Online Appendix

"Does promoting one healthy behavior detract from others? Evidence from a field experiment"

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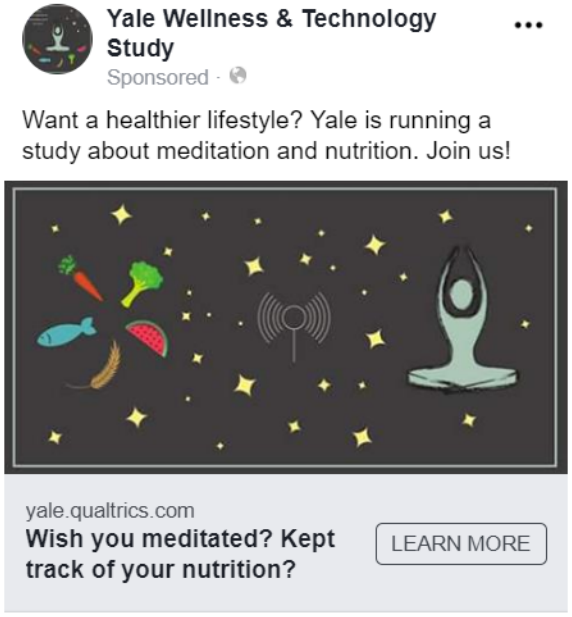
A Experiment Protocol

In this section I describe the details of the experimental protocol. Please see Appendix G for all materials. The experiment took place between January and March of 2019.

I recruited participants using the below Facebook ad, targeting people in the U.S. age 18-65 and allowing the algorithm to train to maximize "conversions," or successful completions of Survey 1.

Figure A1: Facebook Ad Used to Recruit Participants



The first part of Survey 1 was an eligibility test in which participants had to verify six things: (1) ownership of iPhone or Android phone; (2) age 18 or over; (3) interested in working on wellness habits like daily meditation and tracking your nutrition; (4) willing to download two (free) wellness-related smartphone apps for the study; (5) comfortable potentially using a nutrition tracking app; (6) have not already participated in the study.[1] Participants then provided elec-

[1] We received feedback that some participants who had struggled with eating disorders or body image issues in the past were ultimately uncomfortable using the meal logging app.

tronic consent, which included consenting to receive SMS messages associated with the study. The consent form also described the rewards for participation in the study: entrance into a raffle for a $20 Amazon gift card for participation in Survey 1 and app download; and entrance into a raffle for a $50 Amazon gift card for participation in Survey 2 or Survey 3. (If they completed both they were entered twice.)

The next part of Survey 1 was the app download. Participants were given two options: to either download the two apps now, or to download them after finishing the survey. Either way, they were told that they had to download both apps within 24 hours of completing the survey in order to be enrolled. They were told that if they downloaded the apps after 24 hours, they could still enroll, but they should email us to let us know. They were then shown a screen with instructions about how to download each app, which were also emailed to them upon survey completion. These instructions included a temporary assigned password, which enabled us to access their data for the duration of the study.

As described in the paper, the rest of the survey included basic demographic questions; questions on past meditation, exercise, meal logging, and sleep; questions about the full set of notifications, across devices and apps, received by the participant; and questions about the participant's perceived importance, difficulty, and "fun" of meditation, exercise, meal logging, and sleep. The full text of Survey 1 can be found in Appendix G.1. Upon completion of Survey 1, participants were sent an email repeating the instructions for how to download the apps, including their assigned passwords.

Every day, we verified whether new Survey 1 participants for whom 24 hours had elapsed since survey completion (plus old Survey 1 participants who emailed us) downloaded both apps. Those who did were randomized to one of the five treatments, using a script that re-randomized to ensure balance across the full sample.

Confirmed participants were then sent an enrollment confirmation email, which can be found in Section G.2. The enrollment email contained five things: treatment assignment, a link to Survey 2, the results from the Survey 1 raffle, a reminder about assigned passwords, and reminders about the study duration and how to stop messages and/or withdraw.

The announcement of treatment assignment was deliberately written to (a) separate the "program" (i.e., Remindful or eNOMerate) from the study and apps; (b) emphasize that the program was randomly assigned; (c) make clear that the behavior being encouraged is specific to the relevant app; and (d) to clarify that study participation does not obligate participants to use the apps, regardless of any programs they were assigned.

The link to Survey 2 was included in the enrollment email. Survey 2 reminded participants of their treatment assignment, and then asked them how many days per week they "hoped" and "expected" to meditate and log their meals using the study apps. (The full text of Survey 2 can be found in Appendix G.3.

Treatment began the day after the enrollment email was sent. Table A1 displays the messages received by two treatment groups—meditation only and meditation and meal logging—on Day

Table A1: Example Messages, Day 1

Group	Time	Msg 1	Msg 2
med only	8AM	Remember to meditate today! Try the 3-minute breathing space by Mark Williams on [meditation app]!	
	8PM	A meta-analysis in a top medical journal reviewed 47 studies and found systematic evidence that meditation reduces depression and anxiety! (Goyal et al. 2014)	
med & nut	8AM	Remember to meditate today! Try the 3-minute breathing space by Mark Williams on [meditation app]!	Logging meals can help with weight loss (Burke et al. 2011)! And people are better at meal-logging when they use apps like [meal logging app] (Wharton et al. 2014).
	8PM	A meta-analysis in a top medical journal reviewed 47 studies and found systematic evidence that meditation reduces depression and anxiety! (Goyal et al. 2014)	Take one minute to log your meals using [meal logging app] today!

Notes: This table shows the messages that were sent on Day 1, for treatment groups 2 (med only) and 4 (med & nut), as an example. (Treatment group 3 received the same nutrition messages as group 4, but without the meditation messages.) Each message program included twice-daily text messages: one simple reminder to do the behavior, and one longer message with information about some proven benefits to the behavior. Messages were sent at either 7am and 7pm or at 8am and 8pm, alternating on a daily basis. There were 14 distinct messages, and 27 days of treatment, so each message (save one) was sent twice over the course of the program. The full set of messages is shown in the Appendix in Table A2.

1, in order to demonstrate the structure and timing of messages. Table A2 shows the full set of messages. (I do not reveal the names of the meditation and meal logging apps for the sake of confidentiality). The first column contains all of the messages received by any participant assigned to m_x, and the second column contains all of the messages received by any participant assigned to m_y. Each message was sent twice throughout the program (except for messages 14 and 28, which were sent just once). The first 14 rows contain the informational messages, and the second 14 rows contain the reminder/encouragement messages. (A participant assigned to, say, m_x received 2 messages per day—one informational, one reminder—over 27 days, so 54 total messages.) As mentioned in the paper, the two daily messages were sent in the morning (either 7am or 8am) and in the evening (either 7pm or 8pm). The timing of meditation vs. nutrition messages and information vs. reminder messages alternated in a balanced fashion as shown in Table A1. Messages were sent using the platform Slicktext.

The incentive treatment was described initially in the enrollment email as the following. "You will earn a green raffle ticket from eNOMerate for every day that you log at least one meal with FatSecret, and a red raffle ticket for every day that you don't. To receive a ticket, you must log

Table A2: Full Table of Messages

	Meditation	Nutritional Monitoring
1	Evidence from 47 studies suggests that meditation reduces depression and anxiety! (Goyal et al. 2014)	Fact: more than 102 million American adults have high cholesterol, and 35 million are at risk for heart disease as a result (CDC 2013).
2	Did you know that meditation actually changes the physical structures of the brain (Fox et al. 2014)?	Did you know that potassium helps keep your blood pressure low and your heart healthy? The CDC recommends 4700mg of potassium daily for adults age 19-50.
3	Fun fact: for people with insomnia, meditation improves nightly sleep time, and helps people fall asleep faster! (Gross et al 2011)	37.7% of Americans reported that they consume fruits less than once per day! 22.6% report the same for vegetables (CDC 2013). Make sure it's not you!
4	Aetna, a Fortune 500 company, claims that its meditation program made employees more productive, saving $3,000 per employee per year!	90% of Americans consume too much sodium (NHANES 2009-2012), which is a risk factor for heart disease! Many more foods have salt than you might expect!
5	Did you know that meditation programs combat depression almost as effectively as antidepressants? (Kuyken et al. 2008)	Over 15 years, people who consumed >25% of calories as added sugar were twice as likely to die from heart disease as those who consumed <10% (Yang et al. 2014)
6	Did you know that people can use meditation to reduce their physical pain? (Zeidan et al. 2011)	38% of U.S. adults are obese today, relative to 15% in 1980 (NHANES 2013-2014). Log your meals to keep track of your diet!
7	Fun fact: evidence suggests that meditation improves relationship satisfaction! (Sedlmeier et al. 2012)	Logging meals can help with weight loss (Burke et al. 2011)! And people are better at meal-logging when they use apps like [meal logging app] (Wharton et al. 2014).
8	Meditation programs have been shown to reduce stress levels for people with high blood pressure! (Rainforth et al. 2008)	Less than 3% of Americans meet the daily recommended fiber intake (NHANES 2003-2006). Fiber can lower cholesterol and reduce the risk of heart disease
9	Fun fact: the part of the brain responsible for memory actually looks different in people who meditate! (Fox et al. 2014)	The American Heart Association says daily consumption of added sugar should be <25g for women and <38g for men. Yet the average American consumes 82g daily.
10	Did you know that General Mills runs 7-week meditation programs for its executives? Participants say they work more productively and make better decisions.	A host of studies suggest that nutrition is the most important factor in weight management – much more important than exercise (e.g. Johns et al. 2014).
11	Meditation has so many health benefits that today, 79% of medical schools offer some element of mindfulness training (Buchholz 2015)	Are you eating enough whole grains? Find out! Whole grains reduce the risk of diabetes; refined carbohydrates actually increase the risk! (AIEssa et al. 2015)
12	Did you know that 18.1% of adults in the U.S. experience some type of anxiety disorder? Meditation has proven to help! (Goyal et al. 2014)	Moderately active women between 21-40 should be consuming 2200-2000 calories per day (and men 2600-2800). Do you? Find out by tracking meals with [meal logging app]!
13	Did you know that 35% of firms had mindfulness classes in 2017, and another 26% are considering them for the future (National Business Group on Health)?	>100 million Americans have diabetes or prediabetes (Nat'l Diabetes Stats Report 2017). Eating whole grains, and reducing sugar & trans fats, reduces the risk
14	Fun fact: meditation increases the thickness of your prefrontal cortex, the area of your brain associated with attention and self-awareness (Fox et al. 2014)	Fact: many companies are having their employees track their nutrition via smartphone apps as part of wellness programs. Jump on the bandwagon!
15	Greetings from Remindful! Try Tara Brach's Vipassana (Basic) meditation on [meditation app]!	Greetings from eNOMerate! Remember to log your meals today with [meal logging app], if you haven't already!
16	Hello from Remindful! We hope you had a great day. Try Manoj Dias' Basic Breath Meditation on [meditation app]!	Hello from eNOMerate! We hope you had a great day. Take 5 minutes to log your meals with [meal logging app]!
17	Hope you had a healthy, happy day from Remindful. You'll feel great if you end the day with some meditation! [meditation app] makes it easy.	Hope you had a healthy, happy day from eNOMerate. You'll feel great if you end the day by logging your meals! [meal logging app] makes it easy.
18	Remindful wishes you a great evening! Remember to take care of yourself, and find a few minutes to meditate with [meditation app].	eNOMerate wishes you a great evening! Remember to take care of yourself, and find a few minutes to log your meals with [meal logging app]!
19	Good evening from Remindful! You told us you were interested in meditation! So let's get on it. Try something new on [meditation app]!	Good evening from eNOMerate! You told us you were interested in monitoring your nutrition! So let's get on it. [meal logging app] makes it simple!
20	Hi from Remindful! Are you meditating daily with [meditation app]? Keep the habit up!	Hi from eNOMerate! Are you logging your meals daily with [meal logging app]? Keep the habit up!
21	Just another friendly hello, and reminder to meditate with [meditation app], from Remindful. Try the 3-minute breathing space by Mark Williams on [meditation app]!	Just another friendly hello, and reminder to log your meals with [meal logging app], from eNOMerate! ;)
22	Greetings from Remindful! Remember to meditate today with [meditation app], if you haven't already!	Greetings from eNOMerate! Remember to log your meals today with [meal logging app], if you haven't already!
23	Hello from Remindful! We hope you had a great day. Take 5 minutes to meditate with [meditation app]!	Hello from eNOMerate! We hope you had a great day. Take 5 minutes to log your meals with [meal logging app]!
24	Hope you had a healthy, happy day from Remindful. You'll feel great if you end the day with some meditation! [meditation app] makes it easy.	Hope you had a healthy, happy day from eNOMerate. You'll feel great if you end the day by logging your meals! [meal logging app] makes it easy.
25	Remindful wishes you a great evening! Remember to take care of yourself, and find a few minutes to meditate with [meditation app].	eNOMerate wishes you a great evening! Remember to take care of yourself, and find a few minutes to log your meals with [meal logging app]!
26	Good evening from Remindful! You told us you were interested in meditation! So let's get on it. Try something new on [meditation app]!	Good evening from eNOMerate! You told us you were interested in monitoring your nutrition! So let's get on it. [meal logging app] makes it simple!
27	Hi from Remindful! Are you meditating daily with [meditation app]? Keep the habit up!	Hi from eNOMerate! Are you logging your meals daily with [meal logging app]? Keep the habit up!
28	Just another friendly hello, and reminder to meditate with [meditation app], from Remindful! ;)	Just another friendly hello, and reminder to log your meals with [meal logging app], from eNOMerate! ;)

a meal on the day that you ate it. Every Sunday, for the duration of the program, we will let you know via email how many tickets you've accumulated. At the end, we will pull one of your tickets, and if it's green, you will win a $10 Amazon gift certificate. So if you log your meals every day, you will definitely get the gift certificate. If you log your meals half of the time, you will get it with 50% odds. And if you never log your meals, you definitely won't get it. (This is separate from the raffles for survey completion.) The program will begin tomorrow and will last exactly 27 days."

