TABLE OF SUPPLEMENTAL APPENDIXES

[Appendix A: Description of Full Participant Screening Steps 2](#_Toc87581051)

[Appendix B: Self-Administered Guided Online Toolkit (Intervention and Control) Flow 3](#_Toc87581052)

[Appendix C: Evaluating Participant Characteristics Across Conditions and Retention 5](#_Toc87581053)

[Appendix D: Intervention Process Evaluation Method and Results 6](#_Toc87581054)

[Appendix E: Multilevel Modeling Rationale, Steps, and Assumptions 10](#_Toc87581055)

[Appendix F: Descriptive Statistics and Correlations for Primary Study Variables 13](#_Toc87581056)

[Appendix G: Supplemental Results 14](#_Toc87581057)

[Appendix H: Guided Audio Exercise Transcripts (Intervention and Control Toolkits) 18](#_Toc87581058)

[Appendix I: References for Supplemental Document 27](#_Toc87581059)

# Appendix A: Description of Full Participant Screening Steps

To reduce Type I and Type II error, we screened baseline and post-intervention surveys for careless responding (Huang, Liu, & Bowling; 2015; Meade & Craig, 2012; for a review, see Breitsohl & Steidelmüller, 2018). For the baseline and post-intervention surveys, we removed all participants who incorrectly responded to at least one of four attention check items (Meade & Craig, 2012) throughout the survey (e.g., “This is a control question. Select always for this question”).

For the daily surveys, to avoid including additional items that could increase survey fatigue, we assessed for careless responding by removing all outlier surveys completed more than 2 standard deviations below average response time (Huang et al., 2015). We calculated participants’ completion time for each survey as the difference between the survey start and end times, which were tracked automatically by the Qualtrics (2019) survey software and provided in the exported raw data file. We also removed any accidentally submitted responses (i.e., blank or multiple entries from the same participant in one day) and surveys with missing identification codes.

# Appendix B: Self-Administered Guided Online Toolkit (Intervention and Control) Flow

**Procedure (Supplemental)**

***How Did Participants Self-Administer and Complete Their Daily Exercises/Survey?***

Participants received daily emails over the course of the 10-day intervention period with web links to their access their online surveys/exercises. The following is an example of the daily instructions that participants received in the Wellbeing Toolkit Control condition and the Wellbeing Toolkit Intervention (to ensure matched-expectancy, all contextual aspects of the conditions, including the wording of all emails, was identical in the two conditions):

**Good Morning!**

Thank you for your continued efforts with the study! Please note that the following survey/exercise links are the same each day. This email serves as a daily reminder.

**1) Please complete the "Daily Morning Survey" TODAY from 7:00 am - 3 pm:** [survey link here]

**2) After completing the Daily Morning Survey,*please wait at least 1 hour before completing the "Daily Exercise and Survey****".*As an example, if you complete the Morning Survey at 11:00 am, you may complete the Daily Exercise and Survey as early as 12 pm or as late as you wish before you go to sleep tonight (even after midnight is okay!). The link for the Daily Exercise and Survey is here: [Link]

***Can I Practice More Than Just 1 Mental Well-being Technique a Day?***

*Yes! You are encouraged to complete as many Mental Well-being Toolkit exercises as you wish*. The more you practice, the further you can shape your brain to create the healthy emotional and cognitive habits to help you in your everyday life. Remember, the purpose of these exercises is not to create or force instant changes. Simply observe how this practice makes you feel and experience your daily life. Let any changes take place naturally as you develop your well-being skills with the Toolkit. Some days you will have different experiences than other days, so try to approach your practice with an open mind. You are encouraged to practice these techniques and exercises on your own in your daily life (e.g., try practicing in your head while you are waiting in line, trying to fall asleep, taking a break from your studies). You can find more information and practice more of the guided audio exercises (voluntary on top of your required 1 exercise per day with the link above) with the optional link below for your own benefit:

**MENTAL WELL-BEING TOOLKIT EXTRA PRACTICE:** [Link]

PLEASE NOTE: Press "Submit Survey" after completion of each survey. This is the only way your results will be processed and counted towards your $5/weekday compensation for your kind efforts.

Please email any questions or concerns to the graduate researcher [contact provided here]. All the best with your daily practice!

*-The Mental Well-being Toolkit Researchers*

***A graffiti covered wall

Description automatically generated***[Cont.] All surveys and daily exercises were delivered via Qualtrics (2019) survey software, with the daily guided audio exercises embedded into the surveys from recordings that we uploaded onto YouTube. Below are a series of select screenshots to exemplify the user experience from the Wellbeing Toolkit Control Condition:

