

Supplementary Online Content

Boucher VG, Haight BL, Hives BA, et al. Effects of 12 weeks of at-home, application-based exercise on health care workers' depressive symptoms, burnout, and absenteeism: a randomized clinical trial. *JAMA Psychiatry*. Published online August 9, 2023. doi:10.1001/jamapsychiatry.2023.2706

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This supplementary material has been provided by the authors to give readers additional information about their work.

Outcomes and measures information

Primary outcome

Depressive symptoms was assessed using the 10-item Center for Epidemiological Studies – Depression Scale (CESD).¹ Each item was scored from 0 ('Rarely or none of the time' [less than 1 day]) to 3 ('Most or all of the time' [5-7 days]) and sum scores were produced (range from 0 to 30), which displayed acceptable internal consistency across each of the data points ($\alpha \geq 0.80$). Higher depressive symptoms scores indicate greater depressive symptoms.

Secondary outcomes

Burnout symptoms was assessed using the 16-item Maslach Burnout Inventory (MBI),² in which items are scored between 0 ('Never') and 6 ('Every day'). The MBI is divided into 3 subscales. These include *cynicism*, or a feeling of indifference, negativity, or mental distance towards one's work. Scores on this subscale can range from 0 to 36, with higher scores indicate greater cynicism. The second dimension is *exhaustion*, which reflects a feeling of mental and physical energy depletion or exhaustion. Scores can potentially range from 0 to 30, with higher scores indicating greater exhaustion. The final dimension of burnout corresponds to *professional efficacy*. This represents the degree to which respondents feel effective (or ineffective) at work. Scores can potentially range from 0 to 36, with higher scores reflecting greater efficacy and lower scores indicating lower efficacy (i.e., higher burnout on this dimension). Scores derived from the MBI have been consistently found to display sound reliability and validity.² Week-to-week Cronbach alphas demonstrated strong internal consistency in the *cynicism* (ranged from $\alpha = 0.86$ and $\alpha = 0.92$), *exhaustion* (ranged from $\alpha = 0.93$ and $\alpha = 0.96$), and *professional efficacy* (ranged from $\alpha = 0.79$ and $\alpha = 0.89$) measures.

Absenteeism was measured with a one-item question: "In the past 2 weeks, how many days did you call in sick when you were scheduled to work?". Almost half ($n=129$, 45%) of participants reported no sick days at each assessment, with an average 0.23 (0.41) sick days reported throughout the study. as a result, number of days reported absent every two weeks was collapsed into a dichotomous indicator, with '0 = not absent over past two weeks' and '1 = absent over the past two weeks.' Biweekly absenteeism was summed across the 6 assessment timepoints, for a potential range of 0-6.

Stanford Leisure-Time Categorial Activity Item (L-CAT): L-CAT score of 1 to 3 was required for inclusion in the study, which represents activity level below the guidelines of 150 minutes of moderate-to-vigorous activity from the American College of Sports Medicine.³

Ethnicity data were collected using the following response options provided by Statistic Canada: Aboriginal decent (e.g., North American Indian, Métis or Inuit (Eskimo), Arab, Asian (e.g., East Indian, Pakistani, Sri Lankan), Black (e.g., African, Haitian, Jamaican, Somali), Chinese, Filipino, Japanese, Korean, Latin American, South Asian (e.g., East Indian, Pakistani, Sri Lankan), South East Asian (e.g., Vietnamese, Cambodian, Malaysian, Laotian), West Asian (e.g., Iranian, Afghan), White, and other (participant specified).

Reference

- 1.Andresen EM, Malmgren JA, Carter WB, Patrick DL. Screening for depression in well older adults: Evaluation of a short form of the CES-D. *American Journal of Preventive Medicine* 1994; 10(2): 77-84.
- 2.Maslach C, Jackson SE, Leither MP, Schaufeli WB, Schwab RL. *Maslach Burnout Inventory: Fourth edition.*; 2018.
- 3.American College of Sports Medicine, Riebe D, Ehrman JK, Liguori G, Magal M. *ACSM's Guidelines for Exercise Testing and Prescription: Wolters Kluwer;* 2018

