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DAILY STRESS AND SELF-CONTROL

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People with higher levels of self-control experience fewer stressful life events, but little is known about the reciprocal relationships between self-control and stressful life experiences. This study aimed to test linkages between daily stressors and self-control depletion. We collected web-based survey data twice daily for 14 days from 1,442 participants across the United States and used multilevel modeling to examine relations between daily stressors and self-control depletion. Daily stressors predicted subsequent self-control depletion and self-control depletion predicted daily stressors. Further, the overnight effects remained for self-control depletion on stressors but diminished for the effects of stressors on self-control depletion. Depletion had its weakest impact on participants who reported high mean levels of stressors. These results suggest that stressful events and self-control depletion may create negative spirals, but that these negative spirals can be mitigated by sleep. Further research is needed to better understand more about the reciprocal associations between self-control depletion and daily stressors and potential interruptions of these associations, such as sleep or self-control-enhancing events.

Keywords: Self-control, Depletion, Daily stressors, Experience sampling, Multilevel modeling

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Stressful encounters have well-known adverse mental, physical, and social health consequences (Aldwin, 2007). Researchers have identified personal characteristics and processes that render individuals more likely to experience highly stressful encounters (e.g., neuroticism, heavy alcohol use; Park, Frazier, Tennen, Mills, & Tomich, 2012). Self-control depletion is another potentially influential but rarely studied variable in the context of stressful encounters. Self-control depletion refers to the mental state following exertion of self-control that reduces performance in subsequent situations requiring self-control (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Depletion leaves less self-control available for individuals to manage their subsequent thoughts, emotions, impulses, and behaviors. Laboratory research has amply demonstrated that individuals' self-control temporarily weakens when they exert it (Hagger, Wood, Stiff, & Chatzisarantis, 2010).

A common challenge to self-control in daily life may be stressful encounters. Daily stressful events have been associated with myriad negative outcomes, including alcohol misuse (Park, Armeli, & Tennen, 2004), pain and disability (Hall et al., 2011), and depressive symptoms (Parrish, Cohen, & Laurenceau, 2011). Very little research on self-control depletion has been conducted in naturalistic settings to examine whether daily stressful encounters relate to self-control depletion, yet there are theoretical reasons to think this may be so. Coping with stress requires self-control, in that the person must continually monitor threatening stimuli and inhibit the wandering of attention. Further, coping with stress may require inhibiting or altering negative emotions and arousal (Aldwin, 2007); all of these processes may deplete self-control (Muraven & Baumeister, 2000).

To date, almost all research on self-control depletion has been conducted in laboratory settings (e.g., requiring people to resist temptation; Baumeister et al., 1998); thus, very little research has examined self-control in the context of daily stressful events. Two recent daily diary studies support the notion that stressful events can influence subsequent self-control. In recently married couples, self-control depletion mediated the link between daily stressful events and subsequent negative behaviors towards one's spouse and lowered appraisals of one's marriage (Buck & Neff, 2012). Similarly, college students consumed more alcohol

and were more likely to binge drink on days in which they experienced more perceived mistreatment, effects that were moderated by state self-control depletion (DeHart, Longua Peterson, Richeson, & Hamilton, 2014). Although suggestive, these studies did not explicitly examine the linkages between a full range of daily stressors and self-control depletion: Buck and Neff examined only nonrelationship stressors and DeHart and colleagues examined only perceived mistreatment.

The linkage may work in the other direction as well: That is, self-control depletion may increase the likelihood of subsequent stressful events through impulsive decision-making or disruptions in emotion regulation abilities (Aldwin, 2007; Galla & Wood, 2015). For example, daily diary studies have shown that, among couples, either partner's self-control depletion predicted increased arguing (Crane, Testa, Derrick, & Leonard, 2014), and among adolescents, trait self-control predicted lower levels of daily stressful encounters (Galla & Wood, 2015). Very little research has examined predictors of daily stressful encounters, and there is virtually no research regarding how daily levels of self-control might affect subsequent likelihood of encountering stressful situations.

