Cyberpsychology, Behavior, and Social Networking
Volume 25, Number 5, 2022

DOI: 10.1089/cyber.2021.0324

Taking a One-Week Break from Social Media Improves Well-Being, Depression, and Anxiety: A Randomized Controlled Trial

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Abstract

The present study aimed to understand the effects of a 1-week break from social media (SM) (Facebook, Instagram, Twitter, and TikTok) on well-being, depression, and anxiety compared with using SM as usual. We also aimed to understand whether time spent on different SM platforms mediates the relationship between SM cessation and well-being, depression, and anxiety. We randomly allocated 154 participants (mean age of 29.6 years) to either stop using SM (Facebook, Twitter, Instagram, and TikTok) for 1 week or continue to use SM as usual. At a 1-week follow-up, significant between-group differences in well-being (mean difference [MD] 4.9, 95% confidence interval [CI] 3.0–6.8), depression (MD −2.2, 95% CI −3.3 to −1.1), and anxiety (MD −1.7, 95% CI −2.8 to −0.6) in favor of the intervention group were observed, after controlling for baseline scores, age, and gender. The intervention effect on well-being was partially mediated by a reduction in total weekly self-reported minutes on SM. The intervention effect on depression and anxiety was partially mediated by a reduction in total weekly self-reported minutes on Twitter and TikTok, and TikTok alone, respectively. The present study shows that asking people to stop using SM for 1 week leads to significant improvements in well-being, depression, and anxiety. Future research should extend this to clinical populations and examine effects over the longer term.

Keywords: social media, mental health, depression, anxiety, well-being, mediation

Introduction

Social media (SM) has revolutionized how we communicate with each other, allowing users to interact with friends and family and meet others based on shared interests by creating virtual public profiles.[1] In the United Kingdom, the number of adults using SM has increased from 45% in 2011 to 71% in 2021. When broken down by age, SM use ranges from 90% to 97% in people between 16 and 44.[2] Furthermore, 95% of adults have used the Internet within the last 3 months, with social networking being the most frequent activity performed.[2] Facebook, Instagram, and Twitter are three of the most popular SM platforms with close to 4 billion users.[3] TikTok has also experienced an exponential increase of 7.5 million users during COVID-19.[4] This widespread adoption of SM has led to an abundance of research examining its impact on individuals' physical and mental health.

Feeling ''low'' and losing pleasure in things are core characteristics of depression, whereas anxiety is characterized by excessive and out of control worry. Symptoms such as irritability, restlessness, tiredness, sleep problems, and poor concentration and memory often accompany depression and anxiety. Conversely, well-being refers to an individual's level of positive affect, life satisfaction, and sense of purpose.[5] Well-being, depression, and anxiety are distinct but related constructs that are all associated with each other.[6] Low levels of well-being have also been shown to predict future depression.[7] Understanding how SM impacts this range of mental health indices is therefore critical.

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The transdiagnostic cognitive behavioral conceptualization of SM use proposes that motivations for SM use (i.e., underlying gratifications driving initial engagement), SM use (i.e., patterns and use of SM), information processing biases (i.e., what information we attend to), platform features and affordances (i.e., the extent to which the SM platform is asynchronous, visual, public, and available), consequences and feedback loops (i.e., the information we receive as a result of our input), and mode of engagement (i.e., intentional vs. automatic) feed into the cycle of thoughts, feelings, and behaviors leading to positive or negative psychological outcomes.[8] This model, therefore, provides a useful lens to understand how SM use might be driving negative psychological outcomes.

Previous studies have demonstrated negative relationships between SM use and various mental health indices.[9] For example, a cross-sectional study of 1,787 U.S. adults (aged 19–32) looked at self-reported daily SM use.[10] Compared with those in the lowest quartile of total daily and weekly usage, participants in the highest quartile had significantly greater odds of depression after controlling for covariates, including age, ethnicity, relationship status, living situation, household income, and education level. In addition, a longitudinal study of 12,866 young people aged 13 to 16 years in England found that very frequent (multiple times daily) SM use at age 13–14 years also predicted poorer mental health 2 years later.[11]

The findings from this study suggest that high levels of SM use led to decreased well-being. However, the direction of association is difficult to interpret.[11] For example, on the one hand, it is possible that high levels of SM use led to subsequent issues in mental health. On the other hand, it may be that depressed individuals feel a diminished sense of self-worth and turn to SM interactions as a means of validation.[12]

Experimental research largely supports findings from cross-sectional and longitudinal studies showing positive effects on various well-being indices when taking a break from SM. For example, a study in Denmark found that regular Facebook users who took a 1-week break from Facebook had higher levels of well-being postintervention than those who continued as normal.[13] However, other important areas of mental health (e.g., depression, anxiety) and other SM sites (e.g., Instagram, Twitter) were not considered.