Syntax example for Structural equation modeling model and Effect size methods for depressive symptoms

```
Model_SEM_quad <- '  
i ~ 1*T0 + 1*T2 + 1*T4 + 1*T6 + 1*T8 + 1*T10 + 1*T12  
s ~ 0*T0 + 2*T2 + 4*T4 + 6*T6 + 8*T8 + 10*T10 + 12*T12  
q ~ 0*T0 + 4*T2 + 16*T4 + 36*T6 + 64*T8 + 100*T10 + 144*T12  
i+s+q ~ Group_Exp'
```

```
Dep_model_quad <- growth(Model_SEM_quad, estimator = "MLR", mimic = "Mplus", missing = "ml",  
  em.iter.max = 20000, data = depression.full)
```

```
interpret(Dep_model_quad)  
summary(Dep_model_quad)
```

```
parameterestimates(Dep_model_quad)[c(48, 49, 23, 24),]  
parameterestimates(Dep_model_quad_r)[c(48, 49, 23, 24),]
```

```
ES_Depression_quad <- bind_rows(  
  deltaMethod(coef(Dep_model_quad), level = 0.95, vcov = vcov(Dep_model_quad),  
    "(s~Group_Exp`*2+`q~Group_Exp`*4)/sqrt(`i~i`+`T0~~T0`/2+`T2~~T2`/2)"),  
  deltaMethod(coef(Dep_model_quad), level = 0.95, vcov = vcov(Dep_model_quad),  
    "(s~Group_Exp`*4+`q~Group_Exp`*16)/sqrt(`i~i`+`T0~~T0`/3+`T2~~T2`/3+`T4~~T4`/3)"),  
  deltaMethod(coef(Dep_model_quad), level = 0.95, vcov = vcov(Dep_model_quad),  
    "(s~Group_Exp`*6+`q~Group_Exp`*36)/sqrt(`i~i`+`T0~~T0`/4+`T2~~T2`/4+`T4~~T4`/4+`T6~~T6`/4)"),  
)  
  deltaMethod(coef(Dep_model_quad), level = 0.95, vcov = vcov(Dep_model_quad),  
    "(s~Group_Exp`*8+`q~Group_Exp`*64)/sqrt(`i~i`+`T0~~T0`/5+`T2~~T2`/5+`T4~~T4`/5+`T6~~T6`/5  
+`T8~~T8`/5)"),  
  deltaMethod(coef(Dep_model_quad), level = 0.95, vcov = vcov(Dep_model_quad),  
    "(s~Group_Exp`*10+`q~Group_Exp`*100)/sqrt(`i~i`+`T0~~T0`/6+`T2~~T2`/6+`T4~~T4`/6+`T6~~T6`/6  
+`T8~~T8`/6+`T10~~T10`/6)"),  
  deltaMethod(coef(Dep_model_quad), level = 0.95, vcov = vcov(Dep_model_quad),  
    "(s~Group_Exp`*12+`q~Group_Exp`*144)/sqrt(`i~i`+`T0~~T0`/7+`T2~~T2`/7+`T4~~T4`/7+`T6~~T6`/7  
+`T8~~T8`/7+`T10~~T10`/7+`T12~~T12`/7)"))>%>%  
  mutate(Week = seq(2, 12, 2), Var = "Depression Quad")>%>% tibble()
```

```
Dep_model_quad_PP_compcn <- growth(Model_SEM_linear_4_group, estimator = "MLR", mimic = "Mplus",  
  missing = "ml", em.iter.max = 20000, data = depression.full_4_group)
```

```
parameterestimates(Dep_model_quad_PP_compcn)[c(61, 62, 23, 24, 26, 27, 29, 30),]
```

```
interpret(Dep_model_quad_PP_compcn)
```

```
ES_table_CESD_4_group <- bind_rows(  
  deltaMethod(coef(Dep_model_quad_PP_compcn), level = 0.95, vcov = vcov(Dep_model_quad_PP_compcn),  
    "(s~Group_very_low_active`*2+`q~Group_very_low_active`*4)/sqrt(`i~i`+`T0~~T0`/2+`T2~~T2`/2)"),  
  deltaMethod(coef(Dep_model_quad_PP_compcn), level = 0.95, vcov = vcov(Dep_model_quad_PP_compcn),  
    "(s~Group_very_low_active`*4+`q~Group_very_low_active`*16)/sqrt(`i~i`+`T0~~T0`/3+`T2~~T2`/3+`  
T4~~T4`/3)"),  
  deltaMethod(coef(Dep_model_quad_PP_compcn), level = 0.95, vcov = vcov(Dep_model_quad_PP_compcn),  
    "(s~Group_very_low_active`*6+`q~Group_very_low_active`*36)/sqrt(`i~i`+`T0~~T0`/4+`T2~~T2`/4+`  
T4~~T4`/4+`T6~~T6`/4)"),  
  deltaMethod(coef(Dep_model_quad_PP_compcn), level = 0.95, vcov = vcov(Dep_model_quad_PP_compcn),  
    "(s~Group_very_low_active`*8+`q~Group_very_low_active`*64)/sqrt(`i~i`+`T0~~T0`/5+`T2~~T2`/5+`  
T4~~T4`/5+`T6~~T6`/5+`T8~~T8`/5)"),
```

```

deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_very_low_active`*10+`q~Group_very_low_active`*100)/sqrt(`i~~i`+`T0~~T0`/6+`T2~~T2`/6
+`T4~~T4`/6+`T6~~T6`/6+`T8~~T8`/6+`T10~~T10`/6)"),
deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_very_low_active`*12+`q~Group_very_low_active`*144)/sqrt(`i~~i`+`T0~~T0`/7+`T2~~T2`/7
+`T4~~T4`/7+`T6~~T6`/7+`T8~~T8`/7+`T10~~T10`/7+`T12~~T12`/7)"),
deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_low_active`*2+`q~Group_low_active`*4)/sqrt(`i~~i`+`T0~~T0`/2+`T2~~T2`/2)"),
deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_low_active`*4+`q~Group_low_active`*16)/sqrt(`i~~i`+`T0~~T0`/3+`T2~~T2`/3+`T4~~T4`/3
)"),
deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_low_active`*6+`q~Group_low_active`*36)/sqrt(`i~~i`+`T0~~T0`/4+`T2~~T2`/4+`T4~~T4`/4
+`T6~~T6`/4)"),
deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_low_active`*8+`q~Group_low_active`*64)/sqrt(`i~~i`+`T0~~T0`/5+`T2~~T2`/5+`T4~~T4`/5+
+`T6~~T6`/5+`T8~~T8`/5)"),
deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_low_active`*10+`q~Group_low_active`*100)/sqrt(`i~~i`+`T0~~T0`/6+`T2~~T2`/6+`T4~~T4`/
6+`T6~~T6`/6+`T8~~T8`/6+`T10~~T10`/6)"),
deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_low_active`*12+`q~Group_low_active`*144)/sqrt(`i~~i`+`T0~~T0`/7+`T2~~T2`/7+`T4~~T4`/
7+`T6~~T6`/7+`T8~~T8`/7+`T10~~T10`/7+`T12~~T12`/7)"),
deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_high_active`*2+`q~Group_high_active`*4)/sqrt(`i~~i`+`T0~~T0`/2+`T2~~T2`/2)"),
deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_high_active`*4+`q~Group_high_active`*16)/sqrt(`i~~i`+`T0~~T0`/3+`T2~~T2`/3+`T4~~T4`/3
)"),
deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_high_active`*6+`q~Group_high_active`*36)/sqrt(`i~~i`+`T0~~T0`/4+`T2~~T2`/4+`T4~~T4`/4
+`T6~~T6`/4)"),
deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_high_active`*8+`q~Group_high_active`*64)/sqrt(`i~~i`+`T0~~T0`/5+`T2~~T2`/5+`T4~~T4`/5
+`T6~~T6`/5+`T8~~T8`/5)"),
deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_high_active`*10+`q~Group_high_active`*100)/sqrt(`i~~i`+`T0~~T0`/6+`T2~~T2`/6+`T4~~T4`
/6+`T6~~T6`/6+`T8~~T8`/6+`T10~~T10`/6)"),
deltaMethod(coef(Dep_model_quad_PP_compcon), level = 0.95, vcov.=vcov(Dep_model_quad_PP_compcon),
  "(^s~Group_high_active`*12+`q~Group_high_active`*144)/sqrt(`i~~i`+`T0~~T0`/7+`T2~~T2`/7+`T4~~T4`
/7+`T6~~T6`/7+`T8~~T8`/7+`T10~~T10`/7+`T12~~T12`/7)"))>%
mutate(Group = c(rep("Very low", 6),rep("Low", 6), rep("High", 6)),
  Week = rep(c(2,4,6,8,10,12),3))>%tibble()

```

Software description.