The reciprocal relationship between self-control depletion and stressful encounters has many implications. For example, self-control depletion may in part explain individuals' relative vulnerability to stressful events; this knowledge may be useful in helping people learn to avoid stressful encounters in the future by bolstering their self-control resources. However, it is also possible that stressors create self-control depletion, meaning that self-control depletion may mediate some of the well-known sequelae of stressful experiences, such as depressive symptoms (Parrish et al., 2011), emotional eating (O'Connor, Jones, Conner, McMillan, & Ferguson, 2008) and substance abuse (Park et al., 2004). Both stressful life events and self-control depletion are, in fact, associated with a host of psychopathological conditions (Aldwin, 2007; Heatherton & Wagner, 2011).

In the present study, we examined how self-control plays out in naturalistic settings, particularly in the context of everyday encounters with stressful situations. We were interested in whether daily stressors deplete self-control in ways similar to laboratory

manipulations of self-control depletion. Further, we examined whether self-control depletion also predicts subsequent exposure to stressors. These linkages would indicate that negative spirals may occur between self-control depletion and stressors. Such spirals might be disrupted by resetting one's self-control abilities through sleep, which has been shown to reset one's self-control resources (Hagger, 2010). Thus, relations between self-control depletion and stressful encounters may be strongest within a single day but may also linger across days.

We asked four research questions: (1) Are daily stressors and self-control depletion associated when they are measured at the same time? (2) Do daily stressors predict subsequent depletion of self-control? Does depleted self-control predict subsequent stressful encounters? (3) Do the effects of depleted self-control and daily stressors operate only within a given day or do they carry over into the next day and beyond? And (4) Do the effects of daily stressors and depleted self-control vary by people's baseline levels of each?

METHOD

This study uses data from the SoulPulse Study, an experience sampling method (ESM) study that used smartphones to collect data. Participants self-selected into SoulPulse after hearing about it, usually through the media or through word of mouth. Participants used a smartphone to participate in the study. As a result of national media attention, a geographically and socially diverse group of participants from the U.S. as well as a small number of people from other, mostly English-speaking countries, enrolled.

PARTICIPANTS

We analyzed data from 1,442 participants in the SoulPulse Study. A majority were women (59.8%), and participants' age ranged from 17 to 85 (M = 47.3, SD = .42). Most participants reported being white or Caucasian (80.3%); other races reported were mixed (13.5%), Asian (3.1%), Black (2.6%), and American Indian (0.4%).

Few were Hispanic (5.4%). Participants were overall well-educated, with the most common level of education being a master's degree or PhD (41.9%), followed by a bachelor's degree (32.3%), some college or an associate's degree (19.6%), a high school grad (5.2%), and only some high school (1.0%). A majority were married (63.7%), followed by being single (18.0%), divorced (9.9%), living with someone (4.2%), widowed (2.5%), or separated (1.6%). Most of the participants had children (66.9%). A majority identified themselves as Protestant (65.1%). The rest were Catholic (10.3%), of another religion (12.6%), with no religion (8.7%), or none of the above (3.3%). Because these characteristics may also be associated with higher or lower levels of self-control or stress, we control for these characteristics in our analyses.

PROCEDURE

Participants signed up for SoulPulse online at SoulPulse.org, and completed a 10-minute intake survey regarding background and demographic information. Then, for the next 14 days, they were texted two short surveys, 15–20 questions each, every day, at random times containing questions from a larger pool of over 100 daily questions regarding well-being and experiences. A total of 2,001 participants signed up for SoulPulse, completed the intake survey, and took at least one daily survey. Of these, 117 were missing data on one or more of our control variables and were dropped from the analyses (1884). The questions asked in the daily survey portion of the study were randomly selected, and another 442 were not asked questions about stressful events or depleted self-control at the right times (described below), leaving 1,442 participants who contributed data to our analyses. Participants completed an average of 74.2% of the daily surveys sent to them. The median number of daily surveys completed (of 28 possible) was 24; 85.1% of participants completed at least 10 of the surveys sent to them, and 68.2% completed at least 20.

