

## Online Supplemental Materials

**Table S1**

*Instructions provided to participants for each Condition.*

Condition	Instructions
Kindness to Others Experimental Condition	<p>Today, please do a nice thing for someone else. Tonight you will receive a survey, which will ask you questions about that act.</p> <p>This act of kindness can be small (leave an encouraging note for a classmate) or bigger (helping a teacher in a class) and should benefit specific individuals, like family members, friends, or even strangers. Remember that these acts of kindness should <u>involve a little extra effort and be outside your normal routine.</u></p> <p>Examples of acts of kindness for others:</p> <ul style="list-style-type: none"><li>• Volunteering</li><li>• Helping friends, siblings, or peers with homework</li><li>• Complimenting someone</li><li>• Treating someone to lunch</li><li>• Checking in with a friend who may be feeling down</li><li>• Doing extra chores around the house</li><li>• Sending a kind note or a thank you to a friend, neighbor, or classmate</li><li>• Spending extra time with siblings</li><li>• Writing a friend a note</li></ul>
Kindness to Self Active Control	<p>Today, please do a nice thing for yourself. Tonight you will receive a survey, which will ask you questions about that act.</p> <p>This act of kindness can be small (treating yourself to a cup of coffee) or bigger (going out to a movie). Although these acts may involve other people, remember that they should <u>involve a little extra effort and be outside your normal routine.</u></p> <p>Examples of acts of kindness for yourself:</p> <ul style="list-style-type: none"><li>• Treating yourself to a dessert or a snack you like</li><li>• Giving yourself time to exercise or work out</li><li>• Spending time on your favorite hobbies (e.g., drawing, writing)</li><li>• Wearing an outfit that makes you feel good</li><li>• Meeting up with friends</li><li>• Listen to your favorite songs</li><li>• Taking time to celebrate something good that is happening</li><li>• Taking a nap or going to sleep early</li><li>• Indulge in a relaxing bubble bath</li><li>• Asking for and accepting help from others</li><li>• Buying yourself something that makes you happy</li></ul>

Daily Report  
Passive Control

Today, please keep track of what you do. Tonight you will receive a survey, which will ask you to list your activities from that day.

There is no need to remember how you are feeling during this time. Instead, just try to remember factual information about what you are doing. Do not alter your routine in any way, simply keep track of what you do.

Examples of daily activities:

- Morning: Ate breakfast, went to classes, ate lunch with friends.
  - Afternoon: Finished classes, went to club/sports practice, went home, started homework.
  - Evening: Ate dinner, called friends, watched TV, went to bed.
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**Table S2***Example responses of acts by Condition.*

Condition	Instructions
Kindness to Others	“Helped my brother clean his room” “Invited a new girl to go out with me and my friends” “Lent my friend money so she could buy lunch” “Gave a homeless person \$2”
Kindness to Self	“Took a nap” “Made free time so I could play video games” “Bought myself junk food that I love” “Got a pedicure”
Daily Report	“Morning: Went to school Afternoon: Ate lunch with friends, went back to class Evening: Got out of school, went to buy a coffee, and went to the library to do homework.”  “Ate breakfast, went to college application workshop, ate lunch Went home to pick up computer, went to cafe to work on college apps and hang out with a friend Ate dinner with friend, got home”