All analyses, descriptive statistics, multiple imputation, and visualisations were run using R Statistical software (Version 4.1.0)¹. Growth models were completed using the *lavaan* package². Data cleaning and visualization were completed within the *tidyverse* framework,³ with *dplyr*⁴ and *ggplot* specifically.⁵ The effect size calculations for the growth curves used the *deltaMethod* function from the *car6* package and the effect size for the Wilcoxon test used the *rstatix* package.⁷

References

1. R Core Team. R: A language and environment for statistical computing. R Foundation for Statistical Computing 2021; Vienna(Austria).
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3. Wickham H, Averick M, Bryan J, et al. Welcome to the Tidyverse. Journal of open source software 2019; 4(43): 1686.
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5. Wickham H. ggplot2: Elegant Graphics for Data Analysis: Springer New York; 2009.
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eTables and eFigures

eTable 1. Missingness for Outcome Scales

Week	Depressive Symptoms		Cynicism		Emotional Exhaustion		Professional Efficacy	
	Completely Missing	Partially Missing	Completely Missing	Partially Missing	Completely Missing	Partially Missing	Completely Missing	Partially Missing
0	2	0	2	1	2	0	2	0
2	20	0	21	0	21	0	21	0
4	30	1	32	1	32	2	32	3
6	48	0	49	2	48	1	48	2
8	60	0	63	1	62	0	62	2
10	71	0	71	0	71	0	71	1
12	73	0	75	1	75	0	75	0
Total	304	1	313	6	311	3	311	8
Percent of sample	15.1%	0.0%	15.5%	0.3%	15.4%	0.1%	15.4%	0.4%

Note. Fully missing denotes a response in which a participant did not respond to any of the items within an instrument. Partially missing denotes responses in which participants were missing at least one, but not all, responses to items on an instrument. Imputation was only done if a participant had partially missing data. The 'Percent of Sample' Row represents number missing (either partially or fully) divided by 2016, which is the total number of surveys sent to participants (N = 288 over 7 timepoints)

eTable 2. Predicting Number of Missing Surveys per Participant From Baseline Outcome and Sociodemographic Data

	Predictor Statistics				Model Statistics	
	Beta	SE	Lower CI	Upper CI	Adj R ²	P value
BL Depression	0.041	0.034	-0.026	0.108	0.003	0.226
BL Cynicism	0.019	0.021	-0.023	0.060	-0.002	0.377
BL Efficacy	0.018	0.029	-0.039	0.075	-0.004	0.529
BL Exhaustion	0.022	0.023	-0.023	0.067	0.000	0.336
Age	-0.063	0.015	-0.093	-0.033	0.103	0.000
Gender (Categorical; Comparison Man)					0.018	0.145
Non-Binary	2.316	1.455	-0.561	5.192		
Prefer not to Answer	-1.684	2.008	-5.654	2.286		
Women	-0.515	0.484	-1.471	0.442		
Education (Categorical; Comparison: Trade Certificate)					-0.023	0.921
College Certificate	0.250	0.956	-1.640	2.140		
University Diploma	0.111	1.052	-1.970	2.192		
Bachelors	0.161	0.854	-1.527	1.849		
Degree above Bachelor's	0.489	0.866	-1.222	2.201		
Household Income*	-0.080	0.030	-0.139	-0.021	0.048	0.008
Health Care Role (Direct/Indirect)	0.033	0.432	-0.821	0.887	-0.007	0.939

Notes. BL = Baseline; *Converted to Numeric level (i.e. 1-28); Outcome is the number of Fully Missing Surveys; Bold Italics denotes significance (p<0.05)

eTable 3. Biweekly Feingold Treatment Effect Sizes and 95% CIs for Depressive (Primary Outcome) and Burnout Symptoms (Secondary Outcome), Covarying the Effects of Age

	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Primary Outcome						
Depressive Symptoms ES (CI 95%)	-0.10 (-0.21, 0.02)	-0.18 (-0.37, -0.01)	-0.26* (-0.49, -0.03)	-0.32* (-0.56, -0.07)	-0.37* (-0.62, -0.12)	-0.41* (-0.69, -0.13)
Secondary Outcomes						
Burnout Symptoms						
<i>Cynicism</i> ES (CI 95%)	-0.10* (-0.18, -0.01)	-0.18* (-0.32, -0.04)	-0.24* (-0.41, -0.07)	-0.29* (-0.46, -0.11)	-0.32* (-0.50, -0.14)	-0.33* (-0.54, -0.13)
<i>Emotional Exhaustion</i> ES (CI 95%)	-0.13* (-0.23, -0.03)	-0.23* (-0.40, -0.06)	-0.31* (-0.51, -0.10)	-0.36* (-0.58, -0.13)	-0.38* (-0.61, -0.15)	-0.39* (-0.64, -0.13)
<i>Professional Efficacy</i> ES (CI 95%)	0.09 (-0.01, 0.20)	0.16 (-0.01, 0.34)	0.20* (0.00, 0.40)	0.22* (0.00, 0.43]	0.21 (-0.01, 0.43)	0.17 (-0.07, 0.42)

Notes. ES = Effect Size; CI = Confidence Interval; * designates significant effects ($p < 0.05$).

eTable 4. Biweekly Feingold Treatment Effect Sizes and 95% CIs for Depressive (Primary Outcome) and Burnout Symptoms (Secondary Outcome), Covarying the Effects of Income