MEASURES

From a larger set of measures, these analyses use baseline measures of demographic characteristics and daily measures of

stressful experiences and self-control depletion. Baseline measures used in our analyses include gender, age, race, ethnicity, education level, marital status, having children, and religious identification.

The first set of daily questions concerned stressful events (Sahl, Cohen, & Dasch, 2009). Using the question stem "Since you last took a daily survey, have any of the following happened to you?," participants were asked about eight possible stressful events or situations: an argument with a loved one (friend, family member, or romantic partner); an argument with somebody else; being treated badly by a loved one; being treated badly by somebody else; illness, injury or accident; job-related stressor; financial problems; or a tragic situation with someone you know. For each, participants recorded their answer with a touch screen slider that allowed them to place their answer on a bar scaled from Not at all to Very much. For analytic purposes, we divided the bar into a 100-point scale. We summed together eight variables to create the scale Stressful Events.[1] Cronbach's alpha for these eight items was .66.

We created three questions indicating self-control depletion based on the state self-control scale (Ciarocco, Twenge, Muraven, & Tice, 2009). All were prefaced with the stem "In the past couple of hours, have you felt that…." (a) "it's hard to make up your mind about even simple things?" (b) "things are bothering you more than they usually would?", and (c) "you have less mental and emotional energy than you normally have?" For each, participants used the slider bar to record their answer between Not at all and Very much, between 1 and 100. We summed these three items to create the scale Depleted Self-control. Cronbach's alpha was .83.

Every daily survey sent to participants had questions randomly drawn from a larger pool of questions. Thus, the Stressful Events and Depleted Self-control scales were not included in every daily survey. About 26% of daily surveys included the

1. The existing literature on stressful events often measures them as dichotomies (i.e., the event happened or did not; e.g., Dasch et al., 2008), but we measured them on a continuum. To test whether this method made a difference in our analyses, we recoded each of the eight stressors variables as dichotomies, with a score of 10 being the cut-off point as indicating it had happened. The findings were virtually identical to the analyses presented and are available from the authors.

Stressful Event questions and 23% had the Depleted Self-control scale. Participants varied in the number of times they received each scale. When a daily survey measured both scales, we included that survey in our cross-sectional analyses. Whenever a daily survey collected one scale, and the immediately prior survey collected the other scale, we included both surveys in our time-lagged analyses.

To investigate reciprocal relationships between stressors and feelings, we regressed each on the other using mixed-effects multilevel regression models, decomposing the causal relationship between two variables to within-person effects (L1) and between-person effects (L2). For each person, we calculated an overall mean for a variable using all observations across all daily surveys. Then, for each observation, we created a deviation score that represented the difference between that observation and the person's mean. We included both the person-means and the observation-deviations in the equations to calculate the between- and within-person effects. For example, a random intercept equation without controls that includes both within-person and between-person effects takes the following form:

$$y_{ij} = b_0 + \underbrace{b_1(x_{ij} - \bar{x}_j)}_{within\_effects} + \underbrace{b_2(\bar{x}_j)}_{between\_effects} + \underbrace{u_j + e_{ij}}_{random\_effects}$$

We examined concurrent and lagged effects. Concurrent analyses used those daily surveys that measured both stressful events and depleted self-control. Lagged analyses used those pairs of daily surveys where the dependent variable is measured at survey S_i and the predictor variable is measured in the prior survey, S_{i-1}. We distinguish two types of prior predictor variables. Both were measured in the immediately preceding survey, S_{i-1}, but one type is measured the same day and the other spans nightfall.