Each Sunday, participants in the incentive treatment received an email informing them of the total green and red tickets they had accumulated. At the end of the treatment period, they were sent a final email informing them of their total tickets, and then later sent the results of the raffle. Ultimately 52% of participants won the raffle.

At the end of the treatment period, all participants received an email informing them that any treatment programs they were in would now end, but that they should keep their app accounts intact with their assigned passwords for another four weeks, when they would receive a wrap-up email from us with a link to Survey 3.

After four weeks a final email was sent, concluding the study and providing a link to Survey 3. In Survey 3, we first ask how much they meditated without the assigned apps, about the timing of their meditation, and whether they felt like meditation came at the expense of any other activity. We then do the same for meal logging, with the additional question of how long it took them to log their meals each day. We then ask whether they set up any additional notifications for either behavior. Next, we ask questions about their mental health and diet. Finally, we administer an informational quiz, asking a true/false question about each informational message the participant received. At the end of Survey 3, participants were told to change their passwords for the two apps. The full text of Survey 3 can be found in Appendix G.4.

B Attrition and Survey Participation

In total 5,845 people filled out Survey 1, meaning that 66% of Survey 1 participants ultimately downloaded both apps and enrolled in the study. Of the 3,885 participants who enrolled, 40 ultimately dropped out, and for an additional 27 we were unable to collect data from at least one of the two phone apps due to technical errors. This resulted in a final sample of 3,818 (as reported in Table 1). Table A3 shows that there was no evidence of differential attrition by treatment.

Table A3: Attrition Rates by Treatment

	control	mx	my	mx & my	zy	F-test, joint sig
attrited	0.011	0.020	0.022	0.018	0.014	0.430
	0.104	0.138	0.147	0.133	0.117	

Notes: Means and standard deviations of attrition rate by treatment group. F-test of joint significance reported in last column.

In terms of survey participation, of our 3,818 study participants, 2,891 completed Survey 2 (75.7%), and 2,145 completed Survey 3 (56.2%).

C IV Estimates of Target Behavior Effects on Non-Target Behaviors

In this section I construct instruments for meditation and meal logging in order to estimate their effects on the opposite behavior. I exploit data from the baseline survey on the time intervals that individuals expected to meditate and log their meals (elicited before they knew the timing of the messages). I define an individual to be "aligned" with m_x (m_y) if they expected to meditate (log their meals) between 8am and 9am, which contains the time of the first daily message (8am). I define an individual to be "only aligned" with m_x (m_y) if they are aligned for m_x and not m_y (m_y and not m_x). Since individuals were allowed to select as many time intervals as they wished, I also compute the total intervals selected, take the inverse, and use it as a weight for the "alignment" indicator.[2] Finally, I multiply this weighted alignment indicator by assignment to the relevant message treatment. The value of the instrument for x is thus 0 if the individual does not receive m_x or does not expected to meditate between 8-9, 1 if the individual receives m_x and only expects to meditate between 8-9, and somewhere in between if the individual receives m_x and expects to meditate at several times including 8-9. It seems plausible that the exclusion restriction holds: that the weighted expectation to meditate between 8-9 interacted with assignment to m_x is random and affects meal logging only through its effect on meditation.

I report the results of this exercise in Appendix Table A9. The instruments are not strong (F-statistics of 3.5 and 5.1 for the meal logging and meditation instruments, respectively), so I report Anderson-Rubin p-values and confidence intervals. Neither meal logging nor meditation appear to have strong negative effects on the opposite behavior.

However, although both coefficients are positive, the 95% confidence interval still includes substantial negative effects: switching meal logging from 0 to 1 could reduce the likelihood of meditation by as much as 10 percentage points, and switching meditation from 0 to 1 could reduce the likelihood of meal logging by as much as 58 percentage points. The former lower bound implies that the additional 38.1 percentage points of meal logging induced by z_y could induce a 3.81 percentage point reduction in meditation, and the additional 16.6 percentage points of meal logging induced by m_y could induce a 1.66 percentage point reduction in meditation. The latter lower bound implies that the additional 8.8 percentage points of meditation induced by m_x could induce a 5.1 percentage point reduction in meal logging. Thus, at the lower bound of the confidence interval, increases in target behaviors could explain the observed decreases in non-target behaviors.

[2] For example, someone who expected to meditate between 8-9, 9-10, and 10-11 would have a weight of 1/3; someone who only expected to meditate between 8-9 would have a weight of 1. For meal logging, I actually use as a weight an indicator for whether the total intervals selected is fewer than 4, as this results in a stronger instrument.

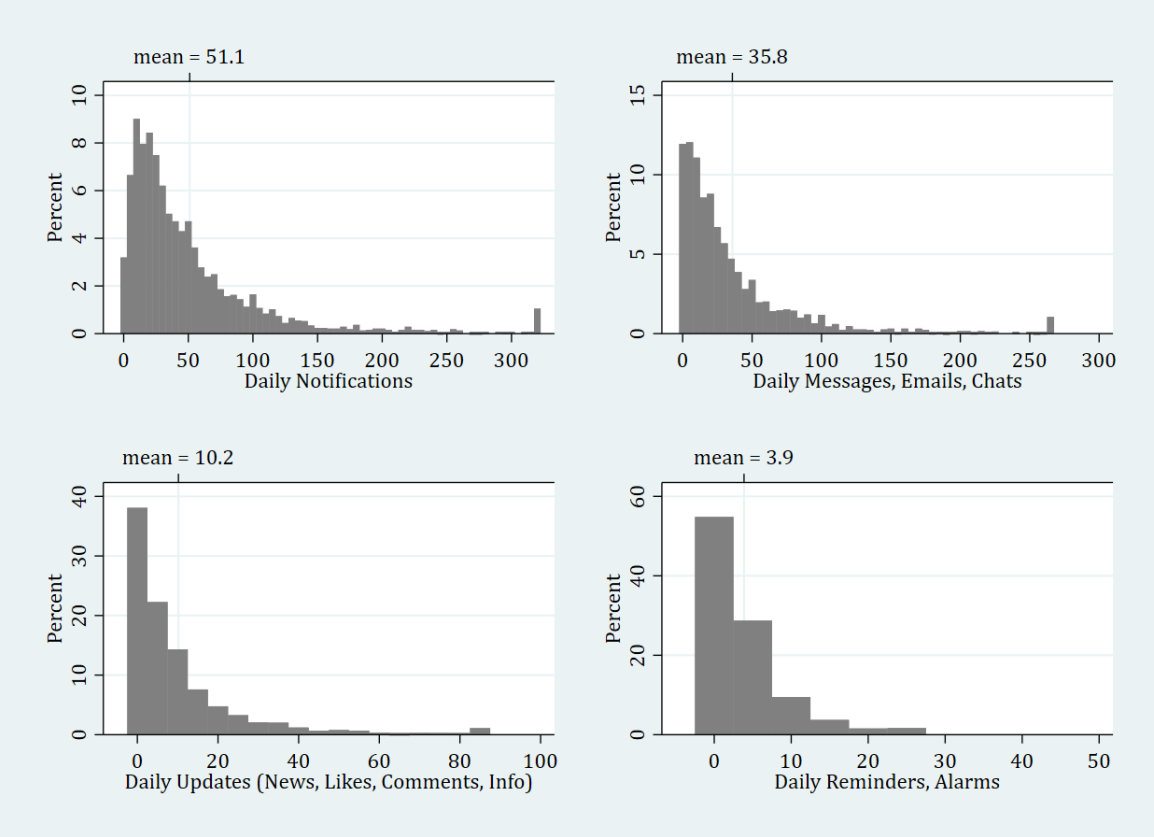
D Heterogeneous Treatment Effects

I look at two potential sources of heterogeneity in spillover effects. The first is by baseline notifications. I interact each treatment with whether participants have notifications that are above or below the median. Table A14 shows the results. There is limited evidence of heterogeneity, though this test is not powered to detect small effects.

Second, I look at treatment effects by baseline experience. I construct an experience score in which the participant gets 1 point if he/she has ever done the behavior, another point if he/she has attempted to do it daily before, and another point if he/she has done it in the last month, for a minimum score of zero and a maximum of three. Table A15 shows the results by whether participations are above or below the median in their experience with the outcome behavior in question. (In Column 1, experience represents meditation experience; in Column 2, experience represents meal logging experience.) I find no evidence of heterogeneity by experience, but again, the data is under-powered to detect small effects.

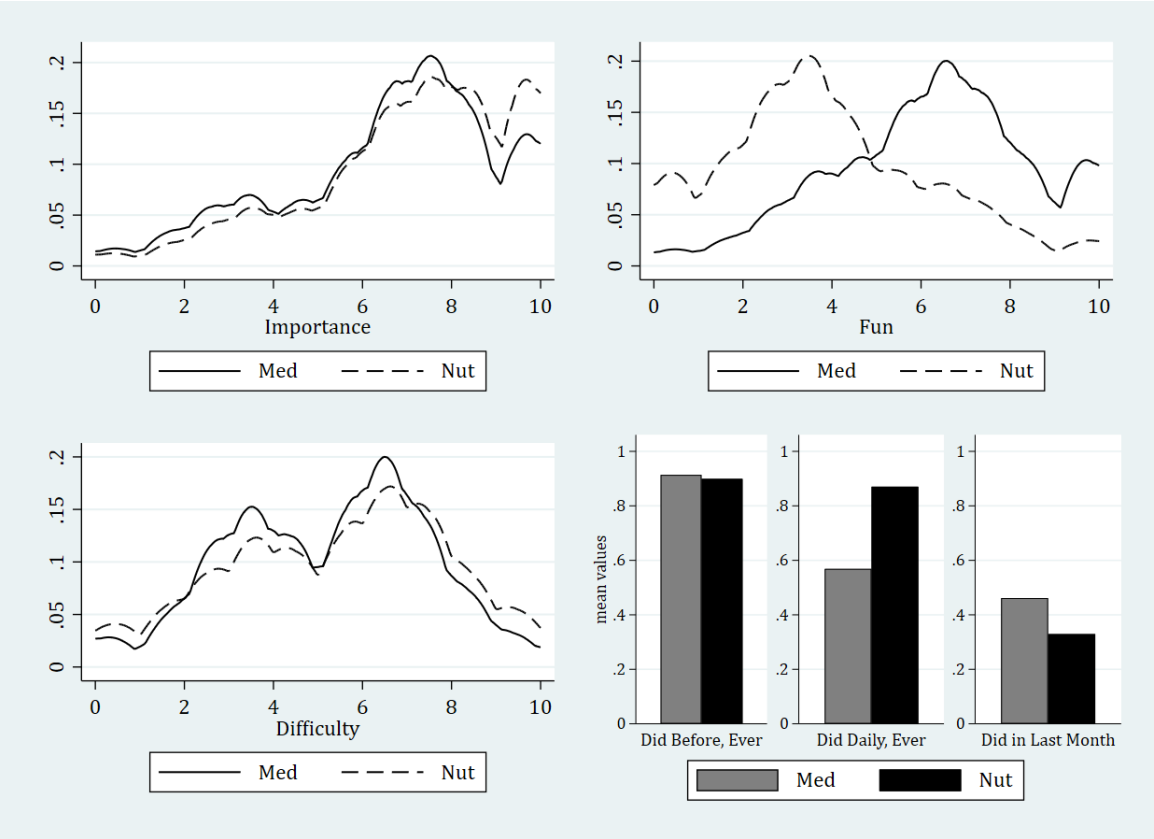
E Additional Data & Analysis

Figure A2: Daily Notifications (after winsorizing at 99%)