# Appendix C: Evaluating Participant Characteristics Across Conditions and Retention

Table 1 (Supplemental)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | WT Control  M(*SD*) | | WT Control  M(*SD*) | WT Intervention  M(*SD*) | | Test Statistic | | *p* | Final Analyzed  M(*SD*) | | Dropout/Excluded  M(*SD*) | Test Statistic | *p* |
| Age (years) | | 18.32 (0.84) | | 18.30 (1.33) | 18.53 (0.84) | | *F*=0.53 | | *ns* | 18.38 (1.03) | | 18.44 (.81) | *t*= 0.79 | *ns* |
| **Baseline Measures** | |  | |  |  | |  | |  |  | |  |  |  |
| *n* | | 42 | | 45 | 43 | | - | | - | 113 | | 17 | - | - |
| Gender (% male) | | 10.00% | | 9.76% | 13.16% | | *F*=0.11 | | *ns* | 10.92% | | 9.10% | *X2* = 3.26 | *ns* |
| Negative Affect | | 3.67 (1.32) | | 3.93 (1.19) | 3.91 (1.32) | | *F*=0.48 | | *ns* | 3.84 (1.27) | | 3.49 (1.04) | *t* = −1.07 | *ns* |
| Positive Affect | | 4.48 (.69) | | 4.40 (0.98) | 4.27 (0.96) | | *F*=0.59 | | *ns* | 4.39 (0.88) | | 4.20 (1.01) | *t* = −0.80 | *ns* |
| Perceived Stress | | 4.75 (1.09) | | 4.84 (0.92) | 5.12 (0.85) | | *F*=1.05 | | *ns* | 4.90 (0.96) | | 4.60 (1.02) | *t* = −1.17 | *ns* |
| Cognitive Reappraisal | | 4.72 (0.97) | | 4.58 (1.19) | 4.43 (1.15) | | *F*=0.64 | | *ns* | 4.58 (1.11) | | 4.49 (1.50) | *t* = −0.27 | *ns* |
| **2-Week Intervention** | |  | |  |  | |  | |  |  | |  |  |  |
| *n* | | 39 | | 41 | 39 | | - | | - | 119 | | - | - | - |
| Exercise Length (Mean Minutes/ Day) | | 9.58 (3.66) | | 8.91 (4.18) | 10.63 (3.81) | | *F*= 1.94 | | *ns* | 9.69 (3.93) | | - | *-* | *-* |
| Assigned Daily Exercises Completed | | 7.90 (2.71) | | 7.54 (2.58) | 8.18 (2.40) | | *F*=0.63 | | *ns* | 7.87 (2.56) | | - | - | - |
|  |  | |  |  |  |  |  |  | |  |  | | | |

*Means, standard deviations and statistical tests comparing baseline measures and exercise length/ intervention days completed across condition and sample retention over the 2-week intervention period*

*Note.* SD = standard deviation, *ns* = not significant. Comparisons between the three conditions were analyzed with one-way ANOVA analyses. Post hoc tests between groups were not conducted due to non-significant main effects of condition. Comparisons between the analyzed participants versus participants who dropped out or were excluded during the 2-week intervention period (but still completed a baseline survey) were conducted with t-test and chi-square analyses. All continuous outcome variables were measured on a 7-point scale with larger numbers indicating higher construct endorsement.

# Appendix D: Intervention Process Evaluation Method and Results

**Method (Supplemental)**

***Process Evaluation Measures***

We developed process evaluation questions tailored to this study to uncover participants’ experiences and perceptions of their assigned materials (O'Shea et al., 2016). Immediately after completing their daily exercise, participants in all conditions completed an intervention process evaluation (O'Shea et al., 2016).

Specifically, upon completion of their daily exercise, participants rated their mood improvement, ease of exercise completion, and exercise pleasantness on 7-point scales and checked ‘yes’ or ‘no’ to experiencing range of wellbeing benefits as a result of the exercise (e.g., increased gratitude, better understanding of others). Participants also responded to open-text questions to qualitatively assess their daily experiences (e.g., “Please share any comments about your exercise experience”).

In the post-intervention survey, participants indicated their perceptions of exercise pleasantness and perceived intervention ease for their assigned toolkit of exercises as a whole, as well as answered open-text questions to qualitatively assess their assigned Toolkit experiences as a whole after having completed the study.

**Intervention Process Evaluation Results (Supplemental)**

***Summary of Participants’ Qualitative Experiences Across Conditions***

Qualitative comments from open-text feedback collected during participants’ daily online exercise practice helped to clarify intervention experiences. These supplemental qualitative results further supported that wellbeing improvements were seen across all three conditions. Some unpleasant experiences in the intervention toolkit were: “Pressure to do it everyday,” and “The videos were very repetitive into the second week.” Positive experiences ranged from: “I liked that once I have completed the wellbeing toolkit, I understood why I was feeling the way I was a bit better,” and “Making yourself feel good about a situation or how your day went,” to detailed accounts about specific tools such as cognitive reappraisal:

*I was really able to sit down and think about what was bothering me. Sometimes with so much anxiety you only think of the worse possible scenario. With a relaxed state of mind, you are able to pinpoint what is causing your distress, and being able to accept that makes it seem okay, and once its accepted that you cannot change what has happened, and you have found a way to improve for next time, its encouraging because you know what not to do anymore.*

Similarly, participants described positive intervention experiences in the Wellbeing Toolkit Control condition (which was primed in expectancy beliefs for wellbeing improvement). For example, participants described using the recent memory recall exercise similarly to a savouring exercise, with comments such as: “Brings back good moments, clears heads, de-stresses since I'm remembering good times, ” and, “This helps me reflect on the positives on my day.” Thus, it appears that when participants utilized the control exercises to actively remember positive moments or with the intention of reducing stress, they crafted the exercise into an emotion regulation practice similar to the intervention. However, participants in the control condition shared many neutral comments about their exercises, such as: “helped me recall memories that I wasn't aware of before.”