RESULTS

BIVARIATE CORRELATIONAL ANALYSIS

Table 1 presents within-person correlations between stressful events and depleted self-control measured in the same wave (i.e.,

TABLE 1. Correlations between Within-Person Change in Stressful Events and Depleted Self-Control

	Stressful Events, S_i	Depleted Self-control, S_i
Stressful Events, S_i	1.00 (N = 13,492)	.26 (3,277)
Stressful Events, $S_{i\text{-}1}$	.09 (3,048)	.10 (2,721)
Stressful Events, $S_{i\text{-}1,\ \text{previous day}}$	.22 (1,510)	.06 (1,350)
Depleted Self-control, S_i	.26 (3,277)	1.00 (12,425)
Depleted Self-control, $S_{i\text{-}1}$	.13 (2,738)	.04 (2,514)
Depleted Self-control, $S_{i\text{-}1,\ \text{previous day}}$	.13 (1,353)	.11 (1,231)

Notes. Cells present correlation coefficient and sample size (in parentheses) Subscript *s* = time of survey, −1 = previous survey Correlations ≥ *r* = .04 and ≤ *r* = .05 are statistically significant at the .05 level, 2-tailed Correlations ≥ *r* = .06 are statistically significant at the .001 level, 2-tailed

cross-sectionally), one wave apart (i.e., lagged), and one wave apart on separate days (i.e., lagged across a day). When feelings of depleted self-control and stressful events were measured in the same daily survey, the within-person deviation scores were correlated at .26. When stressful events were measured in the preceding survey, S_{i-1}, r = .10. When stressful events were measured in the preceding survey and that survey was from the previous day, $S_{i-1,\ \text{previous day}}$, r = .06. This finding suggests that the association of depleted self-control and stressful events is stronger when stressful events occur on the same day than when they occur the day before, appearing to lose some of their effect once night has passed. The correlations in Table 1 focus on within-person correlations. We also estimated between-person correlations of stressful events and depleted self-control using summed scores for each person of their stressful events and depleted self-control. This between-person correlation was .47.

When feelings of depleted self-control preceded stressful events, $S_{i\text{-}1}$, the correlation was significant (r = .13) and remained the same when depleted self-control was measured the day before stressful events, $S_{i-1,\ \text{previous day}}$. This finding indicates that depleted self-control relates to an increase in stressful events, both within the same day and overnight into the next day.

CROSS-LAGGED STRUCTURAL EQUATION MODEL

As a next step for testing reciprocal relationships between stressors and self-control depletion, we estimated a cross-lagged

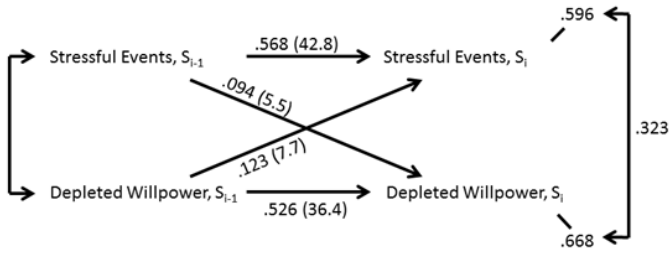


FIGURE 1. Cross-Lagged Model, Standardized Coefficients
Z-scores in parentheses. All coefficients statistically significant at $p = .001$.

panel model (Finkel, 1995). Given the intermittent structure of the data, we used summary statistics and a correlation matrix as input data for this model rather than raw data. Figure 1 presents standardized coefficients from the cross-lagged model. Both lagged effects are statistically significant and similar in magnitude. The effect of stressful events on later depleted self-control is .094 while the effect of self-control on later stressful events is .123 (difference not statistically significant).

To test the robustness of the model in Figure 1, we reestimated it using the raw data, which, after listwise deletion, reduced the observed *n* to 176 cases. The lagged effect of depleted self-control on later stressful events remained about the same magnitude, with a standardized coefficient of .134 (*z*-score = 2.1). The estimated lagged effect of stressful events on later depleted self-control increased, with a coefficient of .241 (*z*-score = 3.5). This cross-lagged model presents preliminary evidence that stressful events and depleted self-control have reciprocal cross-lagged effects; however, it does not take into account the multi-level structure of the data, which would allow us to disentangle between state- and trait-effects.