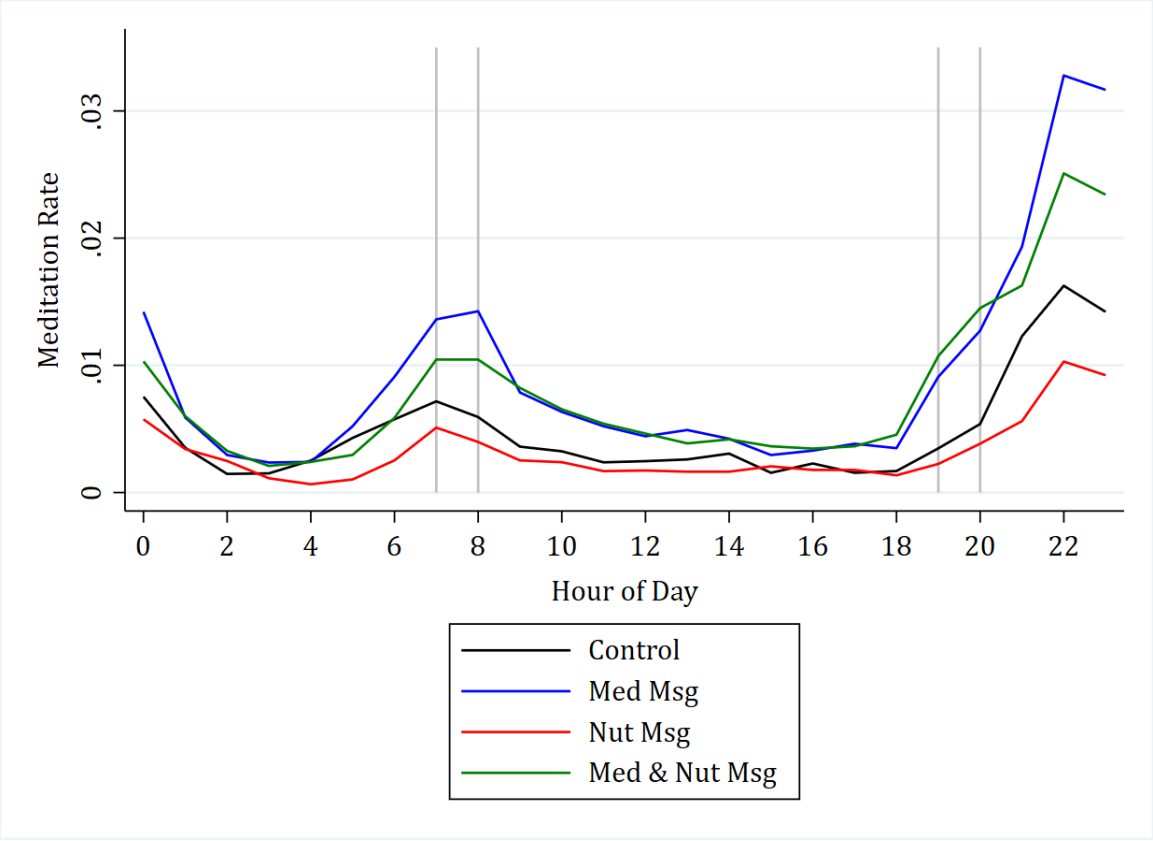
Notes: The distribution of daily notifications, as self-reported in the baseline survey. Participants were asked to list all apps that send notifications across all devices, and then to estimate daily notifications for each app. The top-left plot shows total notifications, and the subsequent plots break notifications down by type.

Figure A3: Preferences and Experience, Meditation & Meal Logging



Notes: The distribution of baseline responses to questions about self-reported importance, fun, and difficulty of each behavior, on a scale from 1 to 10. The most notable difference between the two behaviors is that participants believe that meditation will be more "fun" than meal logging. In the bottom-right plot I depict the self-reported experience with each behavior. The first comparison shows the fraction of participants who ever did the behavior before, the second shows the fraction of participants who ever did the behavior *daily* before, and the third shows the fraction of participants who did the behavior in the last month.

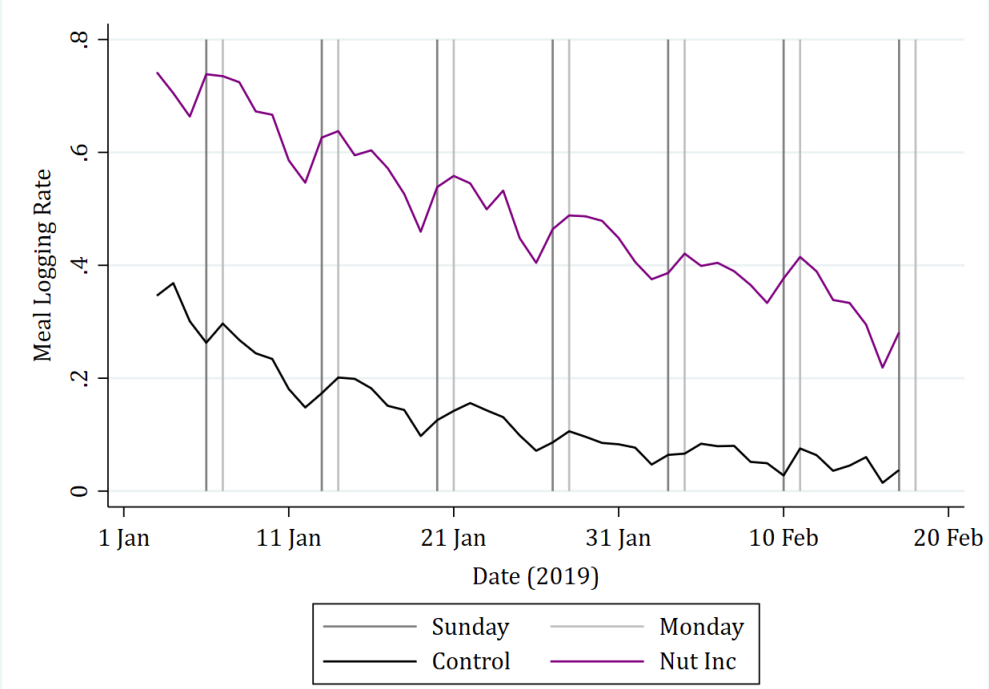
Figure A4: Meditation Rates By Hour of Day



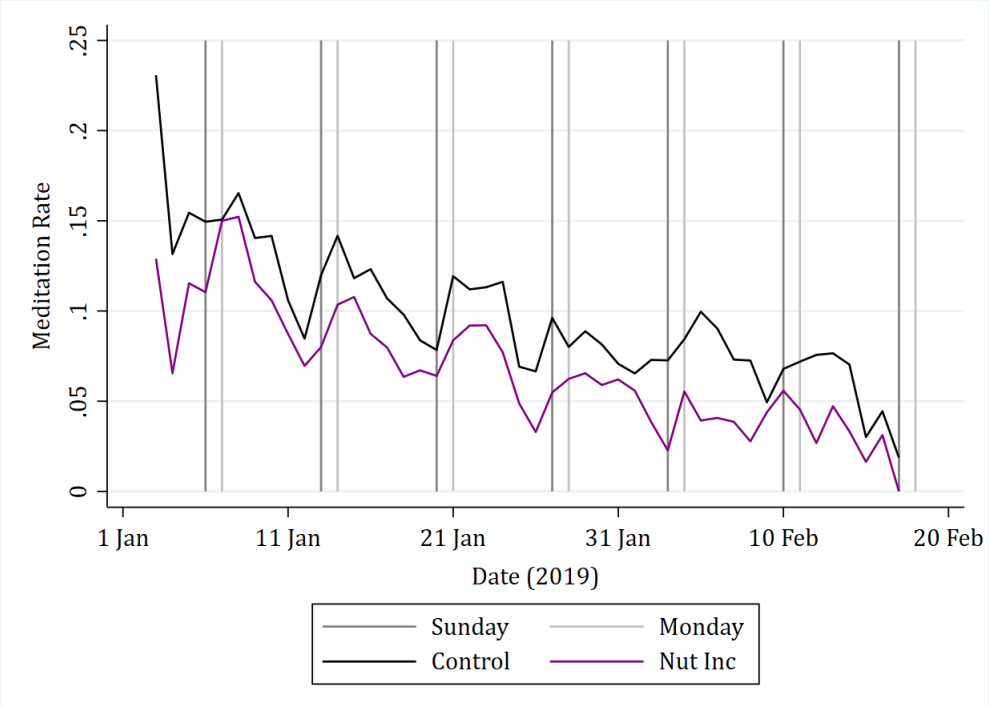
Notes: Mean meditation rates by treatment group, plotted over hours of the day. The gray lines indicate the times that messages were sent.

Figure A5: Meal Logging and Meditation Rates Over Calendar Days

(a) Meal Logging Rate



(b) Meditation Rate



Notes: Meal logging (a) and meditation (b) rates during the treatment period among participants assigned control and z_y, plotted over calendar dates. The dark gray lines indicate Sundays and the light gray lines indicate Mondays. (The rates generally decline over time due, as shown in Figure 1.)

Table A4: Treatment Effects on Binary Outcomes, Mutually Exclusive Groups

	Treatment Period		*Post-Treatment Period*	
	Meditated (0/1)	Logged Meal (0/1)	Meditated (0/1)	Logged Meal (0/1)
	(1)	(2)	(3)	(4)
mx only	0.088***	-0.024**	0.024***	-0.010*
	(0.011)	(0.010)	(0.009)	(0.006)
my only	-0.028***	0.166***	-0.025***	0.029***
	(0.008)	(0.013)	(0.007)	(0.008)
mx & my	0.066***	0.116***	0.009	0.017**
	(0.010)	(0.012)	(0.008)	(0.007)
zy	-0.025***	0.381***	-0.024***	0.037***
	(0.009)	(0.016)	(0.007)	(0.008)
mx - mx & my	0.022	-0.140	0.016	-0.027
	(0.011)	(0.012)	(0.009)	(0.007)
my - mx & my	-0.094	0.050	-0.034	0.013
	(0.009)	(0.014)	(0.007)	(0.008)
Ctrl Mean	0.094	0.118	0.054	0.033
Ctrl SD	0.291	0.323	0.227	0.178
Obs	102905	102905	102499	102499

Notes: OLS regressions of outcomes on mutually exclusive treatments during the treatment period (columns 1 and 2) and post-treatment period (columns 3 and 4). mx only is 1 if the individual received only meditation messages and 0 otherwise; my only is 1 if the individual received only meal logging messages and 0 otherwise; mx & my is 1 if the individual received both meditation and meal logging messages and 0 otherwise; zy is 1 if the individual received only meal logging incentives and 0 otherwise. Specifications include controls for the five baseline variables on which re-randomization was based (female, college, daily notifications, whether individual meditated in last month, whether individual logged meal in last month) as well as day fixed effects. Standard errors clustered at individual level. One, two, and three stars indicate q-values of 1%, 5%, and 10% respectively; q-values calculated according to the Benjamini Hochberg step-down procedure, considering all tests in the table (but excluding linear combinations of coefficients).

Table A5: Main Effects with Bootstrapped p-values

	Treatment Period		*Post-Treatment Period*	
	Meditated (0/1)	Logged Meal (0/1)	Meditated (0/1)	Logged Meal (0/1)
	(1)	(2)	(3)	(4)
mx	0.088***	-0.024***	0.024***	-0.010
	(0.000)	(0.001)	(0.000)	(0.331)
my	-0.028***	0.166***	-0.025***	0.029***
	(0.000)	(0.000)	(0.000)	(0.000)
mx X my	0.006	-0.026	0.009	-0.002
	(0.667)	(0.332)	(0.334)	(0.668)
zy	-0.025***	0.381***	-0.024***	0.037***
	(0.000)	(0.000)	(0.000)	(0.000)

Notes: Coefficients from Table 3 with p-values computed using the bootstrap procedure from Bertsimas et al. (2015). Specifically, 1000 bootstrap samples are drawn, the re-randomization procedure is used to assign treatments in each, coefficients are estimated using the same specification as in Table 3, and the (two-sided) p-value is computed to be the fraction of samples with a coefficient more extreme than the true one.