**Table S3***CONSORT 2010 Checklist of Information to Include When Reporting a Randomized Trial.*

Section/Topic	Item No	Checklist item	Reported on page No
Title and abstract			
	1a	Identification as a randomized trial in the title	<u>1</u>
	1b	Structured summary of trial design, methods, results, and conclusions (for specific guidance see CONSORT for abstracts)	<u>NA</u>
Introduction			
Background and objectives	2a	Scientific background and explanation of rationale	<u>3-5</u>
	2b	Specific objectives or hypotheses	<u>5-6</u>
Methods			
Trial design	3a	Description of trial design (such as parallel, factorial) including allocation ratio	<u>6, Fig. 1</u>
	3b	Important changes to methods after trial commencement (such as eligibility criteria), with reasons	<u>N/A</u>
Participants	4a	Eligibility criteria for participants	<u>8</u>
	4b	Settings and locations where the data were collected	<u>6</u>
Interventions	5	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered	<u>6-7</u>
Outcomes	6a	Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed	<u>9</u>
	6b	Any changes to trial outcomes after the trial commenced, with reasons	<u>N/A</u>
Sample size	7a	How sample size was determined	<u></u>
	7b	When applicable, explanation of any interim analyses and stopping guidelines	<u>N/A</u>
Randomization:			
Sequence generation	8a	Method used to generate the random allocation sequence	<u>N/A</u>
	8b	Type of randomization; details of any restriction (such as blocking and block size)	<u>10</u>
Allocation concealment mechanism	9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned	<u>N/A</u>
Implementation	10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions	<u>10</u>
Blinding	11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how	<u>N/A</u>
	11b	If relevant, description of the similarity of interventions	<u>3, 6</u>
Statistical methods	12a	Statistical methods used to compare groups for primary and secondary outcomes	<u>10-11</u>
	12b	Methods for additional analyses, such as subgroup analyses	<u>10-11</u>

and adjusted analyses

Results			
Participant flow (a diagram is strongly recommended)	13a	For each group, the numbers of participants who were randomly assigned, received intended treatment, and were analyzed for the primary outcome	Fig. 1
	13b	For each group, losses and exclusions after randomization, together with reasons	Fig. 1
Recruitment	14a	Dates defining the periods of recruitment and follow-up	6
	14b	Why the trial ended or was stopped	N/A
Baseline data	15	A table showing baseline demographic and clinical characteristics for each group	Table S4
Numbers analyzed	16	For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups	Table S4
Outcomes and estimation	17a	For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval)	Figs. 2-4, Tables 1-3
	17b	For binary outcomes, presentation of both absolute and relative effect sizes is recommended	N/A
Ancillary analyses	18	Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory	N/A
Harms	19	All important harms or unintended effects in each group (for specific guidance see CONSORT for harms)	N/A
Discussion			
Limitations	20	Trial limitations, addressing sources of potential bias, imprecision, and, if relevant, multiplicity of analyses	25
Generalizability	21	Generalizability (external validity, applicability) of the trial findings	23-26
Interpretation	22	Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence	N/A
Other information			
Registration	23	Registration number and name of trial registry	6
Protocol	24	Where the full trial protocol can be accessed, if available	6
Funding	25	Sources of funding and other support (such as supply of drugs), role of funders	“Funding”

**Table S4***Demographic information by Condition.*

Condition	<i>n</i>	% Female	$M_{\text{age}}$ ( $SD_{\text{age}}$ )	Hispanic /Latino	European American	African American	Asian American	Middle Eastern	Other (multiple ethnicities)
Kindness to Others	33	54.545%	16.303 (0.810)	32.353%	23.529%	8.824%	8.824%	2.941%	23.529%
Kindness to Self	34	52.941%	16.206 (0.729)	21.212%	24.242%	15.152%	6.061%	6.061%	27.273%
Daily Report	30	53.333%	16.267 (0.740)	36.667%	20.000%	10.000%	0.000%	6.667%	26.667%
Full Sample	97	53.608%	16.258 (0.754)	29.897%	22.680%	11.340%	5.155%	5.155%	25.773%

**Table S5***Models testing the 2-way interaction between Condition and Week predicting Positive Affect.*

	Kindness to Others versus Kindness to Self					Kindness to Others versus Daily Report				
	Estimate	SE	95% CI	<i>t</i>	<i>p</i>	Estimate	SE	95% CI	<i>t</i>	<i>p</i>
(Intercept)	3.714	0.222	3.280– 4.148	16.709	<.001	3.483	0.237	3.022– 3.945	14.709	<.001
Week	0.041	0.039	-0.035– 0.118	1.055	.293	0.084	0.047	-0.007– 0.176	1.798	.074
Condition	0.331	0.318	-0.291– 0.952	1.040	.300	0.570	0.328	-0.069– 1.209	1.741	.084
Week * Condition	-0.014	0.056	-0.123– 0.096	-0.247	.805	-0.058	0.064	-0.184– 0.068	-0.896	.371
Random Effects										
$\sigma^2$	.49					.61				
$\tau_{00 \text{ ID}}$	1.10					.93				
ICC	.69					.60				
$N_{\text{ID}}$	67					63				
Observations	307					286				
Conditional $R^2$	.696					.616				