MULTILEVEL MODELS

Table 2 presents results from 6 different models tested in our multivariate multilevel analysis. The three models summarized in Panel A use depleted self-control as the dependent variable,

TABLE 2. Multilevel Equations Predicting Depleted Self-control and Stressful Events

Equation	Predictor Variable	Within-Person	Between-Person	*n*
	Panel A: Dependent Variable = Depleted Self-control			
1	Stressful Events, S_i	.596 (13.7)	.959 (22.7)	3,275
2	Stressful Events, S_{i-1}	.236 (4.5)	.894 (18.0)	2,721
3	Stressful Events, $S_{i-1,\ \text{previous day}}$	.158 (1.9)	.777 (12.7)	1,350
	Panel B: Dependent Variable = Stressful Events			
4	Depleted Self-control, S_i	.168 (13.3)	.319 (24.0)	3,275
5	Depleted Self-control, S_{i-1}	.088 (7.1)	.283 (19.9)	2,738
6	Depleted Self-control, $S_{i-1,\ \text{previous day}}$	.091 (4.7)	.257 (14.7)	1,353

Note. Cells present unstandardized coefficients (*z*-scores in parentheses)

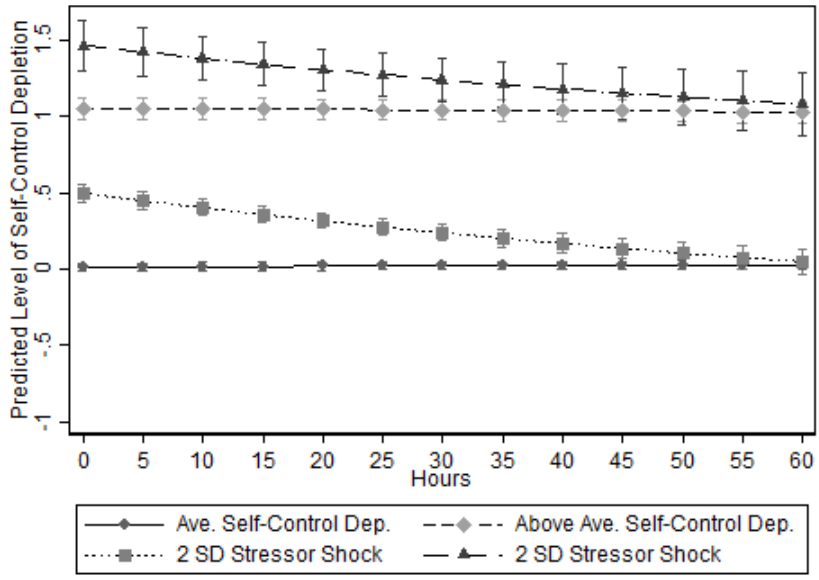
measured at survey S_i. The equations in Panel B use stressful events, at survey S_i, as the dependent variable. All models include a control variable for which number survey was used for data collection (ranging from 1 to 28).

The results in Panel A show that within-person changes in stressful events significantly predict feelings of depleted self-control when both are measured at the same survey (b = .596). The effect size is less but still significant when the stressful events are in the prior survey (b = .236). The effect size, however, goes to only marginal significance (b = .158) when the stressful events were measured in the prior survey the day before.

A different temporal pattern emerges in Panel B. Within-person changes in depleted self-control significantly predict more stressful events when they are measured at the same survey (b = .168). The effect size of depleted self-control is significant when it is measured in the prior survey (b = .088). It is significant again, and of similar magnitude, when depleted self-control is measured the previous day (b = .091).