***Supplemental Content Analysis of Participants’ Qualitative Comments Across Conditions***

A research assistant who was blind to condition assignment conducted a supplemental content analysis of participants’ qualitative responses in relation to their daily exercise completion. Results further denoted high positive experiences and perceived benefits consistently across conditions, with patterns of only small increased benefits seen in the intervention condition compared to the Cognitive Toolkit Control, and to a lesser extent, the Wellbeing Toolkit Control condition. Participants’ qualitative descriptions of experiences after each exercise were coded into neutral, positive, and negative valences in regards to wellbeing benefits.

Content analysis results showed that participants in the Wellbeing Toolkit Intervention condition reported 6.6% negatively coded experiences (e.g., “tiring”), as compared to 12.4% in the Wellbeing Toolkit Control and 9.0% in the Cognitive Toolkit Control. Conversely, participants in the Wellbeing Toolkit Intervention condition reported 24.8% neutral or uncategorized experiences (e.g., “deep”), as compared to 23.2% in the Wellbeing Toolkit Control and 33.0% in the Cognitive Toolkit Control. Positively coded experiences (e.g., “helpful” and “calming stressful thoughts”) were unanimously the most frequent across conditions, with the highest frequency (68.6%) coded in the Wellbeing Toolkit Intervention condition, followed by 64.7% in the Wellbeing Toolkit Control and 58.0% in the Cognitive Toolkit Control.

***Supplemental Multilevel Analysis of Participants’ Daily Experiences Across Conditions***

Multilevel analysis of the daily intervention data showed no differences between conditions on daily exercise pleasantness, immediate mood improvement post-exercise, or number of immediate perceived wellbeing benefits participants endorsed (e.g., reduced stress, increased gratitude; all *p* > .05). Similarly, upon completing the intervention, one-way ANOVAs of the post-intervention survey showed no significant differences across conditions on autonomous motivation for intervention participation, intervention enjoyment, usefulness, ease, or intended future use (all *p* > .05). Across conditions, most participants intended to continue using the skills learned from their assigned ‘Toolkit’ at least “once a week” (60%) and described it as “enjoyable” to “extremely enjoyable” (58%), “useful” to “extremely useful” (72%), and “easy” to “extremely easy” (83%) to use in daily life.

# Appendix E: Multilevel Modeling Rationale, Steps, and Assumptions

***Multilevel (Random Coefficient Model) Rationale***

We used random coefficient modeling (i.e., multilevel modeling) to address the multilevel structure of the non-independent data, in which the 1133 daily surveys were nested within 119 participants. Multilevel growth modeling is a recommended approach for analysis of nested longitudinal data with at least three time points at the person-level. Multilevel growth modeling provides improved power (as compared to repeated measures ANOVA analysis) to analyze datasets with large missing data (often seen in daily experience sampling studies as with the current design). Additionally, multilevel growth modeling can be used to test and correct for autocorrelation that is often seen with within-person data, as well as test for non-linear (e.g., quadratic) growth patterns that may unfold over the course of the daily surveys (Ployhart & Vandenberg, 2010). In the current study, observations over 11 days of outcome surveys during the two-week intervention period were nested within participants, resulting in a multilevel model with two levels: *n* = 1133 days at Level 1 (within-persons), refering to the lower level of the daily survey observations, and *n* = 119 participants at Level 2 (between-persons), refering to the highest level of data clustering, which in this sample is at the person level (i.e., multiple daily surveys nested within persons; Bliese & Ployhart, 2002).

***Multilevel (Random Coefficient Model) Steps***

To conduct the best fitting and most parsimonious multilevel analyses, we followed the recommended growth modeling sequence by Bliese and Ployhart (2002): (1) Calculate Interclass Correlation Coefficient (ICC) values for all dependent variables using the Null Models to determine if multilevel analysis is appropriate based on sufficient between and within person variance for each outcome variable, (2) Determine the best representation of time (e.g., linear, quadratic) based on significance tests in random intercepts/ fixed slopes models (i.e., participants allowed to vary at baseline from one another but not over time) for each outcome variable, (3) Determine if random intercepts/ random slopes models (i.e., participants allowed to vary at baseline and over time) fit the data better than random intercepts only models for each outcome variable, based on increased log likelihood values, (4) Determine if data requires corrections (e.g., need for autocorrelation correction based on increases in log likelihood ratios in models with the correction versus models without the correction), (5) Once the best Model 1 is constructed based on steps 1-4, build up Model 2 by adding variables in order of theoretically-driven importance, (6) estimate effect sizes by comparing the amount of variance (i.e., within-person, between-person, and slope) in outcome variables explained by each added predictor in Model 2 as compared to the previous model without the predictor.

***Multilevel (Random Coefficient Model) Assumptions***

We conducted multilevel growth modeling analyses on a nested two-level dataset with *N* = 1133 days of outcome surveys at Level 1 (within-persons) and *N* = 119 participants at Level 2 (between-persons; Bliese & Ployhart, 2002) using R (R Core Team, 2014) and the software package “multilevel” (Bliese, 2013). Variances in dependent variables (DV) across repeated measures were calculated using the interclass correlation coefficient (ICC1). ICC1 results showed moderate within-person variance on all DVs: daily negative affect (.58), positive affect (.62), perceived stress (.56), and cognitive reappraisal strategy (.72), supporting the need for a random-intercept multilevel analysis to model this substantial within-person fluctuation.