	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Primary Outcome						
Depressive Symptoms ES (CI 95%)	-0.08 (-0.20, 0.04)	-0.16 (-0.36, 0.05)	-0.22 (-0.47, 0.03)	-0.27* (-0.53, -0.01)	-0.32* (-0.58, -0.05)	-0.35* (-0.65, -0.05)
Secondary Outcomes						
Burnout Symptoms						
<i>Cynicism</i> ES (CI 95%)	-0.08 (-0.17, 0.01)	-0.15* (-0.29, -0.01)	-0.21* (-0.38, -0.03)	-0.25* (-0.44, -0.07)	-0.29* (-0.49, -0.10)	-0.32* (-0.54, -0.10)
<i>Emotional Exhaustion</i> ES (CI 95%)	-0.10* (-0.20, 0.00)	-0.19* (-0.35, -0.02)	-0.25* (-0.45, -0.06)	-0.31* (-0.52, -0.09)	-0.34* (-0.56, -0.11)	-0.35* (-0.61, -0.10)
<i>Professional Efficacy</i> ES (CI 95%)	0.11* (0.01, 0.22)	0.18* (0.02, 0.35)	0.21* (0.02, 0.41)	0.22* (0.00, 0.43]	0.18 (-0.05, 0.41)	0.11 (-0.16, 0.38)

Notes. ES = Effect Size; CI = Confidence Interval; * designates significant effects ($p < 0.05$).

eTable 5. Weekly Use of Down Dog Apps for All Exercise Condition Participants and by Average Adherence Group Over the Course of the Intervention

	Group	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Number of Sessions per Week (SD)	All	3.92 (2.19)	3.24 (1.96)	2.85 (1.97)	2.71 (2.02)	2.33 (1.96)	2.54 (2.11)	2.36 (2.24)	2.22 (2.16)	2.09 (2.07)	1.86 (1.97)	2.96 (2.06)	1.56 (1.94)
	High	4.8 (1.32)	4.6 (1)	4.93 (1.05)	4.67 (1.24)	4.4 (1.35)	4.5 (1.38)	4.83 (1.86)	4.63 (1.4)	4.3 (1.29)	4.1 (1.06)	4.13 (1.8)	3.83 (1.8)
	Low	4.52 (2.02)	3.63 (1.79)	3.21 (1.37)	3.07 (1.6)	2.55 (1.56)	2.89 (1.78)	2.51 (1.73)	2.34 (1.82)	2.19 (1.82)	1.86 (1.8)	2.07 (1.72)	1.41 (1.6)
	Very Low	2.03 (1.96)	1.38 (1.48)	0.46 (0.77)	0.43 (0.73)	0.22 (0.48)	0.27 (0.77)	0.08 (0.36)	0.03 (0.16)	0.11 (0.66)	0.03 (0.66)	0 (0)	0 (0)
Minute per Week (SD)	All	73.27 (41.49)	65.79 (42.87)	57.12 (42.43)	56.49 (45.60)	49.80 (46.28)	52.51 (46.56)	49.72 (48.94)	48.29 (51.14)	44.45 (48.02)	39.93 (46.58)	42.96 (47.96)	34.71 (45.98)
	High	100.94 (32.85)	104.77 (36.33)	107.98 (31.92)	109.5 (39.07)	108.28 (43.58)	104.39 (36.03)	111.38 (43.32)	115.3 (44.78)	105.6 (41.69)	99.75 (40.91)	98 (50.42)	95.28 (46.45)
	Low	82.44 (34.73)	71.41 (32.19)	60.94 (25.8)	59.81 (29.74)	48.78 (28.89)	55.98 (35.34)	48.76 (32.67)	44.95 (34.37)	41.28 (34.58)	35.33 (34.61)	42.11 (34.72)	27.4 (31.79)
	Very Low	32.76 (29.51)	23.1 (27.53)	8.34 (12.96)	6.95 (11.94)	4.4 (10.04)	3.59 (10.02)	1.62 (7.27)	0.54 (3.29)	1.15 (7)	0.49 (2.96)	0 (0)	0 (0)

Per protocol indicates 80+ minutes (N = 30); low: 20-79 minutes (N = 73); and very low: <20 minutes (N = 37).

eTable 6. Predicting Average Weekly Minutes of App Use per Participant From Baseline Outcome and Sociodemographic Data

	Predictor Statistics				Model Statistics	
	Beta	SE	Lower CI	Upper CI	Adj R ²	P value
BL Depression	0.156	0.684	-1.196	1.509	-0.007	0.820
BL Cynicism	-0.180	0.418	-1.007	0.646	-0.006	0.667
BL Efficacy	-0.571	0.574	-1.707	0.564	0.000	0.322
BL Exhaustion	0.247	0.460	-0.662	1.155	-0.005	0.592
Age	0.950	0.312	0.334	1.567	0.057	0.003
Gender (Categorical; Comparison Man)					-0.014	0.761
Non-Binary	-39.065	40.466	-119.101	40.970		
Prefer not to Answer	-5.236	40.466	-85.271	74.799		
Women	2.340	9.967	-17.372	22.052		
Education (Categorical; Comparison: Trade Certificate)					0.001	0.389
College Certificate	15.376	18.718	-21.646	52.399		
University Diploma	-4.746	20.607	-45.507	36.014		
Bachelors	19.645	16.742	-13.469	52.760		
Degree above Bachelor's	12.609	16.951	-20.919	46.137		
Household Income*	0.872	0.570	-0.258	2.001	0.011	0.129
Health Care Role (Direct/Indirect)	6.611	8.683	-10.562	23.784	-0.003	0.448

Notes. BL = Baseline; *Converted to Numeric level (i.e. 1-28); Outcome is the number of Fully Missing Surveys; Bold Italics denotes significance (p<0.05)

eTable 7. Within Condition Changes Over Time for Depressive Symptoms and for Burnout Symptoms (Cynicism, Exhaustion, Professional Efficacy)