ESTIMATED DECAY RATE

In supplementary analyses, we used a more refined temporal scale (i.e., hours) to capture incremental changes in real time in the reciprocal linkage between self-control and stressors. Figure 2A illustrates how long the effect of stressful events on self-con-



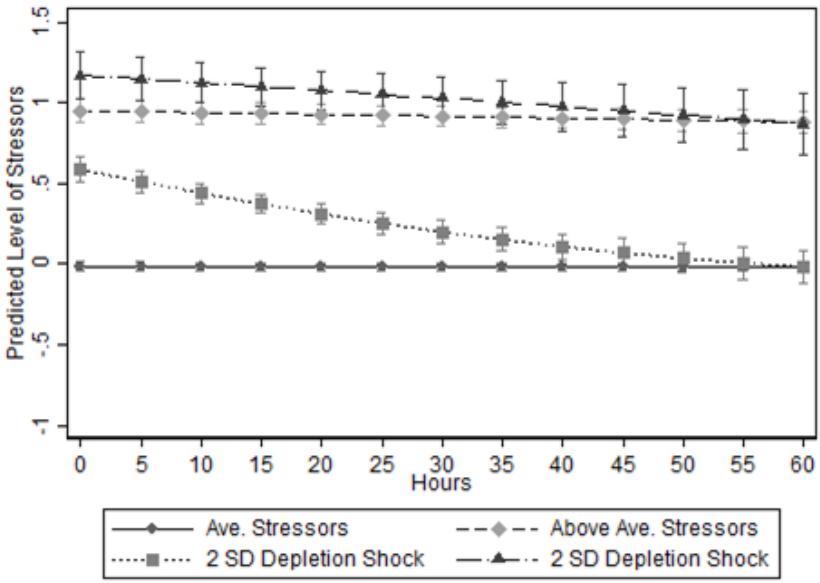


FIGURE 2A–2B. Durations of impact of stressful events on self-control depletion and self-control depletion on stressful events based on average levels of self-control depletion and stressful events.

2A. Duration of a stressful event shock on self-control depletion by average level of self-control depletion

2B. Duration of a shock to self-control depletion on stressors by average level of stressor

trol lasts. The y-axis measures levels of depleted self-control and the x-axis measures hours after the stressful events are recorded. Four lines in Figure 2A were created by adding hypothetical values into the equations estimated for Panel A of Table 2. The bottom line (black squares) represents levels of depleted self-control for people with average levels of depleted self-control. This line serves as a baseline for understanding the others. The next line up (gray squares) illustrates the impact of stressful events at two standard deviations above the average within-person change in the stress index. As shown, this impact substantially increases depleted self-control, from 0 to about .5 standard deviations (on the y-axis). Over the next 20 to 25 hours, this level of depletion regresses about halfway toward the average, and returns to average by hour 55 or 60. The effect of stressful events on self-control depletion is similar among people with high and average levels of self-control depletion. Thus the impact of heightened stressor load on self-control lasts about two-and-one-half days regardless of baseline levels of self-control.

Figure 2B repeats these simulations for the analyses in Panel B of Table 2, showing effects of depleted self-control on experiencing stressful events. Here, a two standard deviation increase in self-control depletion on stressor levels took about 50–60 hours to fully return to a steady state; however, the strength of the effect varied by baseline stressor levels. Participants with average stressor levels took roughly 2 to 3 days to return to their baseline levels, but there was little effect for those with above average stressor levels.

DISCUSSION

Our results extend our understanding of the interplay between daily stressful encounters and self-control depletion in several important ways. First, our results indicate that daily stressors and daily self-control are related. Further, the pattern of findings is one of modified reciprocal effects. That is, stressful events predicted subsequent drops in self-control and drops in self-control predicted subsequent occurrences of more stressful events. These findings are consistent with both the notions that self-

control can help individuals prevent stressful encounters (e.g., Galla & Wood, 2015) and that stressful events wear down one's self-control (e.g., Muraven & Baumeister, 2000). This reciprocity creates the possibility of downward spirals of stressors and self-control depletion, and raises the question of how an individual might escape such spirals once they start. One important clue is that the timing of the effects varied for stressors and self-control decrements. The impact of stressful events on self-control was greatest in the short-term—when stressful events were measured the same day as self-control. In contrast, the lagged effect of depleted self-control held steady overnight, results consistent with previous demonstrations that self-control can be renewed through sleep (e.g., Hagger, 2010).

