 0.353 | .725 |
| Time point | 0.166 | .144 | 381.613 | 1.151 | .250 |
| Time point \* intervention group | -0.045 | .143 | 382.746 | -0.312 | .755 |

*Note. B =* unstandardized estimator of the fixed effects*; SE =* Standard Error*; df =* degrees of freedom; estimate of *df* withSatterthwaite approximation; STADIeuth = euthymia.

**Table S10**

*Fixed Effects Estimates of the Linear Mixed Model for Training for Pre-Intervention, Post-Intervention, and Follow-Up Assessment of Dysthymia in Study 1*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Term | Estimate (*B*) | *SE* | *df* | *t* | *p* |
| Intercept | 1.603 | .380 | 417.503 | 4.215 | <.001 |
| STADIdys baseline value | 0.817 | .032 | 253.461 | 25.317 | <.001 |
| Intervention group | 0.006 | .252 | 417.767 | 0.025 | .980 |
| Time point | -0.150 | .130 | 374.714 | -1.148 | .252 |
| Time point \* intervention group | -0.018 | .130 | 376.124 | -0.137 | .891 |

*Note. B =* unstandardized estimator of the fixed effects*; SE =* Standard Error*; df =* degrees of freedom; estimate of *df* withSatterthwaite approximation; STADIdys = dysthymia.

**Table S11**

*Within-Group Intervention Effects (Estimated Trends) of the Self-Esteem and Attention Training for Pre-Intervention, Post-Intervention, and Follow-Up Assessment in Study 1*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | *95 % CI* |  |  |  |
| Variable | Condition | Slope | *SE* | *df* | Lower | Upper | *t* | *p* | *d* |
| SSES – appearance | Self-Esteem | 0.17 | .03 | 370.83 | 0.11 | 0.23 | 5.50 | <.001 | 0.29 |
| Attention | 0.20 | .03 | 377.15 | 0.14 | 0.26 | 6.39 | <.001 | 0.33 |
| SSES – performance | Self-Esteem | 0.14 | .03 | 374.45 | 0.08 | 0.20 | 4.52 | <.001 | 0.23 |
| Attention | 0.09 | .03 | 380.03 | 0.02 | 0.15 | 2.75 | .006 | 0.14 |
| SSES – social | Self-Esteem | 0.13 | .03 | 373.58 | 0.06 | 0.19 | 3.72 | <.001 | 0.19 |
| Attention | 0.27 | .03 | 380.53 | 0.20 | 0.33 | 7.81 | <.001 | 0.25 |
| FAQ - self | Self-Esteem | -0.78 | .21 | 370.20 | -1.18 | -0.37 | -3.80 | <.001 | -0.20 |
| Attention | -1.08 | .21 | 375.77 | -1.48 | -0.67 | -5.20 | <.001 | -0.29 |
| FAQ - other | Self-Esteem | -0.06 | .17 | 370.93 | -0.39 | 0.28 | -0.34 | .733 | -0.02 |
| Attention | 0.50 | .17 | 375.94 | 0.16 | 0.84 | 2.90 | .004 | 0.15 |
| FKS | Self-Esteem | -3.07 | .33 | 370.50 | -3.72 | -2.43 | -9.36 | <.001 | -0.49 |
| Attention | -3.35 | .33 | 374.64 | -4.00 | -2.70 | -10.11 | <.001 | -0.52 |
| STADI - euthymia | Self-Esteem | 0.12 | .20 | 380.32 | -0.28 | 0.52 | 0.60 | .550 | 0.03 |
| Attention | 0.21 | .20 | 383.98 | -0.19 | 0.61 | 1.03 | .304 | 0.05 |
| STADI - dysthymia | Self-Esteem | -0.17 | .18 | 372.81 | -0.53 | 0.19 | -0.92 | .361 | -0.05 |
| Attention | -0.13 | .19 | 377.95 | -0.50 | 0.23 | -0.71 | .477 | -0.04 |

*Notes.* FKS = Body Dysmorphic Symptoms Inventory as an indicator of symptom severity; SSES = State Self-Esteem Scale; FAQ = Focus of Attention Questionnaire; STADI = State-Trait-Angst-Depressions-Inventory; *SE =* Standard Error; *df =* degrees of freedom; *CI* = Confidence Interval.

**Table S12**

*Fixed Effects Estimates of the Linear Mixed Model for Pre-, Mid- and Post-Intervention Assessment of Appearance Self-Esteem in Study 2*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | Estimate (*B*) | *SE* | *df* | *t* | *p* |
| Intercept | 0.275 | .140 | 81.745 | 1.966 | .053 |
| SSESa baseline value | 0.831 | .048 | 56.277 | 17.278 | <.001 |
| Time point | 0.155 | .032 | 109.084 | 4.866 | <.001 |

*Note. B =* unstandardized estimator of the fixed effects*; SE =* Standard Error; *df =* degrees of freedom; estimate of *df* withSatterthwaite approximation; SSESa = appearance state self-esteem.