We established the most parsimonious and best fitting null model for each outcome to test the independent variables of condition and time. We operationalized the time variable as the daily outcome survey number (i.e., day 0 is the first daily survey prior to commencement of self-administered daily exercises, whereas day 10 is last daily survey representing outcomes from the 10th day of exercise completion). The addition of time to the null model revealed a significant linear trend for time over the 10-day intervention on perceived stress, *β* = −.06, *t*(1013) = −7.58, *p* < .001, 95% CI [−.07, −.05], negative affect, *β* = −.06, *t*(1013) = −8.17, *p* < .001, 95% CI [−.07, −.05], positive affect, *β* = .01, *t*(1013) = 2.24, *p* < .05, 95% CI [.00, .03], and cognitive reappraisal, *β* = −.02, *t*(1013) = −3.20, *p* < .01, 95% CI [−.03, −.01]. This suggests linear patterns of decreased perceived stress, negative affect, and cognitive reappraisal, and increased positive affect over time across all conditions.

A weak positive quadratic relation over time was also significant for perceived stress, *β* = .01, *t*(1012) = 2.60, *p* < .01, 95% CI [.00, .01], negative affect, *β* = .01, *t*(1012) = 3.38, *p* < .001 , 95% CI [.00, .01], and cognitive reappraisal strategy, *β* = .01, *t*(1012) = 2.75, *p* < .01, 95% CI [.00, .01], but non-significant for positive affect, *β* = .00, *t*(1012) = 1.28, *p* = .20, 95% CI [.00, .00]. Given the smaller effect sizes with confidence intervals overlapping with zero in the quadratic models, we chose to explore the most parsimonious models of linear growth. No hypothesized effects were significant when tested using quadratic models.

Based on net increases in log likelihood values indicating greater model fit, we determined that models with random slopes fit the data significantly better than models with fixed slopes (Bliese & Ployhart, 2002). Additionally, models that corrected for autocorrelation fit the data better than without the correction, *p*’s < .05, so we applied the autocorrelation correction for all outcome variables (Bliese & Ployhart, 2002).

# Appendix F: Descriptive Statistics and Correlations for Primary Study Variables

Table 2 (Supplement)

*Means, standard deviations, and correlations for study variables over the 2-week intervention and 11-days of experience sampling.*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | ***M*** | **ICC1** | ***Between-Person SD*** | **1** | **2** | **3** | **4** |
| **All Conditions (*n* = 119; *n*days = 1133)** |  |  |  |  |  |  |  |
| 1. Expectancy Beliefs (day 0 only) | 5.13 | - | 1.13 |  |  |  |  |
| 1. Daily Negative Affect | 2.98 | .58 | 1.22 | –0.25\*\* |  |  |  |
| 1. Daily Positive Affect | 4.52 | .62 | 1.01 | 0.33\*\* | –0.63\*\*\* |  |  |
| 1. Daily Perceived Stress | 3.60 | .56 | 1.22 | –0.15 | 0.66\*\*\* | –0.48\*\*\* |  |
| 1. Daily Cognitive Reappraisal | 4.20 | .72 | 0.95 | 0.38\*\* | –0.22\*\*\* | 0.38\*\*\* | –0.12\*\*\* |
| **WT Intervention (*n* = 39; *n*days = 374)** |  |  |  |  |  |  |  |
| 1. Expectancy Beliefs (day 0 only) | 5.06 | - | 1.27 |  |  |  |  |
| 1. Daily Negative Affect | 2.98 | .62 | 1.34 | –0.18 |  |  |  |
| 1. Daily Positive Affect | 4.46 | .74 | 1.11 | 0.25 | –0.53\*\*\* |  |  |
| 1. Daily Perceived Stress | 3.53 | .57 | 1.20 | 0.01 | 0.65\*\*\* | –0.39\*\*\* |  |
| 1. Daily Cognitive Reappraisal | 4.16 | .66 | 0.82 | 0.27 | –0.18\*\*\* | 0.35\*\*\* | –0.11\* |
| **WT Control (*n* = 41; *n*days = 384)** |  |  |  |  |  |  |  |
| 1. Expectancy Beliefs (day 0 only) | 5.28 | - | 1.00 |  |  |  |  |
| 1. Daily Negative Affect | 3.01 | .53 | 0.27 | –0.49\*\* |  |  |  |
| 1. Daily Positive Affect | 4.54 | .57 | 1.07 | 0.44\*\* | –0.69\*\*\* |  |  |
| 1. Daily Perceived Stress | 3.66 | .53 | 1.33 | –0.50\*\* | 0.71 | –0.61\*\*\* |  |
| 1. Daily Cognitive Reappraisal | 4.30 | .72 | 0.97 | 0.51\*\* | –0.29\*\*\* | .41\*\*\* | –0.24\*\*\* |
| **CT Control (*n* = 39; *n*days = 375)** |  |  |  |  |  |  |  |
| 1. Expectancy Beliefs (day 0 only) | 5.05 | - | 1.12 |  |  |  |  |
| 1. Daily Negative Affect | 2.95 | .63 | 1.10 | 0.13 |  |  |  |
| 1. Daily Positive Affect | 4.55 | .55 | 0.87 | 0.35\* | –0.63\*\*\* |  |  |
| 1. Daily Perceived Stress | 3.59 | .63 | 1.15 | –0.04 | 0.58\*\*\* | –0.40\*\*\* |  |
| 1. Daily Cognitive Reappraisal | 4.13 | .76 | 1.05 | 0.40\* | –0.15\*\* | 0.37\*\*\* | 0.02 |