Thus, sleep or other ways of refreshing self-control (e.g., glucose; Hagger et al., 2010) may help individuals exit such stressors-self-control depletion spirals. Another possibility is that some individuals may possess either environmental or intrapersonal resources that help them to halt negative cycles of depletion and stressful experiences. It could also be that individuals have coping skills such as taking breaks or engaging in positive experiences, which might help to reduce the impact of stressors (Finan et al., 2010) and thereby preserve self-control.

We also examined whether general levels of daily stressful encounters and self-control affect the impact of daily experiences. Depleted self-control appears to lead to more stressors for people with average stressor levels. For those with high stressor levels, events that deplete self-control have little additional consequence for stressors. Conversely, the effect of stressors on self-control depletion is similar regardless of average self-control levels. Together, these findings suggest a modest degree of heterogeneity in the reciprocal links between self-control and stressors. Thus, future research may find that breaking the feedback cycle among those with persistently high levels of daily stressor will be more difficult than for those with lower levels.

This study's shortcomings include its nonrepresentative sample (people who own smartphones, heard about SoulPulse, and were motivated to participate). Also, while participants responded to most of the surveys texted to them, the surveys not an-

swered might have occurred at qualitatively different moments than those answered (e.g., the unanswered surveys might have occurred during more stressful times), which may have introduced unknown bias into our analyses. Finally, using multilevel modeling to estimate effects between variables suggests causality, but this technique remains correlational (Pearl, 2012); causality cannot be inferred.

In spite of these shortcomings, our findings on the reciprocal impact of daily stressful experiences and self-control depletion warrant future research. For example, we need to understand more about how and why self-control depletion may lead to subsequent stressful experiences—it may be due to increased impulsivity, decreased ability to proactively avoid stressors, or some other process (Galla & Wood, 2015). We also need to understand more about how stressful encounters might deplete self-control. Further, some individuals may be relatively vulnerable and others relatively protected; such individual difference factors should be identified. Finally, given that negative cycles of stressful encounters and self-control depletion seem to occur, understanding more about how people stop or escape these cycles would be a fruitful direction of future research and may lead to interventions to alleviate these cycles.

Linkages demonstrated here between daily stressful experiences and self-control depletion also suggest important targets for interventions. Given that self-control failures are related to many negative consequences (including substance use, overeating, aggression, and compulsive buying; Heatherton & Wagner, 2011; Vohs & Baumeister, 2011), helping individuals to avoid stressors or mitigate their impact through adaptive coping may be useful directions for improving health and well-being.

REFERENCES

Aldwin, C. M. (2007). *Stress, coping and development* (2nd ed.). New York: Guilford.

Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology*, *74*, 1252– 1265. doi: 10.1037/0022-3514.74.5.1252

Buck, A. A., & Neff, L. A. (2012). Stress spillover in early marriage: The role of self-regulatory depletion. *Journal of Family Psychology*, *26*, 698–708. doi: 10.1037/a0029260

Ciarocco, N. J., Twenge, J. M., Muraven, M., & Tice, D. M. (2009). *Measuring state self-control: Reliability, validity, and correlations with physical and psychological stress*. Unpublished manuscript, Monmouth University, Monmouth, NJ.