	Waitlist Control Condition (N = 146)			Exercise Condition (N = 142)		
Depressive Symptoms						
	<i>Estimate</i>	<i>SE</i>	<i>CI</i>	<i>Estimate</i>	<i>SE</i>	<i>CI</i>
I	20.827*	.442	19.960, 21.694	21.189*	0.397	20.410, 21.968
S	-0.247*	0.117	-0.477, -0.018	-0.524*	0.129	-0.776, -0.272
Q	0.017	0.009	-0.001, 0.035	0.025*	0.010	0.005, 0.046
Cynicism						
	<i>Estimate</i>	<i>SE</i>	<i>CI</i>	<i>Estimate</i>	<i>SE</i>	<i>CI</i>
I	17.529*	0.616	16.321, 18.737	18.879*	0.646	17.613, 20.145
S	0.393*	0.117	0.164, 0.623	-0.012	0.143	-0.293, 0.269
Q	-0.019*	0.010	-0.039, 0.000	-0.003	0.011	-0.025, 0.019
Exhaustion						
	<i>Estimate</i>	<i>SE</i>	<i>CI</i>	<i>Estimate</i>	<i>SE</i>	<i>CI</i>
I	23.420*	0.626	22.193, 24.648	25.094*	0.602	23.915, 26.273
S	-0.217	0.139	-0.489, 0.055	-0.762*	0.174	-1.103, -0.421
Q	0.011	0.011	-0.012, 0.033	0.035*	0.013	0.009, 0.061
Professional Efficacy						
	<i>Estimate</i>	<i>SE</i>	<i>CI</i>	<i>Estimate</i>	<i>SE</i>	<i>CI</i>
I	33.746*	0.439	32.886, 34.605	33.060*	0.470	32.139, 33.981
S	-0.205	0.136	-0.470, 0.061	0.101	0.116	-0.127, 0.328
Q	0.004	0.011	-0.018, 0.025	-0.014	0.010	-0.034, 0.006

Notes. Estimates, SE and 95% CI for intercept (I), slope (S) and quadratic (Q) terms, * denotes significance (p < .05).

eTable 8. Biweekly Average Number of Sick Days

	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
All Participants Mean (SD)	0.38 (1.24)	0.41 (1.29)	0.49 (1.17)	0.43 (1.37)	0.54 (1.49)	0.50 (1.33)
Exercise Condition Mean (SD)	0.43 (1.50)	0.38 (1.14)	0.42 (1.16)	0.38 (1.52)	0.51 (1.62)	0.41 (1.31)
Waitlist Control Condition Mean (SD)	0.32 (0.95)	0.43 (1.42)	0.54 (1.19)	0.47 (1.23)	0.58 (1.36)	0.59 (1.35)

Notes. SD = Standard Deviation.

eTable 9. Biweekly Effect Sizes for Depressive Symptoms With Use of the Down Dog Apps Over the Course of the Intervention Compared With the Waitlist Control Condition (n = 146)

Depressive Symptoms			
	Per Protocol	Low Use	Very low Use
Time	Estimate, SE [95% CI]	Estimate, SE [95% CI]	Estimate, SE [95% CI]
Week 2	-0.25*, 0.09 [-0.43, -0.08]	-0.05, 0.07 [-0.18, 0.08]	-0.02, 0.11 [-0.23, 0.20]
Week 4	-0.45*, 0.16 [-0.76, -0.15]	-0.10, 0.11 [-0.32, 0.12]	-0.05, 0.19 [-0.42, 0.31]
Week 6	-0.60*, 0.20 [-0.99, -0.21]	-0.14, 0.14 [-0.41, 0.12]	-0.10, 0.23 [-0.56, 0.36]
Week 8	-0.69*, 0.22 [-1.12, -0.25]	-0.19, 0.14 [-0.47, 0.09]	-0.17, 0.26 [-0.68, 0.34]
Week 10	-0.72*, 0.24 [-1.18, -0.26]	-0.23, 0.14 [-0.51, 0.04]	-0.25, 0.29 [-0.82, 0.31]
Week 12	-0.71*, 0.26 [-1.21, -0.20]	-0.28, 0.16 [-0.60, 0.04]	-0.35, 0.34 [-1.02, 0.32]

Notes. * denotes significance (p < .05).

Per protocol indicates 80+ minutes (N = 30); low: 20-79 minutes (N = 73); and very low: <20 minutes (N = 37).

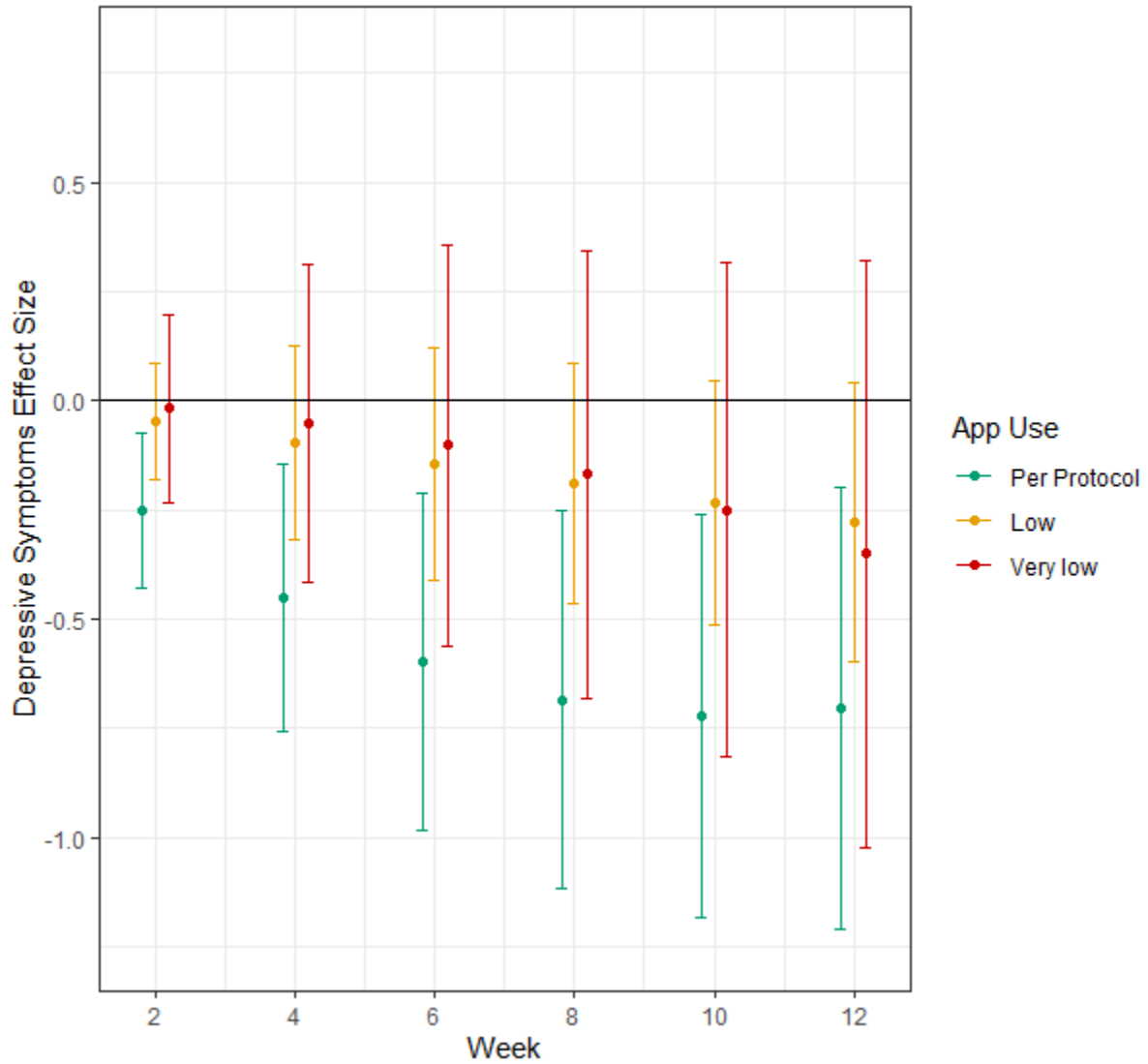
eTable 10. Biweekly Effect Sizes for Burnout Symptoms (Cynicism, Exhaustion, Professional Efficacy) With Use of the Down Dog Apps Compared With the Waitlist Control Condition (n = 146)