*Note. n*days *=* number of daily surveys analyzed; *M* = mean; ICC1 = interclass correlation coefficient as an indicator of within-person variance; *SD* = standard deviation.Repeated measures correlations (*rrm)* (Bakdash & Marusich, 2017) were presented for the within-person correlations between variables across 11 daily outcome surveys (i.e., negative affect, positive affect, perceived stress, cognitive reappraisal), with the exception of expectancy beliefs, which were presented as zero-order between-person correlations (correlated with daily outcomes aggregated within-person) because expectancy beliefs were only measured on day 0 after participants received their in-person assigned ‘Toolkit’ training. All *p* values were based on 2-tailed analyses. \**p* < .05. \*\**p* < .01. \*\*\**p* < .001

# Appendix G: Supplemental Results

***How Did the Wellbeing Toolkit Control Condition Compare to the Cognitive Toolkit Control Condition? (H2 and H4 – as removed due to failed manipulation check)***

**H2a-c.** H2a-c proposed that participants in the Wellbeing Toolkit Control would experience greater improvements over time in perceived stress (H2a), negative affect (H2b), and positive affect (H2c), compared with participants in the Cognitive Toolkit Control. Contrast 2 was used to examine this hypothesis. The condition (Wellbeing Toolkit Control vs. Cognitive Toolkit Control) x time interaction was not significant for daily perceived stress, *β* = −.02, *t*(1011) = −1.29, *p* = .20, 95% CI [−.01, .05], *d* = .23, daily negative affect, *β* = .00, *t*(1011) = −0.06, *p* = .96, 95% CI [−.03, .03], *d* = .01, and daily positive affect, *β* = .01, *t*(1133) = 0.60, *p* = .55, 95% CI [−.02, .03], *d* = .08. Thus, the positive effects of time were consistent across both control conditions, failing to support H2a-c.

**H4.** H4 proposed that the Wellbeing Toolkit Control would lead to greater improvements in cognitive reappraisal than the Cognitive Toolkit Control. The condition (Wellbeing Toolkit Control vs. Cognitive Toolkit Control) x time interaction was also significant, showing heightened cognitive reappraisal over the two weeks in the Wellbeing Toolkit Control, *β* = .03, *t*(1011) = 2.56, *p* < .05, 95% CI [.01, .05], *d* = .26, compared with the Cognitive Toolkit Control. Although this finding supports H4, results should be interpreted with caution given the unintended findings of equally high expectancy beliefs across both control conditions.

***How Did the Wellbeing Toolkit Intervention Condition Compare to the Cognitive Toolkit Control Condition?***

We conducted a supplemental and non-planned contrast 3 that compared the Wellbeing Toolkit Intervention condition to the Cognitive Toolkit Control condition (i.e., what resulted as a second matched-expectancy control condition) to further explore the efficacy of the intervention toolkit over the practice of the control toolkit. This supplemental contrast 3 further confirmed a significant condition (intervention vs. control) x time interaction was found, such thatintervention participants also reported heightened increases in daily cognitive reappraisal strategy use over the two weeks as compared to participants in the Cognitive Toolkit Control condition, *β* = .05, *t*(669) = 2.94, *p* < .01, 95% CI [.01, .09], *d* = .50.

***Did Expectancies for Wellbeing Improvement Change Over Time?***

We also considered the possibility that high hopes at the start of a program could fade if expectations are not met. To test this threat, we measured expectancy beliefs at the start and end of the intervention and found that participants’ within-person expectancy beliefs remained unchanged. This finding is supported by participants’ favourable post-intervention survey feedback across all conditions expressing high enjoyment and perceived usefulness of their assigned materials.

***Does Controlling For Baseline Differences Between Conditions Influence Results?***

All daily data analyses were run a second time, controlling for baseline scores corresponding to each outcome variable to determine if the slight (yet non-significant; See Table 1 in this Supplement) baseline differences across conditions were confounding the results in any way, despite random sampling in the RCT design. We can confirm that the patterns of results (i.e., +/ -), as well as non-significant and significant findings (as presented in the main manuscript results) remained the same when controlling for baseline scores, indicating unlikely confounding due to baseline differences.

***Did the Type of Exercise Selected Moderate Changes Over Time?***

Exercise selection did not predict wellbeing changes over time. The same multilevel growth modeling procedure from the main hypotheses was applied to test time interactions. In the Wellbeing Toolkit Intervention condition, the choice of daily exercise (i.e., mindfulness, savouring, or cognitive reappraisal) did not lead to significant changes in daily cognitive reappraisal, *β* = −0.02, t(238) = −1.69, p = .09, 95% CI [−.05, .02], positive affect, *β* = 0.00, t(238) = 0.10, p = .92, 95% CI [−.03, .03], negative affect, *β* = .01, t(238) = 0.61, p = .55, 95% CI [−.02, .04], or perceived stress over the two-week intervention period, *β* = .01, t(238) = 0.46, p = .64, 95% CI [−.03, .05]. Similarly, in the two control conditions combined, daily exercise selection (i.e., breathing, distant memory recall, or recent memory recall) did not lead to significant changes in cognitive reappraisal, *β* = 0.01, t(467) = 1.23, p = .22, 95% CI [−.01, .03], positive affect, *β* = 0.00, t(467) = 0.08, p = .93, 95% CI [−.02, .02], negative affect, *β* = 0.01, t(467) = 0.39, p = .70, 95% CI [−.02, .04], or perceived stress over the two-week intervention, *β* = 0.00, t(467) = 0.15, p = .88, 95% CI [−.03, .03].