Crane, C. A., Testa, M., Derrick, J. L., & Leonard, K. E. (2014). Daily associations among self-control, heavy episodic drinking, and relationship functioning: An examination of actor and partner effects. *Aggressive Behavior*, *40*, 440–450. doi: 10.1002/ab.21533

DeHart, T., Longua Peterson, J., Richeson, J. A., & Hamilton, H. R. (2014). A diary study of daily perceived mistreatment and alcohol consumption in college students. *Basic and Applied Social Psychology*, *36*, 443–451. doi: 10.1080/01973533.2014.938157

Finan, P. H., Okun, M. A., Kruszewski, D., Davis, M. C., Zautra, A. J., & Tennen, H. (2010). Interplay of concurrent positive and negative interpersonal events in the prediction of daily negative affect and fatigue for rheumatoid arthritis patients. *Health Psychology*, *29*, 429–437. doi: 10.1037/a0020230

Finkel, S. E. (1995). *Causal analysis with panel data*. Beverly Hills, CA: Sage.

Finkel, E. J., & Campbell, W. (2001). Self-control and accommodation in close relationships: An interdependence analysis. *Journal of Personality and Social Psychology*, *81*, 263–277. doi:10.1037/0022-3514.81.2.263

Galla, B. M., & Wood, J. J. (2015). Trait self-control predicts adolescents' exposure and reactivity to daily stressful events. *Journal of Personality*, *83*, 69–83. doi: 10.1111/jopy.12083

Hagger, M. S. (2010). Sleep, self-regulation, self-control and health. *Stress and Health*, *26*, 181–185. doi: 10.1002/smi.1345

Hagger, M. S., Wood, C., Stiff, C., & Chatzisarantis, N. L. (2010). Ego depletion and the strength model of self-control: A meta-analysis. *Psychological Bulletin*, *136*, 495–525. doi: 10.1037/a0019486

Hall, A. M., Kamper, S. J., Maher, C. G., Latimer, J., Ferreira, M. L., & Nicholas, M. K. (2011). Symptoms of depression and stress mediate the effect of pain on disability. *Pain*, *152*, 1044–1051. doi:10.1016/j.pain.2011.01.014

Heatherton, T. F., & Wagner, D. D. (2011). Cognitive neuroscience of self-regulation failure. *Trends in Cognitive Sciences*, *15*, 132–139. doi:10.1016/j.tics.2010.12.005

Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin*, *126*, 247–259. doi:10.1037/0033-2909.126.2.247

O'Connor, D. B., Jones, F., Conner, M., McMillan, B., & Ferguson, E. (2008). Effects of daily hassles and eating style on eating behavior. *Health Psychology*, *27*, S20–S31. doi: 10.1037/0278-6133.27.1.S20

Park, C. L., Armeli, S., & Tennen, H. (2004). The daily stress and coping process and alcohol use among college students. *Journal of Studies on Alcohol*, *65*, 126–135. No doi.

Park, C. L., Frazier, P., Tennen, H., Mills, M. A., & Tomich, P. (2013). Prospective risk factors for subsequent exposure to potentially traumatic events. *Anxiety, Stress, & Coping*, *26*, 254–269. doi: 10.1080/10615806.2012.671302

Parrish, B. P., Cohen, L. H., & Laurenceau, J. P. (2011). Prospective relationship between negative affective reactivity to daily stress and depressive symp-

toms. *Journal of Social and Clinical Psychology*, *30*, 270–296. doi: 10.1521/jscp.2011.30.3.270

Pearl, J. (2012). The causal foundation of structural equation modeling. In R. Hoyle (Ed.), *Handbook of structural equation modeling* (pp. 68–91). Newbury Park, CA: Sage.

Sahl, J. C., Cohen, L. H., & Dasch, K. B. (2009). Hostility, interpersonal competence, and daily dependent stress: A daily model of stress generation. *Cognitive Therapy and Research*, *33*, 199–210. doi: 10.1007/s10608-007-9175-5

Vohs, K. D., & Baumeister, R. F. (Eds.). (2011). *Handbook of self-regulation, second edition: Research, theory, and applications*. New York: Guilford.