Another study in the United States found significantly lower levels of loneliness and depression, but no changes in anxiety, self-esteem, and psychological well-being when comparing undergraduates who were asked to either limit their use of Facebook, Instagram, and Snapchat to 10 minutes per day or to continue as normal for 3 weeks.[14] However, it should be noted that this study only included iPhone users and did not include SM platforms TikTok or Twitter, which are both widely used platforms today.

There is currently still a lack of studies examining the effect of reducing SM use on well-being, depression, and anxiety, with studies calling for more experimental research.[15,16] Furthermore, there is a need to understand whether the effect of SM usage-reduction interventions on mental health is mediated by the time spent on different SM platforms. To address these gaps, the present study aimed to understand the impact of taking a 1-week break from SM (Facebook, Instagram, Twitter, and TikTok) on well-being, depression, and anxiety compared with using SM as normal. We also aimed to understand whether time spent on different SM platforms mediates the relationship between SM cessation and well-being, depression, and anxiety. The key hypotheses for this study were as follows:

1. People randomized to come off SM for 1 week will experience larger improvements in well-being, depression, and anxiety postintervention compared with people using SM as usual.
2. Improvements in well-being, depression, and anxiety postintervention compared with people using SM, as usual, will be moderated by baseline symptoms.
3. Changes in time spent on SM platform will mediate the effect of SM cessation on changes in well-being, anxiety, and depression.

Materials and Methods

Trial design

The study was reported in line with the Consolidated Standards of Reporting Trials, recommendations for reporting randomized controlled trials (RCTs).[17] The present trial used a two-arm, parallel-group RCT design with participants individually randomized in a 1:1 allocation ratio. The study was approved by the institutional research ethics board of the authors' university.

Participants

Participants were eligible for the study if they were aged 18 years or older, reported using SM every day, and were willing to stop using SM for 1 week. Specific to Android users, eligible participants were those who were willing to download the ActionDash application. Those with an iPhone were eligible for participation if they could access the ScreenTime application.

Procedure

Participants were recruited via SM sites such as Facebook, Twitter, and Instagram and through word-of-mouth. The study also gained public attention through local news advertisements and radio broadcasts. No costs were associated with the study's promotion, and participants were not paid for their involvement. Prospective participants were sent a participant information sheet, a consent form, and a link to the baseline questionnaire via an e-mail. Those who provided informed consent were asked to complete the baseline questionnaire. After completion, participants were e-mailed with their group allocation (intervention or control group).

Group allocation was completed through simple randomization at the individual level in a 1:1 allocation ratio via an online random generation service (JustFlipACoin, n.d.). The randomization Web site generated participant grouping by flipping either heads (intervention group) or tails (control group) on a virtual coin. Participants' group allocation was concealed during the randomization phase. Due to the study's nature, researchers were not blinded to which condition participants were allocated to postrandomization.

Participants allocated to the intervention group were asked to quit using SM sites: Facebook, Twitter, TikTok, and Instagram for 1 week. At this point, participants were provided with a tips sheet to help them stop using the relevant SM sites

(both app and Web site versions) during the cessation period. These tips included signing out of the relevant SM sites, deleting relevant SM apps, turning their phone off, turning off SM notifications, disconnecting from Wi-Fi, and downloading an app blocker to block the use of the relevant SM sites. These tips were advisory and not compulsory to participate in the study. Alongside the tips sheet, participants were informed that a second survey would be e-mailed to them after 1 week. Participants in the control group were encouraged to continue using SM as usual for 1 week.

After 1 week, participants in both groups were e-mailed a link to the follow-up survey. At that point, all participants were asked to provide evidence of their screen time during the last week using either the ActionDash or ScreenTime application, depending on which smartphone they used. Participants were provided with instructions on viewing their screen time and returning the relevant data to the researchers. Participants were asked to take screenshots of their screen time usage and send these to the researchers via an e-mail. Following completion of the follow-up survey, participants were sent a final e-mail, which included signposts to appropriate mental health resources in case they wanted further information or guidance on the mental health areas touched upon within the questionnaires.