***Does Analyzing the Models Using Quadratic Growth Terms (as Opposed to Linear Growth Terms) Influence Results?***

Given the significant quadratic relation over time found for daily negative affect, daily perceived stress, and daily emotion regulation, we tested all hypotheses (H1-H4) with quadratic growth models as a supplemental analysis to the main linear growth models. No effects were significant when the hypothesized relations were tested using the quadratic growth models, suggesting that the significant condition differences that were present (i.e., sharper growth of emotion regulation in the Wellbeing Toolkit Intervention compared to Wellbeing Toolkit Control) were specifically in relation to a sharper linear slope in the intervention.

***Did Positive User Experience Explain Improvements Over Time?***

Internal analyses with all conditions combined were conducted to examine if positive user experiences were driving the significant wellbeing changes found over time across all conditions. The multilevel growth modeling analysis from the main hypotheses was applied to examine the interaction between time and various intervention evaluations in predicting wellbeing outcomes. It appears that participants’ intervention compliance did not have a significant effect on any changes over time, as measured by the total number of exercises completed, daily self-reported instruction compliance, and total intervention efforts reported at the end of the two weeks.

Our supplemental internal analyses further suggest that high expectancy beliefs (treatment credibility scale; Borkovec & Nau, 1972) or any positive intervention evaluations, as measured using the scales for perceived exercise enjoyment, usefulness, ease of exercise use, and intended future use, did not have any significant effect on changes in any of the wellbeing outcomes over time.

# Appendix H: Guided Audio Exercise Transcripts (Intervention and Control Toolkits)

The full interview transcripts across all conditions for each 5-minute guided audio exercise are provide below:

**Part 1: Wellbeing Toolkit Intervention Exercise Transcripts**

***Mindfulness***

Try to let go of any preconceived notions and simply see where this awareness practice takes you. Take a deep and steady breath in and slowly exhale. Start to notice the physical sensations in your body. Where do you feel any pressures or tensions? With a deep inhale,

begin to feel yourself loosening these pressures, beginning to let go, becoming more

accepting of your bodily sensations. Begin by thinking about how you are feeling right now.

What emotions and moods come to mind? What thoughts do you hear? Try to stay curious

about what your mind and body are telling you, while letting attachment to these thoughts

gently slip away just as they come in.

*10-second pause for reflection*

Now start to gently bring the focus of your awareness down the right arm, into the right

elbow, and slowly feel the energy trickling down into the right hand and fingers. Try to bring

a gentle curiosity to explore the sensations that you find. You may become aware of the air

on your hand, the touch of your fingers, the surfaces that your hand rests on. Any sensations

are perfectly natural. Breathe in deeply, and gently release this breath, holding the attention

on your right arm. Remember, any and all sensations are perfectly normal. It is important to

just simply become aware of the sensations, without casting any judgment on the experience.

When you’re ready, take a deep inhale, feel the lower belly expanding, and then slowly

contracting as you exhale. Now inhale, and try imagining the breath entering deep into your

lungs.

Then, on your exhale, feel the air passing down through the right arm, through the

right elbow, and through the right hand, fingers, and slowly out of the fingertips. If your mind

begins to wander, remember that this is okay and completely natural. Simply acknowledge

this thought, and then gently let go of that thought. Start to gently bring the focus of your

awareness down the left arm, into the left elbow, and slowly feel the energy trickling down

into your left hand and fingers. Start to notice the sensations though each of your left fingers.

Try to bring a gentle curiosity to explore the sensations that you find. Breathe in deeply, and

gently release this breath, holding your attention on the sensations that you feel in your left

hand. Now take a deep inhale with your lower belly expanding, and slowly contract it as you

exhale. Inhale and feel the breath entering deep into your lungs. On your exhale, feel the air

passing down through the left arm, the left elbow, and out the left hand, fingers, and

fingertips.

Thank yourselves for taking five minutes now to practice a mindful state with

yourself and your surroundings. Take the time right now to continue practicing this mindful

state and deep breathing on your own if you wish.

***Positive Reappraisal***

Let’s begin by taking notice of your starting sensations, thoughts, and feelings. Try to lower any expectations you may have to block or suppress your internal states right now. Open your mind to becoming aware and accepting of your inner experiences. Start to gently close your eyes, breathe in deeply, and slowly exhale. Notice if you feel any tension in your body. Feel

free to make any necessary movements. You may find it harder to let go of these tensions

after a negative event, and this is completely normal. Take a deep and steady breath in, and

slowly release it. Try to maintain this deep and steady breathing as you start to think about the

negative event that may be worrying, saddening, or bothering you in any way today. Start to

reply this event in your mind, taking yourself away from the moment, and simply watching it,

as an observer would, play in back in your mind.

*10-second pause for reflection*

Try to simply observe what objectively took place in this event.