Cynicism			
	Per Protocol	Low Use	Very low Use
Time	Estimate, SE [95% CI]	Estimate, SE [95% CI]	Estimate, SE [95% CI]
Week 2	-0.17*, 0.06 [-0.29, -0.06]	-0.09, 0.05 [-0.18, 0.00]	-0.01, 0.10 [-0.20, 0.18]
Week 4	-0.31*, 0.10 [-0.51, -0.12]	-0.17*, 0.08 [-0.33, -0.01]	-0.02, 0.17 [-0.35, 0.31]
Week 6	-0.41*, 0.12 [-0.65, -0.17]	-0.23*, 0.10 [-0.42, -0.04]	-0.03, 0.20 [-0.42, 0.37]
Week 8	-0.46*, 0.13 [-0.72, -0.21]	-0.28*, 0.10 [-0.48, -0.08]	-0.03, 0.21 [-0.45, 0.38]
Week 10	-0.49*, 0.13 [-0.74, -0.23]	-0.32*, 0.11 [-0.52, -0.11]	-0.04, 0.20 [-0.43, 0.36]
Week 12	-0.47*, 0.13 [-0.72, -0.21]	-0.34*, 0.13 [-0.58, -0.09]	-0.04, 0.18 [-0.40, 0.32]
Exhaustion			
	Per Protocol	Low Use	Very low Use
Time	Estimate, SE [95% CI]	Estimate, SE [95% CI]	Estimate, SE [95% CI]
Week 2	-0.28*, 0.09 [-0.46, -0.10]	-0.1, 0.06 [-0.21, 0.02]	-0.02, 0.10 [-0.22, 0.18]
Week 4	-0.48*, 0.16 [-0.80, -0.17]	-0.18, 0.10 [-0.37, 0.01]	-0.04, 0.17 [-0.37, 0.29]
Week 6	-0.61*, 0.20 [-1.01, -0.22]	-0.25*, 0.12 [-0.48, -0.02]	-0.05, 0.21 [-0.46, 0.35]
Week 8	-0.67*, 0.22 [-1.10, -0.24]	-0.31*, 0.12 [-0.55, -0.07]	-0.07, 0.23 [-0.51, 0.38]
Week 10	-0.65*, 0.22 [-1.09, -0.21]	-0.35*, 0.13 [-0.60, -0.10]	-0.08, 0.24 [-0.54, 0.39]
Week 12	-0.57*, 0.22 [-1.01, -0.14]	-0.39*, 0.15 [-0.68, -0.09]	-0.09, 0.27 [-0.62, 0.45]
Professional Efficacy			
	Per Protocol	Low Use	Very low Use
Time	Estimate, SE [95% CI]	Estimate, SE [95% CI]	Estimate, SE [95% CI]
Week 2	0.22*, 0.07 [0.09, 0.36]	0.12*, 0.06 [0.00, 0.24]	-0.14, 0.10 [-0.34, 0.07]
Week 4	0.39*, 0.12 [0.16, 0.61]	0.20*, 0.10 [0.00, 0.39]	-0.21, 0.17 [-0.55, 0.13]
Week 6	0.48*, 0.14 [0.21, 0.75]	0.23*, 0.11 [0.00, 0.45]	-0.23, 0.21 [-0.63, 0.17]
Week 8	0.55*, 0.15 [0.25, 0.84]	0.23, 0.12 [-0.01, 0.46]	-0.20, 0.22 [-0.63, 0.24]
Week 10	0.55*, 0.16 [0.23, 0.87]	0.18, 0.13 [-0.07, 0.44]	-0.11, 0.23 [-0.55, 0.33]
Week 12	0.50*, 0.18 [0.14, 0.86]	0.10, 0.16 [-0.20, 0.41]	0.03, 0.24 [-0.44, 0.50]

Notes. * denotes significance ($p < .05$)