Measures

Well-being. The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) is a 14-item instrument that asks respondents to respond to statements about their feelings and thoughts that best describe their experience over the previous 2 weeks on a 5-point scale.[18] Example items include: ''I've been feeling optimistic about the future'' and ''I've been thinking clearly.'' The WEMWBS has good validity and reliability ($\alpha = 0.89$).[18]

Depression. The Patient Health Questionnaire-8 (PHQ-8) is an 8-item instrument that measures the frequency of depressive symptoms over the last 2 weeks on a 3-point scale.[19] A score of 0–4 indicates no depression, 5–9 indicates mild depression, 10–14 indicates moderate depression, 15–19 indicates moderately severe depression, and 20–24 indicates severe depression. The PHQ-8 has good validity and reliability ($\alpha = 0.81$).[19]

Anxiety. The General Anxiety Disorder Scale-7 (GAD-7) is a 7-item instrument that measures the frequency of anxiety symptoms over the last 2 weeks on a 3-point scale.[20] A score of 0–4 indicates no anxiety, 5–9 indicates mild anxiety, 10–15 indicates moderate anxiety and 16–21 indicates severe anxiety. Evidence of validity and reliability has been shown for the GAD-7 ($\alpha = 0.86$).[20]

Sample size

Sample size calculations revealed that at least 148 participants were needed to detect a 4-point change in the WEMWBS score.[21] This was based on an estimated population mean score of 51.61 and a standard deviation of 8.71.[22]

Statistical methods

SPSS statistical software version 25 (2017; IBM Corp.) was used for all analyses. Descriptive statistics were

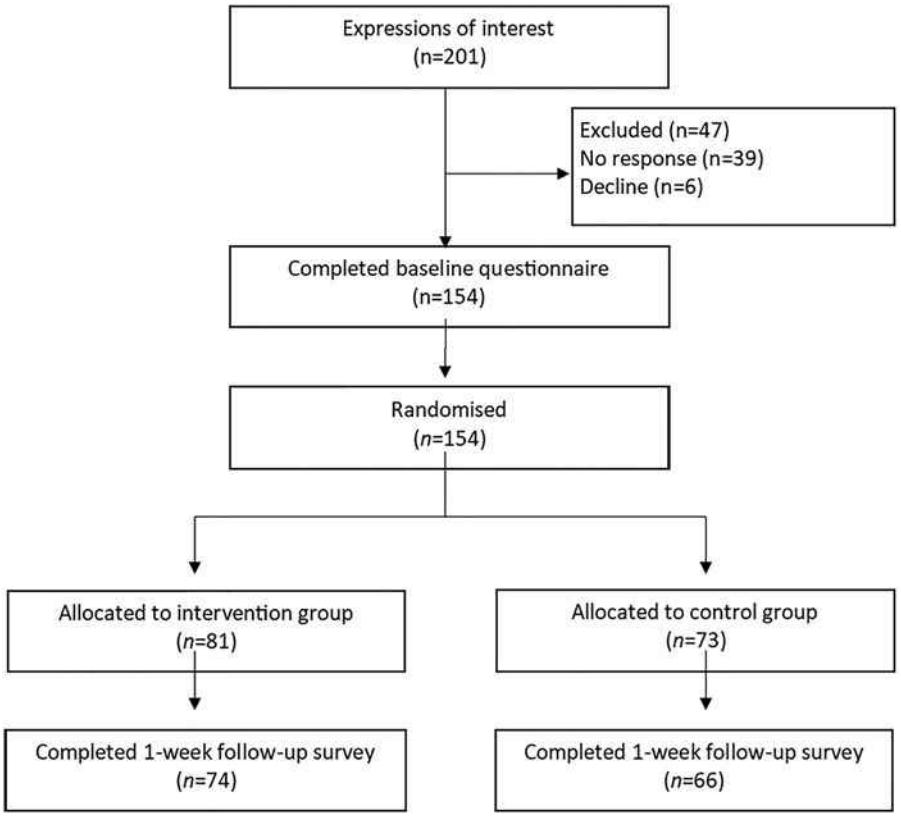

FIG. 1. CONSORT participant flow diagram.

produced for demographic characteristics and all measures at baseline and 1 week postrandomization. Between-group differences were presented as medians and interquartile ranges alongside adjusted mean differences and 95% confidence intervals (CIs). Linear models were selected to understand if there were significant differences in primary and secondary outcomes between groups at follow-up while controlling for baseline levels, age, and gender (Hypothesis 1).