Table A6: Treatment Effects on Binary Outcomes, Including Use of Other Apps

	Treatment Period		*Post-Treatment Period*	
	Meditated (X)	Logged Meal (Y)	Meditated (X)	Logged Meal (Y)
	(1)	(2)	(3)	(4)
mx	0.242***	-0.032	0.087***	-0.008
	(0.032)	(0.037)	(0.024)	(0.026)
my	-0.027	0.398***	0.006	0.312
	(0.029)	(0.036)	(0.021)	(0.198)
mx X my	0.023	-0.086	0.004	-0.223
	(0.046)	(0.051)	(0.034)	(0.195)
zy	-0.011	0.454***	-0.034	0.255***
	(0.030)	(0.036)	(0.020)	(0.035)
mx + mxmy	0.265	-0.118	0.091	-0.231
	(0.034)	(0.036)	(0.025)	(0.190)
my + mxmy	-0.003	0.312	0.010	0.089
	(0.036)	(0.037)	(0.027)	(0.030)
Ctrl Mean	0.346	0.557	0.212	0.234
Ctrl SD	0.460	0.574	0.330	0.396
Obs	2131	2129	2125	2123

Notes: OLS regressions of an individual-level outcome variable that takes into account the use of other meditation and meal logging apps on treatments. At the final survey, we ask participants how many days they did the behaviors using other apps during the treatment and post-treatment period. I inflate mean meditation and meal logging rates for the duration of the period according to the number of days in which other apps were reported to be used. The number of observations in each specification represents the overlap between the analysis sample of 3,818 and the participants who answered the relevant question (2,145 completed survey 3 but a few did not provide intelligible answers for these questions). The specification includes controls for the five baseline variables on which re-randomization was based (female, college, daily notifications, whether individual meditated in last month, whether individual logged meal in last month). One, two, and three stars indicate q-values of 1%, 5%, and 10% respectively; q-values calculated according to the Benjamini Hochberg step-down procedure, considering all tests in the table (but excluding linear combinations of coefficients).

Table A7: Treatment Effects on Continuous Outcomes During the Treatment Period

	Continuous Outcomes		*Intensive Margin Only*	
	Min. Meditated	Cal. Logged	Min. Meditated	Cal. Logged
	(1)	(2)	(3)	(4)
mx	1.298***	-35.601**	-3.619**	-42.349
	(0.313)	(15.110)	(1.457)	(41.762)
my	-0.863***	212.193***	-3.663*	-1.658
	(0.245)	(19.473)	(1.756)	(35.262)
mx X my	0.432	-25.945	3.557	47.483
	(0.403)	(26.359)	(2.065)	(49.633)
zy	-0.868***	350.546***	-4.756**	-273.184***
	(0.247)	(22.258)	(1.714)	(36.700)
mx + mxmy	1.730	-61.546	-0.062	5.134
	(0.252)	(21.582)	(1.483)	(26.878)
my + mxmy	-0.430	186.248	-0.105	45.824
	(0.319)	(17.736)	(1.116)	(35.017)
Ctrl Mean	2.090	153.352	22.322	1299.512
Ctrl SD	8.705	473.961	18.919	643.607
Obs	102905	102905	11848	24309

Notes: OLS regressions at the individual-day level of daily minutes meditated and daily calories logged on treatments. Columns 1 and 2 include all the data; columns 3 and 4 include only individual-day observations with a positive value for the relevant behavior (i.e., engaged with the behavior some positive amount). mx (my) is 1 if the individual was assigned to receive x (y) messages and 0 otherwise; mx*my is 1 if the individual was assigned to receive both sets of messages. The specification includes controls for the five baseline variables on which re-randomization was based (female, college, daily notifications, whether individual meditated in last month, whether individual logged meal in last month) as well as day fixed effects. Standard errors clustered at individual level. One, two, and three stars indicate q-values of 1%, 5%, and 10% respectively; q-values calculated according to the Benjamini Hochberg step-down procedure, considering all tests in the table (but excluding linear combinations of coefficients).

Table A8: Treatment Effects on Health Outcomes

	Standardized PHQ4 Score (1)	Standardized M. Health Score (2)	Fraction Weight Goal Achieved (3)	Standardized Diet Score (4)
mx	-0.010	0.091	-0.063	0.111
	(0.065)	(0.070)	(0.057)	(0.065)
my	-0.013	0.106	-0.027	0.223**
	(0.066)	(0.067)	(0.052)	(0.070)
mx X my	-0.054	-0.016	0.047	-0.133
	(0.093)	(0.101)	(0.065)	(0.097)
zy	0.006	-0.056	-0.019	0.304***
	(0.067)	(0.067)	(0.055)	(0.072)
mx + mxmy	-0.064	0.075	-0.016	-0.022
	(0.066)	(0.073)	(0.033)	(0.073)
my + mxmy	-0.067	0.090	0.020	0.090
	(0.065)	(0.075)	(0.036)	(0.068)
Ctrl Mean	0.000	0.000	0.132	0.000
Ctrl Mean S.D.	1.000	1.000	0.966	1.000
Obs	2131	2127	1639	2128

Notes: OLS regressions of health outcomes on treatments. Outcomes include (1) standardized score from the PHQ4, a four-item anxiety and depression questionnaire (specifically, respondents are diagnosed as having levels of depression/anxiety that are "normal," "mild," "moderate," or "severe" according to standard score cut-offs; I then score these diagnoses as 0, 1, 2, or 3, respectively, and then standardize relative to the control group, where higher z-scores represent lower mental health); (2) standardized response to "How would you describe your mental health now, relative to before you started the study?"; (3) fraction of weight goal achieved (self-reported), and (4) standardized response to "How would you describe your diet now, relative to before you started the study?" Regressions include controls for the five baseline variables on which re-randomization was based. One, two, and three stars indicate q-values of 1%, 5%, and 10% respectively; q-values calculated according to the Benjamini Hochberg step-down procedure, considering all tests in the table (but excluding linear combinations of coefficients).

Table A9: 2SLS Regressions of Non-Target Behaviors on Target Behaviors

	Meditated (0/1) (1)	Logged Meal (0/1) (2)
Logged Meal	0.478	
	(0.313)	
Meditated		0.637
		(0.502)
p-value (AR)	.086	.202
CI lower bound (AR)	-.104	-.576
F-stat, First Stage	3.526	5.142
R-squared, First Stage	0.120	0.062
Observations	30286	31603

Notes: Two-stage least squares regressions of meditation on meal logging (column 1) and meal logging on meditation (column 2). In column 1, I use as an instrument for meal logging Z1, which is the interaction between three things: an indicator for whether only meal logging messages are aligned with expectations about the timing of meal logging, an indicator for whether the respondent reported 4 or fewer time intervals, and an indicator for receiving meal logging messages. In column 2, I use as an instrument for meditation Z2, which is the interaction between three things: an indicator for whether only meditation messages are aligned with expectations about the timing of meditation, the inverse of the total reported time intervals, and an indicator for receiving meditation messages. I report Anderson-Rubin p-values and lower bounds, as well as the F-statistic and R-squared from the First Stage.

Table A10: Treatment Effects on Binary Outcomes, Controlling for Non-Target Outcomes

	Meditated (0/1) (1)	Meditated (0/1) (2)	Logged Meal (0/1) (3)	Logged Meal (0/1) (4)
mx	0.092***	0.086***	-0.044***	-0.026***
	(0.010)	(0.010)	(0.010)	(0.009)
my	-0.052***	-0.031***	0.173***	0.167***
	(0.008)	(0.007)	(0.013)	(0.012)
mx X my	0.010	-0.024*	-0.028	-0.054***
	(0.014)	(0.012)	(0.017)	(0.016)
zy	-0.080***	-0.035***	0.387***	0.384***
	(0.009)	(0.007)	(0.016)	(0.016)
Logged Meal	0.145***	0.184***		
	(0.007)	(0.022)		
mx X Logged Meal		0.065*		
		(0.035)		
my X Logged Meal		-0.099***		
		(0.025)		
mxmy X Logged Meal		0.086**		
		(0.040)		
zy X Logged Meal		-0.120***		
		(0.024)		
Meditated			0.228***	0.215***
			(0.011)	(0.027)
mx X Meditated				-0.093***
				(0.032)
my X Meditated				0.086**
				(0.040)
mxmy X Meditated				0.098*
				(0.048)
zy X Meditated				0.037
				(0.041)
mx + mxmy	0.101	0.063	-0.072	-0.079
	(0.009)	(0.008)	(0.014)	(0.014)
my + mxmy	-0.043	-0.054	0.145	0.113
	(0.011)	(0.010)	(0.011)	(0.011)
Ctrl Mean	0.094	0.094	0.118	0.118
Ctrl SD	0.291	0.291	0.323	0.323
Obs	102905	102905	102905	102905

Notes: OLS regressions of target outcomes on treatments, controlling for non-target outcomes and interactions with treatments. The specification includes controls for the five baseline variables on which re-randomization was based (female, college, daily notifications, whether individual meditated in last month, whether individual logged meal in last month) as well as day fixed effects. Standard errors clustered at individual level. One, two, and three stars indicate q-values of 1%, 5%, and 10% respectively; q-values calculated according to the Benjamini Hochberg step-down procedure, considering all tests in the table (but excluding linear combinations of coefficients).

Table A11: Expectations and Hopes: Meditation, Meal Logging, Exercise, and Sleep

Panel A: Expectations				
	Expected to Meditate (X) (1)	Expected to Meal Log (Y) (2)	Expected to Exercise (3)	Expected to Sleep (4)
mx	0.113***	-0.017	0.023	-0.009
	(0.012)	(0.017)	(0.014)	(0.015)
my	0.017	0.125***	0.002	0.003
	(0.012)	(0.014)	(0.013)	(0.014)
mx X my	-0.027	0.034	-0.020	0.002
	(0.017)	(0.021)	(0.019)	(0.021)
zy	0.022	0.214***	0.014	-0.001
	(0.013)	(0.015)	(0.014)	(0.015)
mx + mxmy	0.086	0.017	0.003	-0.007
	(0.012)	(0.013)	(0.013)	(0.015)
my + mxmy	-0.009	0.159	-0.018	0.005
	(0.012)	(0.016)	(0.014)	(0.015)
Ctrl Mean	0.384	0.519	0.475	0.595
Ctrl Mean S.E.	(0.009)	(0.012)	(0.010)	(0.010)
Obs	2871	2871	2871	2871
Panel B: Hopes				
	Hoped to Meditate (X) (1)	Hoped to Meal Log (Y) (2)	Hoped to Exercise (3)	Hoped to Sleep (4)
mx	0.127***	-0.016	0.026	-0.001
	(0.013)	(0.018)	(0.012)	(0.010)
my	0.037**	0.104***	0.001	0.002
	(0.014)	(0.015)	(0.012)	(0.010)
mx X my	-0.047*	0.033	-0.028	-0.007
	(0.019)	(0.022)	(0.017)	(0.014)
zy	0.029	0.167***	0.005	0.008
	(0.015)	(0.014)	(0.013)	(0.010)
mx + mxmy	0.080	0.016	-0.002	-0.008
	(0.014)	(0.012)	(0.012)	(0.010)
my + mxmy	-0.010	0.136	-0.027	-0.005
	(0.012)	(0.016)	(0.012)	(0.010)
Ctrl Mean	0.643	0.778	0.681	0.907
Ctrl Mean S.E.	0.011	0.013	0.009	0.007
Obs	2871	2871	2871	2871

Notes: OLS regressions of expected rates of behavior at baseline over treatment period (Panel A) and hoped-for rates of behavior at baseline over treatment period (Panel B) on treatments. The specification includes controls for the five baseline variables on which re-randomization was based. One, two, and three stars indicate q-values of 1%, 5%, and 10% respectively; q-values calculated according to the Benjamini Hochberg step-down procedure, considering all tests in the table (but excluding linear combinations of coefficients).