**Table S13**

*Fixed Effects Estimates of the Linear Mixed Model for Pre-, Mid- and Post-Intervention Assessment of Performance Self-Esteem in Study 2*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | Estimate (*B*) | *SE* | *df* | *t* | *p* |
| Intercept | 0.448 | .248 | 64.763 | 1.806 | .076 |
| SSESp baseline value | 0.830 | .068 | 56.152 | 12.185 | <.001 |
| Time point | 0.135 | .036 | 109.372 | 3.786 | <.001 |

*Note. B =* unstandardized estimator of the fixed effects*; SE =* Standard Error*; df =* degrees of freedom; estimate of *df* withSatterthwaite approximation; SSESp = performance state self-esteem.

**Table S14**

*Fixed Effects Estimates of Linear Mixed Model for Pre-, Mid- and Post-Intervention Assessment of Social Self-Esteem in Study 2*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | Estimate (*B*) | *SE* | *df* | *t* | *p* |
| Intercept | -0.013 | .141 | 93.464 | -0.094 | .925 |
| SSESs baseline value | 0.912 | .052 | 57.926 | 17.616 | <.001 |
| Time point | 0.209 | .038 | 110.352 | 5.540 | <.001 |

*Note. B =* unstandardized estimator of the fixed effects*; SE =* Standard Error; *df =* degrees of freedom; estimate of *df* withSatterthwaite approximation; SSESs = social state self-esteem.

**Table S15**

*Fixed Effects Estimates of the Linear Mixed Model for Pre-, Mid- and Post-Intervention Assessment of Body Dysmorphic Symptom Severity in Study 2*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | Estimate (*B*) | *SE* | *df* | *t* | *p* |
| Intercept | 4.812 | 1.391 | 96.172 | 3.459 | <.001 |
| FKS baseline value | 0.916 | .044 | 58.919 | 20.777 | <.001 |
| Time point | -2.531 | .362 | 109.288 | -7.001 | <.001 |

*Note. B =* unstandardized estimator of the fixed effects*; SE =* Standard Error*; df =* degrees of freedom; estimate of *df* withSatterthwaite approximation; FKS = body dysmorphic symptom severity.

**Table S16**

*Fixed Effects Estimates of the Linear Mixed Model for Pre-, Mid- and Post-Intervention Assessment of Euthymia in Study 2*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | Estimate (*B*) | *SE* | *df* | *t* | *p* |
| Intercept | 1.891 | .830 | 103.555 | 2.280 | .025 |
| STADIeuth baseline value | 0.677 | .070 | 57.360 | 9.645 | <.001 |
| Time point | 1.119 | .240 | 108.027 | 4.672 | <.001 |

*Note. B =* unstandardized estimator of the fixed effects*; SE =* Standard Error; *df =* degrees of freedom; estimate of *df* withSatterthwaite approximation; STADIeuth *=* euthymia.

**Table S17**

*Fixed Effects Estimates of the Linear Mixed Model for Pre-, Mid- and Post-Intervention Assessment of Dysthymia in Study 2*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Predictor | Estimate (*B*) | *SE* | *df* | *t* | *p* |
| Intercept | 3.114 | .782 | 110.464 | 3.984 | <.001 |
| STADIdys baseline value | 0.704 | .065 | 55.713 | 10.831 | <.001 |
| Time point | -0.518 | .243 | 107.574 | -2.134 | .035 |

*Note. B =* unstandardized estimator of the fixed effects*; SE =* Standard Error; *df =* degrees of freedom; estimate of *df* withSatterthwaite approximation; STADIdys = dysthymia*.*

**Table S18**

*Within-Group Intervention Effects (Estimated Trends)* *for Mid- and Post-Intervention Assessment in Study 2*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | *95 % CI* |  |  |  |
| Variable | Slope | *SE* | *df* | Lower | Upper | *t* | *p* | *d* |
| SSES – appearance | 0.13 | .06 | 46.92 | 0.01 | 0.24 | 2.24 | .030 | 0.33 |
| SSES – performance | 0.14 | .07 | 47.44 | 0.00 | 0.29 | 1.96 | .056 | 0.28 |
| SSES – social | 0.22 | .08 | 49.14 | 0.05 | 0.39 | 2.61 | .012 | 0.37 |
| FKS | -2.98 | .73 | 47.11 | -4.45 | -1.52 | -4.10 | < .001 | -0.60 |
| STADI - euthymia | 0.88 | .40 | 47.13 | 0.09 | 1.68 | 2.23 | .030 | 0.33 |
| STADI - dysthymia | -0.39 | .43 | 46.44 | -1.26 | 0.49 | -0.89 | .378 | -0.13 |

*Notes.* FKS = Body Dysmorphic Symptoms Inventory as an indicator of symptom severity; SSES = State Self-Esteem Scale; STADI = State-Trait-Angst-Depressions-Inventory; *SE =* Standard Error; *df =* degrees of freedom; *CI* = Confidence Interval.