Moderation and mediation analyses were performed using PROCESS v3.5,[23] with the product of coefficients method. For the moderation models, ''condition'' (intervention or control) was specified as the independent (X) variable, baseline well-being, depression, or anxiety was specified as the moderator (W) variable, and postintervention well-being, depression, or anxiety was specified as the outcome (Y) variable (Hypothesis 2).

For the mediation models, ''condition'' was specified as the independent (X) variable, ''time spent on social media'' was specified as the mediator (M) variable, and postintervention well-being, depression, or anxiety was specified as the outcome (Y) variable (Hypothesis 3). Baseline scores, age, and gender were specified as covariates for all moderation and mediation models. All analyses were conducted on an intention-to-treat, complete case basis, and missing data were not imputed.

Results

Participant flow

A total of 201 people responded to the advertisements and 154 were eligible for inclusion and randomized in the trial between November 2020 and March 2021 (Fig. 1). Overall retention at 1 week postrandomization was 91%. Three (2%) participants withdrew from the study, and 11 (7%) participants did not respond to e-mails to complete the follow-up questionnaire.

Baseline data

At baseline (Table 1), the mean age was 28.9 years, with females accounting for 62% of the study. The majority (64%) of participants classed their ethnicity as white and most were either employed (39%) or students (49%). Nearly all the participants were educated at or above A-level (90%). Nearly half the sample was single (47%) and 20% were married. Almost a third (30%) of the sample met the criteria for major depressive disorder ($\geq$10 on the PHQ-8).

Table 1. Participant Characteristics at Baseline

	Intervention		*Control*	
	N	*Mean* (SD) *or* N *(%)*	N	*Mean* (SD) *or* N *(%)*
Age in years	81	29.5 (13.6)	73	28.3 (11.9)
Gender	81		73	
Female		50 (61.7)		45 (61.6)
Male		30 (37.0)		28 (38.4)
Other		1 (1.2)		0 (0.0)
Ethnicity	81		73	
English, Welsh, Scottish, or Irish		51 (63.0)		48 (65.8)
Indian		2 (2.5)		4 (5.5)
Chinese		6 (7.4)		5 (6.8)
Arab		2 (2.5)		0 (0.0)
Pakistani		1 (1.2)		0 (0.0)
African		0 (0.0)		1 (1.4)
Irish		0 (0.0)		2 (2.7)
White Asian		6 (7.4)		4 (5.5)
Other white background		7 (8.6)		7 (9.6)
Other Asian background		4 (4.9)		1 (1.4)
White and black African		1 (1.2)		0 (0.0)
White and black Caribbean		1 (1.2)		0 (0.0)
Other ethnic background		0 (0.0)		1 (1.4)
Employment status	81		73	
Employed		36 (44.4)		24 (32.9)
Student		36 (44.4)		40 (54.8)
Self-employed		4 (4.9)		7 (9.6)
Unemployed		4 (4.9)		1 (1.4)
Prefer not to say		1 (1.2)		1 (1.4)
Education status	81		73	
A level		26 (32.1)		18 (24.7)
Undergraduate		32 (39.5)		36 (49.3)
GCSE		5 (6.2)		7 (9.6)
Postgraduate		16 (19.8)		11 (15.1)
Doctorate		2 (2.5)		1 (1.4)
Marital status	81		73	
Single		44 (54.3)		28 (38.4)
Relationship		15 (18.5)		22 (30.1)
Married		14 (17.3)		16 (21.9)
Living with partner		7 (8.6)		4 (5.5)
Separated/divorced		1 (1.2)		2 (2.7)
Prefer not to say		0 (0.0)		1 (1.4)
Moderate depression ($\geq$10 on PHQ-8)	81		73	
Yes		24 (29.6)		22 (30.1)
No		57 (70.4)		51 (69.9)

GCSE, General Certificate of Secondary Education; PHQ-8, Patient Health Questionnaire-8.

Primary analysis

For the whole sample at baseline ($n = 155$), the mean (*SD*) scores for well-being, depression, and anxiety were 45.0 (8.1), 7.6 (4.7), and 6.4 (4.7), respectively. When controlling for baseline scores, age, and gender, there was a significant adjusted mean improvement in well-being in favor of the intervention group ($p < 0.001$). There were also significant reductions in symptoms of depression ($p < 0.001$) and anxiety ($p < 0.01$) in favor of the intervention group (Table 2).