*10-second pause for reflection*

If you start to sense any intruding thoughts or judgments, simply become aware of them, and

just watch, as an observer, as they pass through your mind.

*10-second pause for reflection*

We will now explore into the future. Although there are many ways this event may be

affecting you negatively at this moment, try to explore the ways that you can grow from this

experience for the future. What lessons, new knowledge, or change in perspective has this

event given you that can help you from this point forward?

*10-second pause for reflection*

Think about how experiencing this event now can help you feel stronger or more capable of

facing something similar, or even facing new challenges in the future?

*10-second pause for reflection*

How can you learn to relate to, empathize with, or help others overcome similar challenges in

the future?

*10-second pause for reflection*

Now try to open up your mind and think of all other potential benefits, no matter how small,

which may come from experiencing this event.

*10-second pause for reflection*

Begin to think about the feelings related to all the possible good from this event.

*10-second pause for reflection*

Take a deep and final breath in, and slowly exhale. Thank yourself for taking the time to gain

strength and learning from difficult moments.

***Savouring***

Start to gently close your eyes, and breathe deeply. Allow yourself to get a little bit more

comfortable, wherever you are right now. Breathe in nice and deeply, and then gently release

the air with an extended exhale. Take this deep breathing with you as we now begin to savour

a positive event that you chose. Replay this event slowly and carefully in your mind, as if you

were right in this very place, right here, right now.

*10-second pause for reflection*

Really capture the positive moment and your appreciation and gratitude.

*10-second pause for reflection*

Now we will start to take your savouring experience even deeper and try to focus on the

smaller details of this moment. Really take them in and appreciate these small positive parts.

*10-second pause for reflection*

If you start to notice any lingering thoughts, worries, or noise, remember that this is

completely natural. Just simply notice these thoughts, and refocus your mind on the positive

moments.

*10-second pause for reflection*

Remember to try and maintain your slow and steady breathing, as you continue to explore

and bask in this moment on your own for a few more deep breaths.

*10-second pause for reflection*

Now let’s begin to fully draw your attention to the feelings that you are experiencing as you

explore this positive moment with awareness and curiosity. Let these feelings from the

positive moment wash over you. How are you feeling right now?

*10-second pause for reflection*

Let’s focus now on why this positive moment happened to you. Simply try to come up with

something that feels right for you. Take note of even the smallest role that you played in

creating this moment today.

*10-second pause for reflection*

Try to remind yourself of these small moments throughout your day today. Observe how

thinking about such a small moment can make you feel. Stay with these feelings and thank

yourself for taking the time to practice savouring.

**Part 2: Wellbeing Toolkit Control and Cognitive Toolkit Control (Identical Exercises in Both Conditions) Exercise Transcripts**

***Breathing Exercise***

Begin by getting comfortable, wherever you are. Close your eyes, if you wish. Start to focus

on your breathing. What are the types of sounds that you hear in your breathing, right now?

Do you notice yourself breathing fast, or slow, or maybe just average pace? Start to notice

any changing sensations in your breathing. Simply listen to your breathing, right now.

*10-second pause for reflection*

Notice if there are any other sounds that you hear around you, right now. What are these

sounds? What do you hear?

*10-second pause for reflection*

Are the sounds around you very loud, or very soft, or maybe somewhere in the middle? What

kinds of things do these sounds make you think about? Continue to listen to your own

breathing.

*10-second pause for reflection*

Start to also notice the rhythm of your inhales and your exhales. Are they the same length and

rhythm, or different?

*10-second pause for reflection*

What other thoughts are coming to mind right now?

*10-second pause for reflection*

Try to integrate the sounds that you hear all around you with your breath. What is it like for

you to try to listen to your breathing, overtop of all of the different sounds around you right

now? Is this this difficult, easy, or normal for you to experience? Are you noticing any

unusual sounds in your environment right now? Continue to listen to all of these sounds

around you.

*10-second pause for reflection*

What about your breathing? Do you notice anything unusual about your breath right now?

Continue to integrate the sounds that you hear with your breathing. What are all the thoughts

that are coming to mind?

*10-second pause for reflection*

Thank you for practicing the breathing exercise. Continue to listen to your breathing right

here and now if you wish.

***Distant Memory Recall***

Let’s begin by sitting or standing comfortably, wherever we are, right now. Now start to think

about the distant memory that you chose. What is this distant memory? Where were you

when this happened, who were you with, and what happened in this moment? Take a look

back at this moment and now fully replay the details in your mind, right here and now.

*10-second pause for reflection*

What parts of the memory are immediately coming to mind?

*10-second pause for reflection*

What parts are you having difficulty remembering?

*10-second pause for reflection*

What parts of the memory are unusual?

*10-second pause for reflection*

Continue to simply observe this memory in your mind and watch it play back in your head.

*10-second pause for reflection*

Think about the parts that you are having difficulty remembering. Start to think about why

you are having difficulty remembering these moments. How are these gaps different from the

parts that are most clear in your mind?

*10-second pause for reflection*

Try to think about the thoughts that you were having when this moment took place. What

were you thinking at the time?

*10-second pause for reflection*

What are your thoughts about the memory now?

*10-second pause for reflection*

Continue to really replay this whole memory in your mind for a few more moments.

*10-second pause for reflection*

Do you notice any other parts becoming more noticeable as you observe this memory

further?