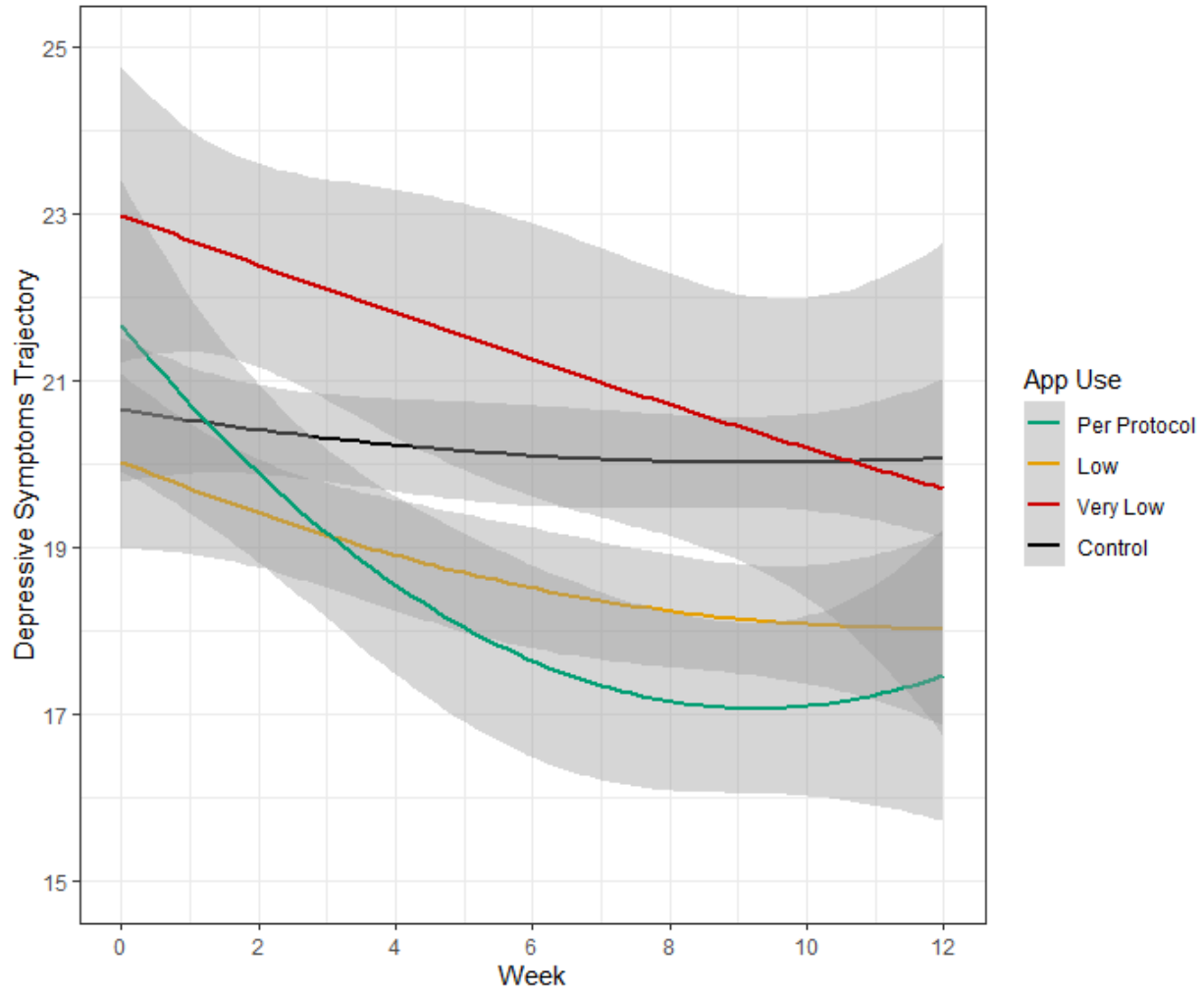
Per protocol indicates 80+ minutes (N = 30); low: 20-79 minutes (N = 73); and very low: <20 minutes (N = 37).

eFigure 1. Biweekly Effect Sizes for Depressive Symptoms for Participants With Use of the Down Dog Apps Over the Course of the Intervention Compared With the Waitlist Control Condition (n = 146)



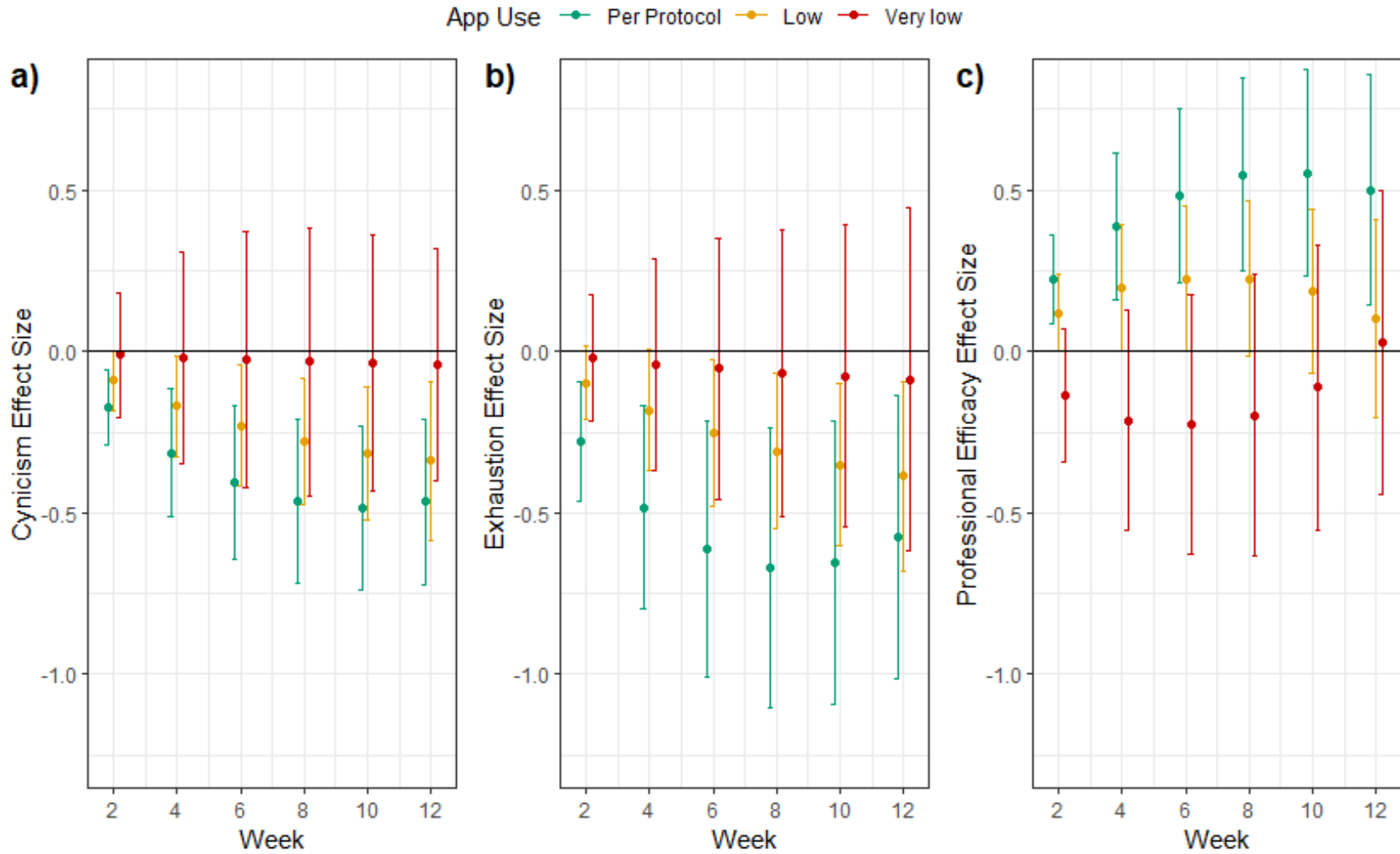
Per protocol indicates 80+ minutes (N = 30); low: 20-79 minutes (N = 73); and very low: <20 minutes (N = 37).