Moderation analysis

The model including group allocation as a predictor variable and depression at time 1 as a moderator accounted for 45% of the variance in depression at time 2 ($R^2 = 0.45$, MSE = 10.48, $F = 21.96$, $p < 0.0001$). The interaction between group allocation and depression at time 1 on change in depression at time 2 was significant and negative ($B = -0.28$, SE = 0.12, $t = -2.31$, $p = 0.022$). Specifically, the negative effect of group allocation on depression at time 2 was only significant when depression at time 1 was 4.3 or above, with

Table 2. Mental Health Outcomes at Baseline and 1-Week Follow-Up

	Intervention			*Control*			
	N	*Mean*	SD	N	*Mean*	SD	*Adjusted mean difference (95% CI)*
Well-being (WEMWBS)							
Baseline	81	46.00	7.78	73	43.92	8.33	
One-week follow-up	74	55.93	7.65	66	45.05	8.06	4.90 (2.97 to 6.83)***
Depression (PHQ-8)							
Baseline	81	7.46	4.62	73	7.84	4.80	
One-week follow-up	74	4.84	3.89	66	6.95	4.45	−2.17 (−3.28 to −1.06)***
Anxiety (GAD-7)							
Baseline	81	5.95	4.32	73	6.92	5.00	
One-week follow-up	74	3.88	3.84	66	5.94	4.30	−1.68 (−2.79 to −0.57)**

**$p > 0.01$, ***0.001.
CI, confidence interval; GAD-7, General Anxiety Disorder Scale-7; WEMWBS, Warwick-Edinburgh Mental Well-being Scale.

72% of participants falling within this region of significance. No moderation effects were found for baseline anxiety or well-being.

Mediation analysis

Table 3 shows mean (*SD*) scores for the self-reported and objective time in minutes spend on SM per week at baseline and follow-up. At baseline, participants self-reported spending a mean of more than 484 minutes per week on SM, with Instagram being the most used, followed by Facebook, Twitter, and then TikTok. There were no significant differences between groups at baseline ($p > 0.05$). At follow-up, participants reported a large reduction in minutes spent on all SM sites. A subsample of objective data (measured by a smartphone app) also corroborated these findings.

For well-being, the mediation effect of group allocation on depression via a change in self-reported weekly minutes of SM was positive and significant ($B = 1.3$, 95% CI = 0.1–2.5), suggesting that the intervention effect is partially mediated by a reduction in self-reported minutes of SM use. For depression, mediation effects of group allocation on depression via reduction in self-reported weekly minutes of SM ($B = -1.0$, 95% CI = −1.8 to −0.2), reduction in weekly minutes of Twitter use ($B = -0.33$, 95% CI = −0.66 to −0.08), and reduction in weekly minutes on TikTok ($B = -0.43$, 95% CI = −0.91 to −0.07) were negative and significant suggesting partial mediation. For anxiety, the indirect effect of group allocation on anxiety via a reduction in weekly minutes on TikTok was negative and significant ($B = -0.28$, 95% CI = −0.63 to −0.03) suggesting partial mediation.

Discussion

This study found that asking people to take a 1-week break from SM led to significant improvements in well-being,

Table 3. Minutes of Weekly Social Media Use at Baseline and 1-Week Follow-Up

	Intervention			*Control*		
	N	*Mean*	SD	N	*Mean*	SD
Minutes of app-measured SM use						
One-week follow-up	52	28.3	64.0	41	580.2	414.0
Minutes of self-reported weekly SM use						
Baseline	81	509.6	340.6	73	484.5	344.6
One-week follow-up	74	20.7	50.6	66	445.5	374.4
Minutes of self-reported weekly Instagram use						
Baseline	81	221.5	198.5	73	214.1	189.7
One-week follow-up	74	9.7	33.7	66	213.2	211.0
Minutes of self-reported weekly Facebook use						
Baseline	81	148.1	175.1	73	170.5	171.4
One-week follow-up	74	8.5	28.7	66	143.2	165.6
Minutes of self-reported weekly Twitter use						
Baseline	81	71.1	138.2	73	39.0	84.5
One-week follow-up	74	1.2	6.0	66	29.1	64.2
Minutes of self-reported weekly TikTok use						
Baseline	81	68.9	143.4	73	60.8	128.0
One-week follow-up	74	1.2	7.8	66	60.0	126.1

SM, social media.

depression, and anxiety. This study adds to the growing body of causal evidence that short breaks in SM can positively impact well-being[13] and depression.[14] For example, Tromholt found that a 1-week break from the SM platform, Facebook, had positive effects on life satisfaction and emotions.[13] Hunt et al. found that limiting undergraduates' SM usage to just 10 minutes per platform per day for 3 weeks led to a clinically significant reduction in depression.