Table A12: Treatment Effects on Binary Outcomes: Early vs. Late

	Days 0-13		*Days 14-27*	
	Meditated (0/1)	Logged Meal (0/1)	Meditated (0/1)	Logged Meal (0/1)
	(1)	(2)	(1)	(2)
mx	0.112***	-0.030**	0.066***	-0.018*
	(0.012)	(0.013)	(0.011)	(0.009)
my	-0.031***	0.218***	-0.025***	0.118***
	(0.010)	(0.015)	(0.008)	(0.013)
mx X my	0.008	-0.023	0.004	-0.030*
	(0.016)	(0.021)	(0.014)	(0.017)
zy	-0.025**	0.405***	-0.024***	0.359***
	(0.010)	(0.017)	(0.008)	(0.017)
mx + mxmy	0.120	-0.053	0.070	-0.048
	(0.011)	(0.017)	(0.009)	(0.014)
my + mxmy	-0.023	0.195	-0.021	0.089
	(0.013)	(0.015)	(0.011)	(0.011)
Ctrl Mean	0.116	0.170	0.072	0.070
Ctrl SD	0.321	0.376	0.259	0.255
Obs	49597	49597	53308	53308

Notes: OLS regressions of target outcomes on treatments, separately for the first half of the treatment period (days 0-13) and the second half (days 14-27). The specification includes controls for the five baseline variables on which re-randomization was based (female, college, daily notifications, whether individual meditated in last month, whether individual logged meal in last month) as well as day fixed effects. Standard errors clustered at individual level. One, two, and three stars indicate q-values of 1%, 5%, and 10% respectively; q-values calculated according to the Benjamini Hochberg step-down procedure, considering all tests in the table (but excluding linear combinations of coefficients).

Table A13: Treatment Effects on Binary Outcomes: High vs. Low Predicted Meditators

	High Predicted Meditators		*Low Predicted Meditators*	
	Meditated (0/1)	Logged Meal (0/1)	Meditated (0/1)	Logged Meal (0/1)
	(1)	(2)	(1)	(2)
mx	0.028	-0.100***	0.022***	-0.022*
	(0.024)	(0.026)	(0.003)	(0.010)
my	-0.064**	0.210***	-0.002	0.166***
	(0.028)	(0.035)	(0.002)	(0.013)
mx X my	0.067*	0.055	-0.000	-0.077***
	(0.035)	(0.043)	(0.003)	(0.018)
zy	-0.041	0.407***	-0.001	0.385***
	(0.029)	(0.039)	(0.002)	(0.017)
mx + mxmy	0.095	-0.045	0.022	-0.099
	(0.025)	(0.034)	(0.002)	(0.014)
my + mxmy	0.003	0.265	-0.002	0.089
	(0.020)	(0.024)	(0.003)	(0.012)
Ctrl Mean	0.390	0.234	0.017	0.088
Ctrl SD	0.488	0.424	0.131	0.284
Obs	25293	25293	77612	77612

Notes: OLS regressions of target outcomes on treatments, separately for individuals predicted to be high versus low meditators based on baseline survey data. The specification includes controls for the five baseline variables on which re-randomization was based (female, college, daily notifications, whether individual meditated in last month, whether individual logged meal in last month) as well as day fixed effects. Standard errors clustered at individual level. One, two, and three stars indicate q-values of 1%, 5%, and 10% respectively; q-values calculated according to the Benjamini Hochberg step-down procedure, considering all tests in the table (but excluding linear combinations of coefficients).

Table A14: Heterogeneous Treatment Effects by Baseline Notifications

	Meditated (X) (1)	Logged Meal (Y) (2)
mx	0.100***	-0.032*
	(0.016)	(0.015)
my	-0.044***	0.166***
	(0.012)	(0.019)
mx X my	0.011	-0.006
	(0.021)	(0.026)
zy	-0.029*	0.394***
	(0.013)	(0.024)
highnotif	-0.015	-0.015
	(0.014)	(0.015)
mx X highnotif	-0.026	0.016
	(0.021)	(0.021)
my X highnotif	0.033	-0.000
	(0.017)	(0.026)
mx X my X highnotif	-0.008	-0.040
	(0.028)	(0.035)
zy X highnotif	0.008	-0.026
	(0.018)	(0.033)
mx + mxmy	0.111	-0.038
	(0.013)	(0.021)
my + mxmy	-0.034	0.160
	(0.017)	(0.018)
(mx + mxmy) X highnotif	-0.030	-0.020
	(0.020)	(0.030)
(my + mxmy) X highnotif	0.020	-0.040
	(0.020)	(0.020)
Ctrl Mean	0.094	0.118
Ctrl SD	0.291	0.323
Obs	102905	102905

Notes: OLS regressions of treatment-period target outcomes on treatments and interactions with a binary measure of whether daily notifications are above or below the median. Includes controls for the five baseline variables on which re-randomization was based (female, college, daily notifications, whether individual meditated in last month, whether individual logged meal in last month) as well as day fixed effects. Standard errors clustered at individual level. One, two, and three stars indicate q-values of 1%, 5%, and 10% respectively; q-values calculated according to the Benjamini Hochberg step-down procedure, considering all tests in the table (but excluding linear combinations of coefficients).

Table A15: Heterogeneous Effects by Baseline Experience in Outcome Behavior

	Meditated (X) (1)	Logged Meal (Y) (2)
mx	0.093***	-0.022
	(0.021)	(0.026)
my	-0.002	0.133***
	(0.014)	(0.030)
mx X my	-0.045	0.016
	(0.027)	(0.044)
zy	-0.009	0.357***
	(0.015)	(0.045)
experience	-0.008	0.001
	(0.011)	(0.028)
mx X experience	-0.003	-0.001
	(0.011)	(0.012)
my X experience	-0.013	0.016
	(0.008)	(0.014)
mx X my X experience	0.026	-0.020
	(0.015)	(0.020)
zy X experience	-0.008	0.011
	(0.009)	(0.020)
mx + mxmy	0.048	-0.006
	(0.017)	(0.036)
my + mxmy	-0.047	0.148
	(0.023)	(0.033)
(mx + mxmy) X experience	0.020	-0.020
	(0.010)	(0.020)
(my + mxmy) X experience	0.010	0.000
	(0.010)	(0.010)
Ctrl Mean	0.094	0.118
Ctrl SD	0.291	0.323
Obs	102905	102905

Notes: OLS regressions of treatment-period target outcomes on treatments and interactions with a binary measure of whether baseline experience in the outcome behavior was above or below the median. The experience measure went from 0 to 3, where participants earned 1 point for having ever done it before, 1 point for having done it daily before, and 1 point for having done it in the last month. Includes controls for the five baseline variables on which re-randomization was based (female, college, daily notifications, whether individual meditated in last month, whether individual logged meal in last month) as well as day fixed effects. Standard errors clustered at individual level. One, two, and three stars indicate q-values of 1%, 5%, and 10% respectively; q-values calculated according to the Benjamini Hochberg step-down procedure, considering all tests in the table (but excluding linear combinations of coefficients).

F Deviations from Pre-Analysis Plan

This study was registered at the AEA RCT Registry under the title "Nudges in Equilibrium" (Trachtman, 2019). In this section I describe any differences between the final paper and the pre-analysis plan.

Importantly, the main experiment design and sample size did not change substantially between the pre-analysis plan and the experiment. Slight differences in sample size across treatment groups are due to the fact that I randomized within cohorts using fixed proportions, and did not have full control over the total numbers. The slight rise in the total sample is also due to being unable to exactly control the size of the final cohort.

In terms of the analysis, the reduced form specifications are the same. One important difference is that ultimately I used meditation and meal logging *with* the assigned apps as the outcome in our main specification, rather than incorporating self-reports of meditation and meal-logging with other apps, as planned. The reason for this is twofold. First, the behavior promoted in both message and incentive treatment was the behavior using the specified app, not the behavior generally. Second, ultimately only 56% of participants completed Survey 3—less than expected—so incorporating self-reports from this survey reduced power significantly. Table A6 shows the results of the specification stated in the pre-analysis plan. The key coefficients of interest are not substantially different, but there is insufficient power to draw the same conclusions.

I do not include in the paper all of the sub-group analyses as described in the pre-analysis plan, since they are generally insufficiently powered. I also changed the measurement tool for mental health, substituting the PHQ4 for the General Well-Being Schedule, since feedback from the first participants suggested that the 18-item questionnaire was too time-consuming, and was reducing the likelihood of completion.

G Survey Instruments

G.1 Survey 1

Eligibility

Welcome! The Yale Wellness & Technology Study is about using technology to promote wellness behaviors like meditation and nutritional monitoring. It starts with a 15 minute survey right now. As part of the study, we'll ask you to download two (free) wellness-related apps. Then, over the next month, you might have the opportunity to receive informational messages or incentives for one or multiple wellness behaviors. You will also have the chance to enter several raffles for Amazon gift cards (up to $80 worth). The study will end in about two months, at which time we'll send a final survey.

First, we're going to ask you a few questions to make sure you're eligible for the study (so that we don't waste your time if not). After that, we'll explain more about what the study entails, and you can decide if you want to participate.

Do you have an iphone or android phone?

- ○ Yes
- ○ No

Are you over the age of 18?

- ○ Yes
- ○ No

Are you interested in working on wellness habits like daily meditation and tracking your nutrition?

- ○ Yes
- ○ No

Are you willing to download two (free) wellness-related smartphone apps for the study?

- ○ Yes
- ○ No

Will you feel comfortable potentially using a nutrition tracking app? (If you have struggled with eating disorders or body image issues in the past, please consider this carefully.)

- ○ Yes
- ○ No

Have you already participated in the Yale Wellness & Technology Study?

- ○ Yes
- ○ No

Consent

Below is a consent form with the details about the study. Please read carefully, and if you agree, provide your electronic consent at the bottom.

Welcome to the Yale Wellness Study! This study is being conducted by Hannah Trachtman, a graduate student from Yale University. The goal of this study is to examine the best ways to use technology to help people form wellness habits. If you participate in this study, you might have the opportunity to enroll in different wellness programs, focused on things like meditation and keeping track of your nutrition. Each program will use some combination of text messages and incentives over 4 weeks to help you develop a habit. You might also have the opportunity to receive a third program that sends fun facts on a wide variety of health topics via text.

To measure your progress, we will ask you to download two wellness-related smartphone apps, and to allow us to collect the data from those apps for the duration of the study.

Your participation will involve two steps. Survey 1 will require 15 minutes right now. If you enroll and complete it, we'll enter you into a raffle for a $20 Amazon gift card. Survey 2 will be sent to you upon enrollment and will take just 2 minutes. Finally, Survey 3 will be sent to you in about 2 months from now, and will take 15 minutes. If you complete Survey 2 or Survey 3, we'll enter you into a raffle for a $50 Amazon gift card. (If you complete both Surveys 2 and 3, you'll be entered twice.) Finally, if you're assigned one of our incentive programs, you could win another $10. So overall you could win up to $80.

As part of the study, we might encourage you to do healthy behaviors through text messages or incentives, but whether you ultimately do so or not is entirely up to you.

There are no known or anticipated risks to you participating. We do want to make clear that for the duration of the study, we will be accessing your data from the two apps we will ask you to download -- one for meditation, one for nutritional monitoring. At the end of the study, you can feel free to continue to use the apps. Just change your password and we will no longer have access to your data. (We will remind you to do this when the time comes.)

This study might benefit you personally if you succeed in developing healthy habits. Even if not, we hope that our results will add to the knowledge about technology and habit formation.

All of your responses will be held in confidence. Only the researchers involved in this study and those responsible for research oversight will have access to the information you provide.

All datasets stored at Yale will include only your ID code, and there will be just one document that links your name, email, and cell phone number to your ID code. This document will be stored in an encrypted container, and will be destroyed after the study is over.

Participation in this study is completely voluntary. You are free to decline to participate, to end participation at any time for any reason, to stop receiving messages or emails, or to

refuse to answer any individual question without penalty or loss of compensation. Your decision whether or not to participate in this study will not affect your relationship with Yale or with your university.

If you have any questions about this study, you may contact the investigator, Hannah Trachtman, hannah.trachtman@yale.edu. If you would like to verify that Hannah is indeed affiliated with Yale, you can visit her website, here.

If you would like to talk with someone other than the researchers to discuss problems or concerns, to discuss situations in the event that a member of the research team is not available, or to discuss your rights as a research participant, you may contact the Yale University Human Subjects Committee, 203-785-4688, human.subjects@yale.edu. Additional information is available at https://your.yale.edu/research-support/human-research/research-participants/rights-research-participant.

Would you like to participate in the study?

- ○ Yes
- ○ No

Please also confirm your cell phone number and that you consent to receive SMS messages from us.

What is your cell phone number?

Verify your cell phone number

I consent to receive SMS messages as described in the consent form. (Reply STOP to cancel, HELP for help, Msg&Data rates may apply)

○ Yes

App Download

What is your email address?

Verify your email address

As mentioned, the first thing you need to do is to download and create accounts for the two smartphone apps that we'll use to track your progress. The first app is called Insight Timer and it will be used for meditation. The second app is called Calorie Counter by FatSecret and it will be used for nutritional monitoring.

You have two options. You can download both apps right now (we recommend this if you are taking the survey on a computer). Or, you can download both apps after you finish the survey (which might be easier if you are taking the survey on your phone). The instructions are below. We will also send them to your email as soon as you complete the survey.