**Table S6***Models testing the 2-way interaction between Condition and Week predicting Negative Affect.*

	Kindness to Others versus Kindness to Self					Kindness to Others versus Daily Report				
	Estimate	SE	95% CI	<i>t</i>	<i>p</i>	Estimate	SE	95% CI	<i>t</i>	<i>p</i>
(Intercept)	1.933	0.216	1.512– 2.353	8.966	<.001	2.345	0.230	1.897– 2.794	10.189	<.001
Week	-0.061	0.040	-0.138– 0.017	-1.526	.128	-0.156	0.046	-0.247– -0.065	-3.368	<.001
Condition	-0.080	0.309	-0.683– 0.522	-0.260	.796	-0.485	0.318	-1.106– 0.135	-1.524	.130
Week * Condition	-0.023	0.057	-0.135– 0.087	-0.418	.676	0.071	0.064	-0.054– 0.197	1.115	.266
Random Effects										
$\sigma^2$	.50					.60				
$\tau_{00 \text{ ID}}$	.98					.84				
ICC	.66					.58				
$N_{\text{ID}}$	67					63				
Observations	307					286				
Conditional $R^2$	.664					.598				



**Table S7***Models testing the 2-way interaction between Condition and Week predicting Perceived Stress.*

	Kindness to Others versus Kindness to Self					Kindness to Others versus Daily Report				
	Estimate	SE	95% CI	<i>t</i>	<i>p</i>	Estimate	SE	95% CI	<i>t</i>	<i>p</i>
(Intercept)	1.533	0.109	1.320– 1.747	14.056	<.001	1.666	0.118	1.434– 1.897	14.106	<.001
Week	-0.833	0.680	-2.160– 0.495	-1.224	.222	0.374	0.720	-1.030– 1.778	-1.049	.603
Week <sup>2</sup>	1.828	0.689	0.484– 3.172	2.654	.008	1.972	0.734	0.540– 3.402	0.520	.008
Condition	-0.039	0.156	-0.344– 0.266	-0.248	.805	-0.172	0.164	-0.492– 0.148	2.688	.298
Week * Condition	-0.308	0.972	-2.205– 1.587	-0.317	.751	-1.514	0.992	-3.450– 0.420	-1.526	.128
Week <sup>2</sup> * Condition	-0.069	0.991	-2.005– 1.862	-0.070	.945	-0.207	1.014	-2.188– 1.770	-0.204	.838
Random Effects										
$\sigma^2$	.15					.15				
$\tau_{00 \text{ ID}}$	.37					.38				
ICC	.71					.72				
Conditional R <sup>2</sup>	.713					.730				
<i>n</i>	67					63				
Observations	307					286				

## Intervention Engagement

Participants generally showed good adherence with the intervention protocol: 63.636% of Kindness to Others and 76.471% of Kindness to Self participants performing the full 12 acts across the intervention period; 93.939% of Kindness to Others and 91.176% of Kindness to Self participants performed at least 9 acts (75% compliance); and 90.909% of Kindness to Others and 100% of Kindness to Self participants performed at least one act per week during the intervention period. See Table S8 for additional details on number of acts reported, act novelty, and time to complete acts.

Number of reported acts was not significantly correlated with age,  $r(67)=.114$ ,  $p=.356$ , nor did it differ by sex,  $t(65)=.017$ ,  $p=.987$ . Number of reported acts was not significantly associated with altruism for Kindness to Others participants,  $r(33)=.017$ ,  $p=.924$ , nor Kindness to Self participants,  $r(34)=.313$ ,  $p=.071$ .

Although participants were only asked to perform and report on 12 total acts during the intervention period, some participants reported multiple acts on a given day resulting in a total of more than 12 acts. All acts, including those beyond the parameters of the intervention instructions were included in intervention engagement analyses. There were no differences in compliance by Condition: number of reported acts (i.e., kind acts and daily reports over the course of the intervention) did not differ by Condition,  $F(2, 94)=1.358$ ,  $p=.262$ ,  $\eta_p^2=.028$ .