However, Hunt et al. also found no effects of limiting SM use on anxiety, which stands in contrast to our findings.[14] One of the key reasons for this could be that participants in the intervention group in our study were spending fewer minutes on SM ($M = 28$, $SD = 64$) per week than in the study by Hunt et al. ($M = 179$, $SD = 140$). Our findings also stand in contrast to a previous study that found that asking undergraduates to abstain from SM led to a decline in life satisfaction, increased negative affect, and increased loneliness compared with control.[24] This could be an artifact of the recruitment method.

For example, in the present study, we included participants based on their willingness to abstain from SM for 1 week, meaning they may have been more motivated. We also found that reducing time spent on different SM sites may differentially mediate mental health outcomes.

Our findings also address important gaps in the literature by exploring how different SM sites may be impacting different aspects of mental health. These differences align with the transdiagnostic cognitive behavioral conceptualization of SM. Particularly, the notion that different platforms drive differential psychological outcomes based on differences in their features and affordances. For example, our results indicated that reducing time spent on Twitter and TikTok may mediate the effect abstaining has on reductions in symptoms of depression, whereas only TikTok mediates reductions in anxiety. This could be an artifact of ''doomscrolling'' a term used to describe the phenomenon of the negative affect people can experience after viewing pandemic-related media.[25]

Strengths and limitations

The present study had several strengths. First, the randomized controlled design allowed us to infer a causal relationship between ceasing SM use and the subsequent effects on depression, anxiety, and well-being. Second, we included multiple SM platforms, rather than focusing on only one, as was done in previous studies.[13,26] Third, we used validated measures of depression and anxiety making our findings comparable with other clinical literature looking at depression and anxiety. Several limitations need to be acknowledged. First, there may have been a selection bias effect. Numerous individuals who registered an initial interest in the study chose not to participate as they did not want to take a break from SM. This may have introduced bias as only those who participated may have been lighter users or those who felt motivated and able enough to come off SM entirely.

Second, a 7-day intervention period may not be indicative of the longer term effects of coming off SM. Third, the effect of the COVID-19 pandemic may have impacted our results (e.g., SM use during this period might not be reflective of SM use in nonpandemic times). Fourth, participants were predominately young white females in higher education. This potentially impacts the generalizability of our results to the wider population.

Future directions

Future work could look at the longer term effects of a 1-week SM break on mental health. Many participant people e-mailed the researcher during the study alluding to an intention to change their relationship with SM. It could be that a 1-week break is enough to generate long-lasting behavior change. Further research is also needed to determine if supporting people to reduce their SM can be applied in other contexts. For example, in clinical contexts, increased SM use may be contributing to underlying psychopathologies (e.g., in child and adolescent mental health and primary care).

Finally, future work could attempt to recruit a larger sample of participants to explore process-related questions around frequency, intensity, and type of SM, and add further understanding to the mechanisms by which reducing SM can contribute to better mental health. Future research should also examine how participant-level psychological, social, behavioral, and individual factors moderate the effect of SM abstinence on mental health outcomes.[27]

Conclusion

The present study shows that asking people to take a 1-week break from SM can lead to significant improvements in well-being, depression, and anxiety. Future research should extend this to clinical populations and examine effects over the longer term.

Authors' Contributions

J.L. developed the study concept, led the writing and analysis for the study, and supervised the overall conduct of the project. D.M. supported the statistical analysis, method, and results. G.B. and E.M. contributed to the study design and methodology and wrote portions of the introduction, method, results, and discussion. J.C. cosupervised with J.L. and contributed to the study design and methodology. All authors contributed to and approved the final version of the article for submission.

Acknowledgments

We would like to acknowledge Min Jed Chew, Chloe Webb, Chloe Picton, Joel Clarke, and Kiera Williams for their support in the collection of the data as part of their undergraduate research projects.

Author Disclosure Statement

No competing financial interests exist.

Funding Information

No funding was received for this article.

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