The important thing is that you download both apps within the next 24 hours. We will only be able to enroll you in the study (and enter you in our raffles) once we verify that you created both accounts correctly, following all of the instructions below. Alternatively, if you are not able to download the apps within 24 hours but still want to participate, just send us an email once you do download them.

I understand that in order to enroll in this study (and to be eligible for any raffle) I need to follow the below instructions to download and create accounts for Insight Timer and FatSecret within the next 24 hours (or reply to yale.wellness.tech@gmail.com once I've downloaded them).

○ Yes

INSTRUCTIONS (these will also be emailed to you upon completion of the survey.)

For both apps, please use email address ${q://QID15/ChoiceTextEntryValue} and password neq${e://Field/pnum2}.

[redacted] Instructions

[Note: If you already have an [redacted] account with this email address, please just log out and reset your password to the one assigned for the duration of the study.]

1. Use your phone to download the [redacted] app. Please deny any notifications you are offered (and keep them off for the duration of the study).
2. Click "I'm new," tell them about your meditation experience, skip the guided meditation for now
3. Register with email address ${q://QID15/ChoiceTextEntryValue} and password neq${e://Field/pnum2}
4. If you want, spend a minute getting to know the app.

[redacted] Instructions

[Note: If you already have a [redacted] account with this email address, please skip straight to step 3 below. You do not need to change your password.]

1. Use your phone to download the [redacted] app. Please deny any notifications you are offered (and keep them off for the duration of the study).
2. Walk through the seven initial questions to set up your account. Then register with email address ${q://QID15/ChoiceTextEntryValue} and password neq${e://Field/pnum2}. Choose a member name.
3. Once you are inside the app, tap "More" on the bottom right, and tap "My Professionals." Choose "Health Professional" and send an invitation

to **yale.wellness.tech@gmail.com**. This is critical, so make sure you spell it correctly! Please don't worry if it looks like your status remains "Pending" for some time. It takes us a while to accept all of our participants, but we can still see your data in the meantime. (Note: on Android phones, you can find "My Professionals" in a menu on the top left.)

4. If you want, spend a minute getting to know the app.

For the duration of the study, you need to use the password we've assigned you, highlighted in yellow above. As soon as the study is over, we will stop accessing your data, and will remind you to change your password.

Demographics

Great. Now we'll ask you some questions.

What is your first name?

What is your last name?

How old are you?

How would you describe your gender?

- ○ Male
- ○ Female
- ○ Other

- ○ Prefer not to say

How would you describe your race/ethnicity?

- ○ White
- ○ Hispanic, Latino, or Spanish origin
- ○ Black or African Am.
- ○ Asian
- ○ American Indian or Alaska Native
- ○ Middle Eastern or North African
- ○ Native Hawaiian or Other Pacific Islander
- ○ Some other race, ethnicity, or origin
- ○ Don't know
- ○ Prefer not to say

What time zone do you live in?

- ○ Eastern
- ○ Central
- ○ Mountain
- ○ Pacific
- ○ Alaska

What is your highest level of education?

- ○ Did not complete high school
- ○ High School / GED
- ○ Some College
- ○ Bachelor's Degree
- ○ Master's Degree
- ○ Professional Degree or PhD

- ○ Don't know
- ○ Prefer not to say

Past Wellness Behaviors

Have you ever attempted to meditate on a daily basis?

- ○ Yes
- ○ No

When was the last time you meditated?

- ○ within the last week
- ○ within the last month
- ○ within the last year
- ○ more than a year ago
- ○ never

Have you ever attempted to exercise on a daily basis?

- ○ Yes
- ○ No

When was the last time you exercised?

- ○ within the last week
- ○ within the last month
- ○ within the last year
- ○ more than a year ago
- ○ never

Have you ever attempted to track your food intake or nutrition on a daily basis (using an app, your computer, or pen/paper)?

- ○ Yes
- ○ No

When was the last time you recorded a meal (using an app, your computer, or pen/paper?

- ○ within the last week
- ○ within the last month
- ○ within the last year
- ○ more than a year ago
- ○ never

Have you ever attempted to improve the quality or duration of your sleep?

- ○ Yes
- ○ No

When was the last time you got what you would consider enough sleep?

- ○ within the last week
- ○ within the last month
- ○ within the last year
- ○ more than a year ago
- ○ never

Notification Intro

Now we're going to ask you about the various notifications you have set up on your electronic devices. For the next several questions, we will consider a notification to be any alert -- whether it be a sound, a vibration, a banner, or a peek -- that you are likely to notice the moment it arrives.

How many notifications do you get, on average, every day?

Which of the following electronic devices do you use for notifications? Select all that apply.

- [ ] Phone
- [ ] Watch
- [ ] Computer
- [ ] Tablet/Kindle
- [ ] Other

How many different notifying apps do you have, taking into account all of the devices you've checked above?

(If the same app sends you notifications on multiple devices, or sends you multiple different types of notifications, please count this as just one app.)

Now we will ask you a few questions about each app (up to 10 apps). Start with the apps you use the most and go from there.

Notification Loop

What is the name of the ${lm://Field/1}${lm://Field/2} app?

On which of your devices do you receive notifications from this app? (Remember, we consider a notification to be any alert -- whether it be a sound, a vibration, a banner, or a peek -- that you are likely to notice the moment it arrives.)

- [ ] » Phone
- [ ] » Watch
- [ ] » Computer
- [ ] » Tablet/Kindle
- [ ] » Other

Which of the following best describes the content or purpose of these notifications?

- ○ messages, emails, or chats
- ○ updates (news, likes, comments, tweets, information, etc.)
- ○ reminders or alarms (prompting you to take some action)
- ○ other

Please specify

We'd like to know the frequency of notifications (of all types) from ${q://QID40/ChoiceTextEntryValue}, on average.

Would you prefer to tell us the frequency on a daily, weekly, or monthly basis?

- ○ daily
- ○ weekly
- ○ monthly
- ○ yearly

How many notifications do you typically receive from ${q://QID40/ChoiceTextEntryValue} on a ${q://QID42/ChoiceGroup/SelectedChoices} basis?

(If the same notification goes to several devices, please count this as 1 notification. If you have different notification settings on different devices, consider the device that you use most with this app.)

Importance / Fun / Difficulty

How important is it to you to meditate (or start meditating) regularly?

Not important										Very important
0	1	2	3	4	5	6	7	8	9	10

How important is it to you to exercise (or start exercising) regularly?

Not important										Very important
0	1	2	3	4	5	6	7	8	9	10

How important is it to you to monitor your nutrition/meals (or start doing so) regularly?

Not important										Very important
0	1	2	3	4	5	6	7	8	9	10

How important is it to you to get enough sleep regularly (or start doing so)?

Not important		Very important

Not important Very important

0 1 2 3 4 5 6 7 8 9 10

How difficult would it be for you to start meditating daily?

Very easy Very difficult

0 1 2 3 4 5 6 7 8 9 10

How difficult would it be for you to start exercising daily?

Very easy Very difficult

0 1 2 3 4 5 6 7 8 9 10

How difficult would it be for you to start monitoring your nutrition/meals daily?

Very easy Very difficult

0 1 2 3 4 5 6 7 8 9 10

How difficult would it be for you to start sleeping enough daily?

Very easy Very difficult

0 1 2 3 4 5 6 7 8 9 10

How much fun would it be for you to start meditating daily?

Not fun at all Very fun

0 1 2 3 4 5 6 7 8 9 10

Not fun at all Very fun

0 1 2 3 4 5 6 7 8 9 10

How much fun would it be for you to start exercising daily?

Not fun at all Very fun

0 1 2 3 4 5 6 7 8 9 10

How much fun would it be for you to start monitoring your nutrition/meals daily?

Not fun at all Very fun

0 1 2 3 4 5 6 7 8 9 10

How much fun would it be for you to start sleeping enough daily?

Not fun at all Very fun

0 1 2 3 4 5 6 7 8 9 10

Wrap-up (Eligible + Consent)

That's it! You've reached the end of Survey 1.

We'll officially enroll you and enter you into the Survey 1 raffle once we verify your [redacted] and [redacted] accounts. (Don't forget to do this, if you haven't already! The instructions will be sent to your email once you click "Next.")

Once we see that you've downloaded both apps, we'll randomly assign you to one or several (or none) of our messaging or incentive programs for one or several wellness

behaviors. Then we'll send you an enrollment confirmation email, letting you know what program(s) you've been assigned and providing additional details about the study.

If you download both apps but do not receive an enrollment confirmation email within 2 days, it means you have not been enrolled -- please check the app download instructions and make sure you followed them correctly.

If you have any questions in the meantime, you can always send an email to yale.wellness.tech@gmail.com, or to me (Hannah) at hannah.trachtman@yale.edu.

Be well!

*** Please click the next arrow to ensure your response is recorded and counted as complete.

G.2 Enrollment Email

Enrollment Confirmation Email

Hello [first name],

Welcome to the Yale Wellness and Technology Study! You successfully downloaded the apps and are officially enrolled. This email contains lots of information about the study. You can refer back to it throughout the study if you have questions.

Here is a brief summary of what it contains:

1. Your (random) assignment to messages or incentives for one or more wellness behaviors. **You were assigned: [treatment] with [app], as part of our [program name] program..** See below for details!
2. The **link to Survey 2**, which will expire in 24 hours. This survey is not mandatory, but takes only a few minutes, and if you participate in time, we'll enter your name into our second raffle (for a $50 Amazon gift card).
3. Survey 1 raffle results
4. A reminder of your password for [meditation app] and [meal logging app]: **[password]**
5. Study duration and how to withdraw

Be well and let us know if you have questions.

Best,
Hannah

---

1. Your (Random) Assignment to Messages or Incentives
You have been randomly assigned to receive [treatment] with [app], as part of our [program name] program [as well as…].

[Meditation has proven to significantly reduce anxiety and depression, according to a recent meta-analysis in a major medical journal (Goyal et al. 2014). In fact, meditation programs had effects on depression that were similarly strong to those of anti-depressants (except without any side effects). Recently, neuroimaging studies have found that meditation actually changes the physical structure of the brain. A meta-analysis concluded that there are eight regions of the brain that are consistently different in people who meditate--including, for example, the part of the brain that deals with emotional regulation, and the part of the brain that deals with memory consolidation (Fox et al. 2014). Three recent experiments have looked specifically at the use of smartphone apps for meditation, and all found positive effects on self-reported well-being.]

[A healthy diet is essential for weight management and for preventing a host of

diseases. But keeping track of the nutritional content of the foods you consume is not easy. The CDC reports that 90% of Americans consume too much sodium, the average American consumes too much added sugar, and less than 3% of Americans meet the daily recommended fiber intake. Poor diets can lead to a number of adverse health outcomes, including cardiovascular disease, diabetes, cancer, and poor bone health, among other things. Moreover, if weight loss is your goal, which it is for 49% of Americans (Zhang et al. 2017), many studies show positive relationships between self-monitoring of meals and weight loss (Burke et al. 2011). Measuring your nutritional deficiencies on a regular basis is difficult, but smartphone apps make meal tracking easier than it's ever been before (Wharton et al. 2014).]

[Twice a day you will receive a friendly message about meditation with [meditation app] from our Remindful program. You can opt out of the messaging program at any point by replying STOP. The program will begin tomorrow and will last exactly 27 days, ending on [date end]]

[Twice a day you will receive a friendly message about meal logging with [meal logging app] from our eNOMerate program. You can opt out of the messaging program at any point by replying STOP. The program will begin tomorrow and will last exactly 27 days, ending on [date end]]

[Twice a day you will receive a friendly message about meditation with [meditation app] from our Remindful program, and twice a day you will receive a friendly message about meal logging with [meal logging app] from our eNOMerate program. You can opt out of either messaging program at any point by replying STOP to the corresponding number. Both programs will begin tomorrow and will last exactly 27 days, ending on [date end]]

[You will earn a green raffle ticket from eNOMerate for every day that you log at least one meal with [meal logging app], and a red raffle ticket for every day that you don't. To receive a ticket, you must log a meal on the day that you ate it. Every Sunday, for the duration of the program, we will let you know via email how many tickets you've accumulated. At the end, we will pull one of your tickets, and if it's green, you will win a $10 Amazon gift certificate. So if you log your meals every day, you will definitely get the gift certificate. If you log your meals half of the time, you will get it with 50% odds. And if you never log your meals, you definitely won't get it. (This is separate from the raffles for survey completion.) The program will begin tomorrow and will last exactly 27 days, ending on [date end]]

Remember, because this is an experiment, this assignment was completely random. It has nothing to do with your survey responses, or with how important we think meditation, exercise, nutrition, and sleep are. (They're all important!)