*10-second pause for reflection*

Are the parts that are most clear or important to you now the same as the parts that were most

clear at the start of this memory reflection?

*10-second pause for reflection*

Do you notice any new thoughts coming to mind about this memory?

*10-second pause for reflection*

Thank you for practicing the distant memory recall. You may continue thinking about this

distant memory on your own if you wish.

***Recent Memory Recall***

Begin by taking a seat, or standing comfortably wherever you are. Maybe close your eyes if

this helps you with your reflection process. Start to go back to this memory that you came up

with from today. Remember that this can be any memory or event, big or small, from today.

Start to replay this memory in your mind, just as it happened. What parts are really coming to

mind?

*10-second pause for reflection*

What parts are less noticeable in your mind?

*10-second pause for reflection*

What were you thinking when this moment was happening? Start to go back to your thought

process and what was going on in your mind.

*10-second pause for reflection*

What are your thoughts about your memory now? Examine these thoughts.

*10-second pause for reflection*

Why do you think this memory came to your mind from today?

*10-second pause for reflection*

Is this memory starting to bring back other memories or events from today, or from this past

week?

*10-second pause for reflection*

Are you noticing anything in particular from this event coming to your mind right now?

*10-second pause for reflection*

Now start to think about why this moment happened to you today. This may be hard to come

up with at first, but just notice any explanation that you can come up with.

*10-second pause for reflection*

Take a few more moments to really replay this memory in your mind, just as it happened.

*10-second pause for reflection*

Bring your mind, your body, and your awareness, back to this memory right here and now.

*10-second pause for reflection*

Conclude this practice by noticing any lingering thoughts or questions that you have about

this moment today. What are you thinking about?

*10-second pause for reflection*

Thank you for practicing the recent memory recall today. Feel free to continue playing back

recent memories in your mind if you wish.

# Appendix I: References for Supplemental Document

Bakdash, J. Z., & Marusich, L. R. (2017). Repeated measures correlation. *Frontiers in Psychology, 8,* 456.

Bliese, P. (2013). *Multilevel.* http://CRAN.Rproject.org/package=multilevel

Bliese, P. D., & Ployhart, R. E. (2002). Growth modeling using random coefficient models: Model building, testing, and illustrations. *Organizational Research Methods, 5*(4), 362-387.

Bono, J. E., Glomb, T. M., Shen, W., Kim, E., & Koch, A. J. (2013). Building positive resources: Effects of positive events and positive reflection on work stress and health. *Academy of Management Journal, 56*(6), 1601-1627.

Borkovec T. D., & Nau S. D. (1972). Credibility of analogue therapy rationales. *Journal of Behavior Therapy and Experimental Psychiatry, 3*, 257-260.

Breitsohl, H., & Steidelmüller, C. (2018). The impact of insufficient effort responding detection methods on substantive responses: Results from an experiment testing parameter invariance. *Applied Psychology*, *67*(2), 284-308.

Bryant, F. B. & Veroff, J. (2007). *Savouring: A new model of positive psychology.* Lawrence Erlbaum Associates.

Folkman, S. (1997). Positive psychological states and coping with severe stress. *Social Science and Medicine, 45*, 1207-1221.

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and wellbeing. *Journal of Personality and Social Psychology, 85*(2), 348-362.

Huang, J. L., Liu, M., & Bowling, N. A. (2015). Insufficient effort responding: Examining an insidious confound in survey data. *Journal of Applied Psychology*, *100*(3), 828-845.

Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods, 17,* 437-455.

Ng, W., & Diener, E. (2009). Feeling bad? The ‘‘Power’’ of positive thinking may not apply to everyone. *Journal of Research in Personality, 43*(3), 455-463.

Ohly, S., Sonnentag, S., Niessen, C., & Zapf, D. (2010). Diary studies in organizational research: An introduction and some practical recommendations. *Journal of Personnel Psychology, 9*(2), 79-93.

O'Shea, D., O'Connell, B. H., & Gallagher, S. (2016). Randomised controlled trials in WOHP interventions: A review and guidelines for use. *Applied Psychology: An International Review, 65*(2), 190-222.

Ployhart, R. E., & Vandenberg, R. J. (2010). Longitudinal research: The theory, design, and analysis of change. *Journal of Management*, *36*(1), 94-120.

Proyer, R. T., Gander, F., Wellenzohn, S., & Ruch, W. (2014). Positive psychology interventions in people aged 50–79 years: Long-term effects of placebo-controlled online interventions on well-being and depression. *Aging & Mental Health, 18*(8), 997-1005.

Qualtrics XM (2019). *Qualtrics Survey Software* [Computer Software]. www.qualtrics.com

R Core Team (2014). *R* [Computer Software]*.* www.R-project.org/

Segal, Z. V., Williams, J. M., & Teasdale, J. (2013). *Mindfulness-based cognitive therapy for depression* (2nd ed.). Guilford Press.

Schulz, K. F., Altman, D. G., & Moher, D. (2010). CONSORT 2010 statement: Updated guidelines for reporting parallel group randomised trials. *PLoS Medicine*, *7*(3), e1000251

Zeidan, F., Martucci, K. T., Kraft, R. A., McHaffie, J. G., & Coghill, R. C. (2013). Neural correlates of mindfulness meditation-related anxiety relief. *Social Cognitive and Affective Neuroscience, 9*(6), 751-759.