eFigure 2. Depressive Symptoms Trajectories for Participants With Use of the Down Dog Apps and Waitlist Control Condition Over the Course of the Intervention



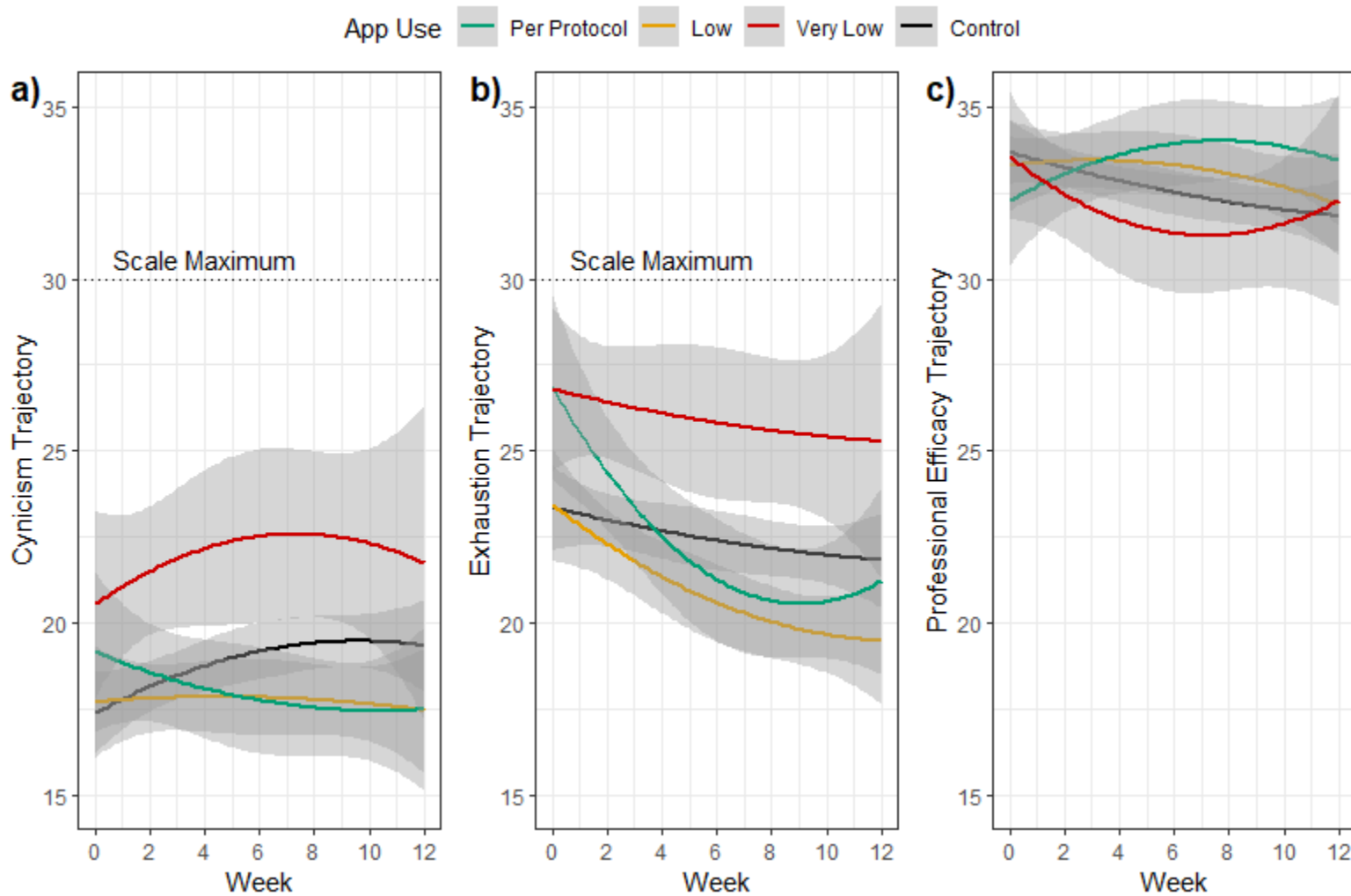
Per protocol indicates 80+ minutes (N = 30); low: 20-79 minutes (N = 73); and very low: <20 minutes (N = 37).

eFigure 3. Biweekly Effect Sizes for Burnout Symptoms (Cynicism, Exhaustion, Professional Efficacy) for Participants With Use of the Down Dog Apps Over the Course of the Intervention Compared With the Waitlist Control Condition (n = 146)



Per protocol indicates 80+ minutes (N = 30); low: 20-79 minutes (N = 73); and very low: <20 minutes (N = 37).

eFigure 4. Trajectories of Burnout Symptoms (Cynicism, Exhaustion, Professional Efficacy) for Participants With Use of the Down Dog Apps and Waitlist Control Condition Over the Course of the Intervention



Per protocol indicates 80+ minutes (N = 30); low: 20-79 minutes (N = 73); and very low: <20 minutes (N = 37).