Regardless of any programs you were or were not assigned above, your ultimate use of [meditation app] and [meal logging app] is entirely up to you. You are welcome but not obligated to use these apps for the study, so please use them as much or as little as you'd like. The accounts just have to stay active (with the correct email and password)

for the duration of the study.

2. Link to Survey 2
Here is the link to Survey 2. This survey is not mandatory, but it takes just 3-5 minutes, and if you fill it out, we'll enter your name into our second raffle for a $50 Amazon gift card. (You'll have another chance to enter this raffle if you fill out Survey 3 at the end of the study. If you fill out both Surveys 2 and 3, we'll enter your name twice.)

3. Survey 1 Raffle Results
Unfortunately you did not win our first raffle. But if you fill out Survey 2, we'll enter your name in our second raffle.

4. Password
As mentioned above, your password is [password]. Your [meditation app] and [meal logging app] accounts need to use this password (and this email address) for the duration of the study. At the end of the study, we will remind you to change your password.

5. Study Duration and how to Withdraw
As mentioned above, any messaging or incentive programs you were assigned will end in four weeks. Data collection will continue for four more weeks, and the full study will end on [date end], at which point we'll send you a link to Survey 3. If you'd like to withdraw from the study before that, please email us at yale.wellness.tech@gmail.com. [Remember, you can opt out any SMS message program without withdrawing from the study by replying STOP.]

G.3 Survey 2

Introduction

Welcome to Survey 2 of the Yale Wellness & Technology Study! This should take just 3-5 minutes. If you complete it, we'll enter your name into the second raffle for a $50 Amazon gift card.

Please confirm that your email address is ${e://Field/RecipientEmail}.

- ○ Yes
- ○ No

What is your email address?

In this survey, we'll ask you about your goals and expectations for different wellness behaviors. As you know, you were assigned to receive ${e://Field/assignment}, but the extent to which you do (or do not) work on any wellness behaviors during the study is ultimately up to you.

Meditation Routine

Now that you know you've been assigned to receive ${e://Field/assignment}:

How many days per week do you **hope** to meditate with [redacted] during the study?

How many days per week do you **realistically expect** to meditate with [redacted] during the study?

What time(s) of day do you think you'll be most likely to meditate? Mark all likely times (even if you only expect to meditate once a day).

- [ ] 5am - 6am
- [ ] 6am - 7am
- [ ] 7am - 8am
- [ ] 8am - 9am
- [ ] 9am - 10am
- [ ] 10am - 11am
- [ ] 11am - 12pm
- [ ] 12pm - 1pm
- [ ] 1pm - 2pm
- [ ] 2pm - 3pm
- [ ] 3pm - 4pm
- [ ] 4pm - 5pm
- [ ] 5pm - 6pm
- [ ] 6pm - 7pm
- [ ] 7pm - 8pm
- [ ] 8pm - 9pm
- [ ] 9pm - 10pm
- [ ] 10pm - 11pm
- [ ] 11pm - 12am
- [ ] 12am - 1am
- [ ] 1am - 2am
- [ ] 2am - 3am
- [ ] 3am - 4am
- [ ] 4am - 5am

How many minutes do you expect to meditate in a typical week?

Nutritional Monitoring Routine

Now that you know you've been assigned to receive ${e://Field/assignment}:

How many days per week do you **hope** to log one or more meals with [redacted] during the study?

How many days per week do you **realistically expect** to log one or more meals with [redacted] during the study?

What time(s) of day do you think you'll be most likely to log your meals? Mark all likely times (even if you only expect to log once a day).

- [ ] 5am - 6am
- [ ] 6am - 7am
- [ ] 7am - 8am
- [ ] 8am - 9am
- [ ] 9am - 10am
- [ ] 10am - 11am
- [ ] 11am - 12pm
- [ ] 12pm - 1pm
- [ ] 1pm - 2pm
- [ ] 2pm - 3pm
- [ ] 3pm - 4pm
- [ ] 4pm - 5pm
- [ ] 5pm - 6pm
- [ ] 6pm - 7pm
- [ ] 7pm - 8pm
- [ ] 8pm - 9pm
- [ ] 9pm - 10pm
- [ ] 10pm - 11pm
- [ ] 11pm - 12am
- [ ] 12am - 1am
- [ ] 1am - 2am
- [ ] 2am - 3am
- [ ] 3am - 4am
- [ ] 4am - 5am

How many meals do you eat on a typical day?

What times of day do you typically eat a meal? Mark all likely times.

- [ ] 5am - 6am
- [ ] 6am - 7am
- [ ] 7am - 8am
- [ ] 8am - 9am
- [ ] 9am - 10am
- [ ] 5pm - 6pm
- [ ] 6pm - 7pm
- [ ] 7pm - 8pm
- [ ] 8pm - 9pm
- [ ] 9pm - 10pm

- [ ] 10am - 11am
- [ ] 11am - 12pm
- [ ] 12pm - 1pm
- [ ] 1pm - 2pm
- [ ] 2pm - 3pm
- [ ] 3pm - 4pm
- [ ] 4pm - 5pm
- [ ] 10pm - 11pm
- [ ] 11pm - 12am
- [ ] 12am - 1am
- [ ] 1am - 2am
- [ ] 2am - 3am
- [ ] 3am - 4am
- [ ] 4am - 5am

Exercise Routine

Now that you know you've been assigned to receive ${e://Field/assignment}:

How many days per week do you **hope** to exercise during the study?

How many days per week do you **realistically expect** to exercise during the study?

Sleep Routine

How many hours of sleep do you think you should be getting each night?

Now that you know you've been assigned to receive ${e://Field/assignment}:

How many days per week do you **hope** to get ${q://QID171/ChoiceTextEntryValue} hours of sleep during the study?

How many days per week do you **realistically expect** to
get ${q://QID171/ChoiceTextEntryValue} hours of sleep during the study?

Wrap-up

That's it! Click "next" to make sure your response is recorded. Your name will be entered into the $50 Amazon gift card raffle.

Please refer back to your enrollment confirmation email or contact us at yale.wellness.tech@gmail.com if you have any further questions about the study.

G.4 Survey 3

Introduction

Welcome to Survey 3, the final survey of the Yale Wellness & Technology Study! This should take about 20 minutes. If you complete it within a week of receiving it, we'll enter you into our final raffle for a $50 Amazon gift card.

Please confirm that your email address is ${e://Field/RecipientEmail}.

- ○ Yes
- ○ No

What is your email address?

Self-Reported Meditation

First we'll ask you some questions about your meditation habits. We'll start by asking you about **the first four weeks of the study, when some of you were receiving messages/incentives.**

In the first four weeks of the study, you meditated with [redacted] **${e://Field/successdays_med_1} out of 27 days**.

How many days during the first four weeks of the study did you meditate **without** [redacted]? (On your own, or with another app.)

If you don't know exactly, provide your best guess. The maximum is 27.

Now we'll ask you about **the last four weeks of the study, when messages/incentives had stopped.**

In the last four weeks of the study, you meditated with [redacted] **${e://Field/successdays_med_2} out of 27 days**.

How many days during the last four weeks of the study did you meditate **without** [redacted]? (On your own, or with another app.)

If you don't know exactly, provide your best guess. The maximum is 27.

Meditation Info

Which of the following best describes the timing of your meditation?

- ○ I had a routine, and usually meditated at the same time every day
- ○ I usually meditated whenever I received an SMS from you about meditation [for those who received messages about meditation]
- ○ I usually meditated whenever I received an SMS or email from you about something else
- ○ Other

What time or times of day did you typically meditate? Mark all times.

- ☐ 5am - 6am
- ☐ 6am - 7am
- ☐ 7am - 8am
- ☐ 8am - 9am
- ☐ 9am - 10am
- ☐ 10am - 11am
- ☐ 11am - 12pm
- ☐ 5pm - 6pm
- ☐ 6pm - 7pm
- ☐ 7pm - 8pm
- ☐ 8pm - 9pm
- ☐ 9pm - 10pm
- ☐ 10pm - 11pm
- ☐ 11pm - 12pm

- [ ] 12pm - 1pm
- [ ] 1pm - 2pm
- [ ] 2pm - 3pm
- [ ] 3pm - 4pm
- [ ] 4pm - 5pm
- [ ] 12pm - 1am
- [ ] 1am - 2am
- [ ] 2am - 3am
- [ ] 3am - 4am
- [ ] 4am - 5am

Please explain.

Do you feel that any success you had in meditation came at the expense of any other activities? In other words, did focusing on meditation cause you to stop doing some other activity that you were previously doing, or prevent you from starting some other new activity?

- ○ Definitely yes
- ○ Probably yes
- ○ Probably not
- ○ Definitely not

What activity / activities?

Why?

Do you feel that any success you had in meditation encouraged any other activities? In other words, did focusing on meditation help you continue doing some other activity that you were previously doing, or help you start some other new activity?

- ○ Definitely yes
- ○ Probably yes
- ○ Probably not
- ○ Definitely not

What activity / activities?

Why?

Self-Reported Meal Logging

Now we'll ask you some questions about your meal logging habits. We'll start by asking you about **the first four weeks of the study, when some of you were receiving messages/incentives.**

In the first four weeks of the study, you logged at least one meal with [redacted] **${e://Field/successdays_nut_1} out of 27 days**.

How many days during the first four weeks of the study did you log at least one meal **without** [redacted]? (On your own, or with another app.)

If you don't know exactly, provide your best guess. The maximum is 27.

Now we'll ask you about **the last four weeks of the study, when all messages/incentives had stopped.**

In the last four weeks of the study, you logged at least one meal with [redacted] **${e://Field/successdays_nut_2} out of 27 days**.

How many days during the last four weeks of the study did you log at least one meal **without** [redacted]? (On your own, or with another app.)

If you don't know exactly, provide your best guess. The maximum is 27.

Meal Logging Info

Which of the following best describes the timing of your meal logging?

- ○ I usually logged each meal immediately after eating it
- ○ I had a routine, and usually logged all my meals at the same time every day
- ○ I usually logged my meals whenever I received an SMS from you about meal logging [for those who received messages about meal logging]
- ○ I usually logged my meals whenever I received an SMS or email from you about something else
- ○ Other

What time or times of day did you typically log your meals? Mark all times.

- ☐ 5am - 6am
- ☐ 6am - 7am
- ☐ 7am - 8am
- ☐ 8am - 9am
- ☐ 9am - 10am
- ☐ 10am - 11am
- ☐ 11am - 12pm
- ☐ 12pm - 1pm
- ☐ 1pm - 2pm
- ☐ 5pm - 6pm
- ☐ 6pm - 7pm
- ☐ 7pm - 8pm
- ☐ 8pm - 9pm
- ☐ 9pm - 10pm
- ☐ 10pm - 11pm
- ☐ 11pm - 12pm
- ☐ 12pm - 1am
- ☐ 1am - 2am

- [ ] 2pm - 3pm
- [ ] 3pm - 4pm
- [ ] 4pm - 5pm
- [ ] 2am - 3am
- [ ] 3am - 4am
- [ ] 4am - 5am

Please explain.

Do you feel that any success you had in meal logging came at the expense of any other activities? In other words, did focusing on meal logging cause you to stop doing some other activity that you were previously doing, or prevent you from starting some other new activity?

- ○ Definitely yes
- ○ Probably yes
- ○ Probably not
- ○ Definitely not

What activity / activities?

Why?

Do you feel that any success you had in meal logging encouraged any other activities? In other words, did focusing on meal logging help you continue doing some other activity that you were previously doing, or help you start some other new activity?

- ○ Definitely yes
- ○ Probably yes

- ○ Probably not
- ○ Definitely not

What activity / activities?

Why?

[redacted] Info

Roughly speaking, how many minutes did it take you to log **one meal** with [redacted]?

Roughly speaking, how many minutes did it take you to log **all of your daily meals** with [redacted]?

Roughly speaking, how many minutes to did it take you to log **one meal** with your alternative app or method (i.e. not with [redacted], but with the other app or method you used)?

Roughly speaking, how many minutes to did it take you to log **all of your daily meals** with your alternative app or method (i.e. not with [redacted], but with the other app or method you used)?

Notifications

At any point during the 2 months of the study, did you set up any of your own notifications about meditation (i.e. not counting any messages we sent you)?

(At the beginning of the study, we asked you not to set up your own notifications. If you missed this instruction, it's not a big deal, please just indicate so below so we can take it into account.)

- ○ Yes
- ○ No

At any point during the 2 months of the study, did you set up any of your own notifications about meal logging (i.e. not counting any messages we sent you)?