Condition ( $n=67$ , Kindness to Others and Kindness to Self) was significantly associated with act performance time such that Kindness to Others acts took significantly less time than Kindness to Self acts, Estimate=-0.975,  $SE=0.167$ ,  $t=-5.846$ ,  $p<.001$ , 95% CI[-1.302, -0.648],  $R^2=.245$ ,  $\sigma^2=1.698$ ,  $\tau_{00}=.314$ . Altruism was not associated with average act performance time in either Condition, Kindness to Others  $r(33)=-.047$ ,  $p=.794$ , Kindness to Self  $r(34)=.171$ ,  $p=.333$ .

Kindness to Self acts were more novel than Kindness to Others acts, Estimate=0.332,  $SE=0.173$ ,  $t=1.926$ ,  $p=.059$ , 95% CI[-0.006, -0.670],  $R^2=.388$ ,  $\sigma^2=.726$ ,  $\tau_{00}=.432$ . Altruism was not associated with average act novelty in either Condition, Kindness to Others  $r(33)=.177$ ,  $p=.325$ , Kindness to Self  $r(34)=.022$ ,  $p=.900$ .

**Table S8***Intervention Engagement by Condition.*

Condition	# of acts	range of reported acts	% reporting $\geq 12$ acts / $< 12$ acts	Time to complete	Novelty
Kindness to Others	11.455 (2.222)	3-17	63.636/ 36.364%	2.563 (1.437)	2.941 (1.200)
Kindness to Self	12.265 (2.466)	8-20	76.471/ 23.529%	3.531 (1.394)	2.606 (0.941)
Daily Report	12.500 (2.460)	8-19	76.667/ 23.333%	NA	NA

*Note.* Participants were asked to perform 12 acts total, one act per day for three days per week for four weeks. Time to complete each act was rated on a scale from 1=less than 5 minutes to 5=more than 1 hour. Novelty was rated on a scale from 0=never to 4=almost always. Means are presented with standard deviations in parenthesis unless otherwise specified.

### **Pre-Intervention Individual Differences**

Descriptive statistics for all variables of interest Pre-Intervention are reported in Table S9.

Younger participants demonstrated higher levels of APS,  $r(97)=-.261$ ,  $p=.010$ , but APS did not significantly differ by sex,  $t(95)=-.809$ ,  $p=.421$ .

Among the primary well-being measures, only positive affect showed a marginally significant trend of Pre-Intervention difference by Condition,  $F(2,94)=2.894$ ,  $p=.060$ ,  $\eta_p^2=.058$ . Tukey HSD post-hoc comparisons revealed individuals in the Kindness to Others Condition reported marginally higher positive affect than those in the Daily Report Condition,  $M_{\text{difference}}=0.770$ ,  $SE=0.327$ ,  $p=.053$ , 95% CI[-0.008, 1.549]. Kindness to Others positive affect did not differ from Kindness to Self, nor did Kindness to Self significantly differ from Daily Report. Negative affect, perceived stress, and altruism did not significantly differ by Condition: negative affect,  $F(2,94)=0.788$ ,  $p=.458$ ; perceived stress,  $F(2,94)=0.200$ ,  $p=.819$ ; APS,  $F(2,94)=.685$ ,  $p=.507$ .

**Table S9**

*Descriptive statistics for Pre-Intervention variables of interest by Condition.*

Condition	N	Altruism	Positive Affect	Negative Affect	Perceived Stress
Kindness to Others	33	1.400 (0.367)	4.212 (1.202)	1.903 (1.486)	1.959 (0.737)
Kindness to Self	34	1.534 (0.559)	3.713 (1.186)	2.300 (1.328)	1.859 (0.626)
Daily Report	30	1.443 (0.485)	3.442 (1.498)	2.200 (1.173)	1.940 (0.694)
Total Sample	97	1.460 (0.476)	3.799 (1.321)	2.134 (1.337)	1.918 (0.680)

*Note.* Means are presented with standard deviations in parenthesis unless otherwise specified.