(At the beginning of the study, we asked you not to set up your own notifications. If you missed this instruction, it's not a big deal, please just indicate so below so we can take it into account.)

- ○ Yes
- ○ No

Are there any times of day when your phone is typically on the "do not disturb" or silent setting? Mark all times.

- ☐ 5am - 6am
- ☐ 6am - 7am
- ☐ 7am - 8am
- ☐ 8am - 9am
- ☐ 9am - 10am
- ☐ 10am - 11am
- ☐ 5pm - 6pm
- ☐ 6pm - 7pm
- ☐ 7pm - 8pm
- ☐ 8pm - 9pm
- ☐ 9pm - 10pm
- ☐ 10pm - 11pm

- [ ] 11am - 12pm
- [ ] 12pm - 1pm
- [ ] 1pm - 2pm
- [ ] 2pm - 3pm
- [ ] 3pm - 4pm
- [ ] 4pm - 5pm
- [ ] 11pm - 12pm
- [ ] 12pm - 1am
- [ ] 1am - 2am
- [ ] 2am - 3am
- [ ] 3am - 4am
- [ ] 4am - 5am

Mental Health & Diet

Now we'll ask you a few questions about your mental health and diet.

If you come across a question that you don't feel comfortable answering, please feel free to leave it blank.

Over the last 2 weeks, how often have you been bothered by the following problems?

	Not at all	Several days	More than half of the days	Nearly every day
Feeling nervous, anxious, or on edge	○	○	○	○
Not being able to stop or control worrying	○	○	○	○
Little interest or pleasure in doing things	○	○	○	○
Feeling down, depressed, or hopeless	○	○	○	○

How would you describe your mental health now, relative to before you started the study?

- ○ Much better
- ○ Somewhat better
- ○ About the same
- ○ Somewhat worse

- ○ Much worse

How would you describe your diet now, relative to before you started the study?

- ○ Much healthier
- ○ Somewhat healthier
- ○ About the same
- ○ Somewhat less healthy
- ○ Much less healthy

What is your current weight in pounds?

What is your current height in inches?

For reference: 5 feet is equivalent to 60 inches

Surprise Raffle

Did you receive an SMS from us about a surprise raffle?

- ○ Yes, I received an SMS about a surprise raffle and responded
- ○ Yes, I received an SMS about a surprise raffle but chose not to respond
- ○ No, I did not receive an SMS about a surprise raffle

Why didn't you respond?

- ○ I didn't trust that it was real

- ○ I saw it much later, and thought it would be too late
- ○ I didn't want to send a message for reasons related to my cell phone plan
- ○ Other

Please explain.

Info Quiz - Remindful

Now we're going to ask you some questions about the information that was contained in the Remindful text messages. Answer as best you can.

If you opted out of the program, please still answer as best you can, and select "I don't remember seeing this message" when relevant.

True or false: meditation reduces anxiety but not depression

- ○ True
- ○ False
- ○ I don't remember seeing a message about the effect of meditation on anxiety and depression
- ○ I remember seeing a message about the effect of meditation on anxiety and depression, but don't remember the details

True or false: meditation changes the physical structure of the brain

- ○ True
- ○ False
- ○ I don't remember seeing a message about the effect of meditation on the structure of the brain

- ○ I remember seeing a message about the effect of meditation on the structure of the brain, but don't remember the details

True or false: meditation improved nightly sleep time for people with insomnia by 1 hour

- ○ True
- ○ False
- ○ I don't remember seeing a message about the effect of meditation on sleep
- ○ I remember seeing a message about the effect of meditation on sleep, but don't remember the details

True or false: Aetna claims that its meditation program improved productivity by 32 minutes per week, worth $1,500 per employee per year.

- ○ True
- ○ False
- ○ I don't remember seeing a message about Aetna's meditation program
- ○ I remember seeing a message about Aetna's meditation program, but don't remember the details

True or false: meditation programs have been shown to be much more effective at reducing depression than antidepressants

- ○ True
- ○ False
- ○ I don't remember seeing a message about meditation programs relative to antidepressants
- ○ I remember seeing a message about meditation programs relative to antidepressants, but don't remember the details

True or false: after 4 days of mindfulness training, people exposed to a heat stimulus were able to meditate and reduce the pain they experienced by 80%

- ○ True
- ○ False
- ○ I don't remember seeing a message about the effect of meditation on pain from a heat stimulus
- ○ I remember seeing a message about the effect of meditation on pain from a heat stimulus, but don't remember the details

True or false: a meta-analysis of 163 studies found that meditation significantly improves fine motor skills

- ○ True
- ○ False
- ○ I don't remember seeing a message about the effect of meditation on fine motor skills
- ○ I remember seeing a message about the effect of meditation on fine motor skills, but don't remember the details

True or false: meditation programs have been shown to reduce stress levels for people with high blood pressure

- ○ True
- ○ False
- ○ I don't remember seeing a message about the effect of meditation on stress
- ○ I remember seeing a message about the effect of meditation on stress, but don't remember the details

True or false: the part of the brain responsible for automatic processes like breathing and digestion is consistently different in people who meditate

- ○ True
- ○ False
- ○ I don't remember seeing a message about how meditation might affect different parts of the brain

- I remember seeing a message about how meditation might affect different parts of the brain, but don't remember the details

True or false: participants in General Mills' meditation programs had higher self-reported productivity and decision-making than those who did not participate

- True
- False
- I don't remember seeing a message about General Mills' meditation programs
- I remember seeing a message about General Mills' meditation programs, but don't remember the details

True or false: meditation has shown to have so many health benefits that today, 95% of medical schools offer some element of mindfulness training

- True
- False
- I don't remember seeing a message about meditation training in medical schools
- I remember seeing a message about meditation training in medical schools, but don't remember the details

True or false: 8.1% of adults in the U.S. experience some type of anxiety disorder

- True
- False
- I don't remember seeing a message about the prevalence of anxiety disorders in the U.S.
- I remember seeing a message about the prevalence of anxiety disorders in the U.S., but don't remember the details

True or false: meditation increases the thickness of your prefrontal cortex, the area of your brain associated with attention and self-awareness

- ○ True
- ○ False
- ○ I don't remember seeing a message about the effect of meditation on the prefrontal cortex
- ○ I remember seeing a message about the effect of meditation on the prefrontal cortex, but don't remember the details

True or false: a survey of 141 firms found that 15% will have mindfulness classes or training in 2017, and another 26% are considering them for the future

- ○ True
- ○ False
- ○ I don't remember seeing a message about the fraction of firms that have mindfulness classes or training for employees
- ○ I remember seeing a message about the fraction of firms that have mindfulness classes or training for employees, but don't remember the details

Info Quiz - eNOMerate

Now we're going to ask you some questions about the information that was contained in the eNOMerate text messages. Answer as best you can.

If you opted out of the program, please still answer as best you can, and select "I don't remember seeing this message" when relevant.

True or false: more than 100 million American adults have high cholesterol.

- ○ True
- ○ False
- ○ I don't remember seeing a message about the number of Americans with high cholesterol
- ○ I remember seeing a message about the number of Americans with high cholesterol, but don't remember the details

True or false: the CDC recommends 4700 mg of Potassium daily for adults age 19-50.

- ○ True
- ○ False
- ○ I don't remember seeing a message about the daily recommended Potassium intake
- ○ I remember seeing a message about the daily recommended Potassium intake, but don't remember the details

True or false: 70.3% of Americans reported that they consume fruits less than once per day

- ○ True
- ○ False
- ○ I don't remember seeing a message about fruit consumption among Americans
- ○ I remember seeing a message about fruit consumption among Americans, but don't remember the details

True or false: 90% of Americans consume too much sodium

- ○ True
- ○ False
- ○ I don't remember seeing a message about sodium consumption among Americans
- ○ I remember seeing a message about sodium consumption among Americans, but don't remember the details

True or false: over 15 years, people who consumed >25% of calories as added sugar were twice as likely to die from heart disease as those who consumed <10%

- ○ True
- ○ False
- ○ I don't remember seeing a message about the effect of sugar consumption on heart disease fatalities

- I remember seeing a message about the effect of sugar consumption on heart disease fatalities, but don't remember the details

True or false: 28% of U.S. adults are obese today, relative to 15% in 1980

- True
- False
- I don't remember seeing a message about the prevalence of obesity today relative to 1980
- I remember seeing a message about the prevalence of obesity today relative to 1980, but don't remember the details

True or false: logging meals can help with weight loss

- True
- False
- I don't remember seeing a message about the effect of meal-logging on weight loss
- I remember seeing a message about the effect of meal-logging on weight loss, but don't remember the details

True or false: less than 3% of Americans meet the daily recommended fiber intake.

- True
- False
- I don't remember seeing a message about fiber intake among Americans
- I remember seeing a message about fiber intake among Americans, but don't remember the details

True or false: daily consumption of added sugar should be <38g for women and <25g for men

- True

- False
- I don't remember seeing a message about recommendations about added sugar for men and women
- I remember seeing a message about recommendations about added sugar for men and women, but don't remember the details

True or false: exercise is more important than nutrition in managing weight loss

- True
- False
- I don't remember seeing a message about the relative merits of exercise and nutrition for weight loss
- I remember seeing a message about the relative merits of exercise and nutrition for weight loss, but don't remember the details

True or false: 50% of Americans consume too much sodium (which is a risk factor for heart disease)

- True
- False
- I don't remember seeing a message about sodium consumption among Americans
- I remember seeing a message about sodium consumption among Americans, but don't remember the details

True or false: for the average American, added sugars constitute 24% of daily calories, even though the CDC recommends that added sugar be less than 20% of total daily calories

- True
- False
- I don't remember seeing a message about sugar consumption among Americans
- I remember seeing a message about sugar consumption among Americans, but don't remember the details

True or false: >300 million Americans have diabetes or prediabetes

- ○ True
- ○ False
- ○ I don't remember seeing a message about the prevalence of diabetes among Americans
- ○ I remember seeing a message about the prevalence of diabetes among Americans, but don't remember the details

True or false: many companies are having their employees track their nutrition via smartphone apps as part of wellness programs

- ○ True
- ○ False
- ○ I don't remember seeing a message about companies asking employees to track their nutrition via smartphone apps
- ○ I remember seeing a message about companies asking employees to track their nutrition via smartphone apps, but don't remember the details

Customized Programs

Suppose, hypothetically speaking, we allowed you to create a customized program with daily SMS about **meditation.** What would it look like? How many messages a day? At what time? Would the messages be simple reminders? Would they contain information? Would they contain encouraging words?

Please fill in the table below. In the first row, fill out your preferred time and content for the first SMS of the day. In the second row, fill out your preferred time and content for the second SMS of the day (or leave it blank if you would prefer to receive just one message). Fill out additional rows for additional messages.

	Time of SMS	Content of SMS
Message 1	▼	▼

	Time of SMS	Content of SMS
Message 2	▼	▼
Message 3	▼	▼
Message 4	▼	▼
Message 5	▼	▼
Message 6	▼	▼
Message 7	▼	▼
Message 8	▼	▼
Message 9	▼	▼
Message 10	▼	▼

Suppose, hypothetically speaking, we allowed you to create a customized program with daily SMS about **meal logging**, what would it look like? How many messages a day? At what time? Would the messages be simple reminders? Would they contain information? Would they contain encouraging words?

Please fill in the table below. In the first row, fill out your preferred time and content for the first SMS of the day. In the second row, fill out your preferred time and content for the second SMS of the day (or leave it blank if you would prefer to receive just one message). Fill out additional rows for additional messages.

	Time of SMS	Content Type
Message 1	▼	▼
Message 2	▼	▼
Message 3	▼	▼
Message 4	▼	▼
Message 5	▼	▼
Message 6	▼	▼
Message 7	▼	▼
Message 8	▼	▼
Message 9	▼	▼
Message 10	▼	▼

Suppose we offered to assign you both your customized Remindful program and your customized eNOMerate program as you've just described. But you have a choice. You can either participate in both programs **simultaneously, during the same period of time**, or you can participate in both programs **sequentially, one at a time** (i.e. first the meditation program over the duration you've specified, then the nutritional monitoring program, or the other way around)**.** Which would you prefer?

- ○ Participate in both customized programs simultaneously, over the same period of time
- ○ Participate in both customized programs sequentially, one at a time
- ○ I am indifferent

Conclusion

Great! Congratulations on completing the Yale Wellness & Tech Study!

Please click "next" to make sure your result is recorded, and that your name is entered into the final raffle. You'll receive the raffle results by email within one week.

Please change your passwords for [redacted] and [redacted] and remove Yale Wellness & Tech as a professional from [redacted].

If you have any other feedback about the study, please write it below. Thanks so much for your participation! Be well!