Social Psychological and
Personality Science
4(3) 299-307

DOI: 10.1177/1948550612454889
spps.sagepub.com
SAGE

Energized by Television: Familiar Fictional Worlds Restore Self-Control

Jaye L. Derrick[1]

Abstract

Enacting effortful self-control depletes a finite resource, leaving less self-control available for subsequent effortful tasks. Positive social interaction can restore self-control, but hurtful or effortful social interaction depletes self-control. Given this conflict, people might seek an alternative to social interaction to restore self-control. The current research examines social surrogate restoration—the possibility that people seek a social surrogate when depleted, and that seeking social surrogacy restores self-control. One experiment (Study 1) and one daily diary (Study 2) demonstrate that people seek familiar fictional worlds (e.g., a favorite television program) after exerting effortful self-control. Moreover, immersion in this familiar fictional world restores self-control. Supplementary analyses suggest that it is the social nature of this familiar fictional world that contributes to restoration.

Keywords

self-control, self-regulation, social surrogacy, parasocial, television

> The television, that insidious beast, that Medusa which freezes a billion people to stone every night, staring fixedly, that Siren which called and sang and promised so much and gave, after all, so little.—Ray Bradbury, *The Golden Apples of the Sun*

As reflected in Ray Bradbury's quote, many argue that television disengages, numbs, or anesthetizes the mind, turning viewers into mindless zombies. Such beliefs have led people to demonize television, turning the act of watching the "idiot box" into a guilty pleasure at best and the province of the unintelligent, lazy, or weak willed at worst. Yet, research has demonstrated that television use can lead to at least some positive outcomes, such as fulfilling belongingness needs (Derrick, Gabriel, & Hugenberg, 2009). Perhaps people turn to television not to "zone out" or escape, as is often believed, but to replenish resources lost doing exhausting activities. The current research examines the possibility that people seek favorite television programs and similar fictional worlds after exerting self-control, and that reveling in these familiar fictional worlds provides restoration.

According to the Self-Control Strength Model (Muraven & Baumeister, 2000), completing an effortful task depletes a finite resource, leaving people less able to exert self-control on subsequent effortful tasks. For example, suppressing the content of their thoughts leads people to give up sooner on a frustrating puzzle (Muraven, Tice, & Baumeister, 1998). Decrements in performance are only observed when the second task is effortful; performance is not affected on tasks that do not require self-control (e.g., Muraven, Shmueli, & Burkley, 2006; Muraven & Slessareva, 2003). Self-control depletion affects functioning in domains as varied as emotion regulation, attention maintenance, physical stamina, aggression, food consumption, and alcohol use (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Dewall, Baumeister, Stillman, & Gailliot, 2007; Muraven, Collins, Shiffman, & Paty, 2005; Muraven et al., 1998).

Given the importance of self-control in so many domains, it is likely that people seek to restore depleted self-control. One method by which people may attempt to do so is through social interaction. Thinking of close others who can be instrumental in goal pursuit increases relationship commitment and closeness (Fitzsimons & Finkel, 2011; Fitzsimons & Fishbach, 2010), suggesting that people choose to associate with those who facilitate self-control. Furthermore, close relationships can be energizing (Stillman, Tice, Fincham, & Lambert, 2009), particularly when secure (Luke, Sedikides, & Carnelley, 2012), indicating that social interaction can increase the resources available for self-control. Indeed, when social interaction is interesting, mood enhancing, or self-affirming, it should restore self-control (Schmeichel & Vohs, 2009; Thoman, Smith, & Silvia, 2011; Tice, Baumeister, Shmueli, &

[1] Research Institute on Addictions, University at Buffalo, State University of New York, NY, USA

Corresponding Author:
Jaye L. Derrick, Research Institute on Addictions, University at Buffalo, SUNY, 1021 Main St., Buffalo, NY 14203, USA.
Email: jderrick@ria.buffalo.edu

Muraven, 2007). Therefore, after enacting effortful self-control, people should experience increased motivation to engage in social interaction (Schmeichel, Harmon-Jones, & Harmon-Jones, 2010).

Yet, growing evidence indicates that social interaction is also depleting. Rejection, exclusion, and ostracism deplete self-control (Baumeister, DeWall, Ciarocco, & Twenge, 2005; Oaten, Williams, Jones, & Zadro, 2008). Within intimate relationships, responding constructively during conflict and inhibiting physical aggression both require effortful self-control (Finkel & Campbell, 2001; Finkel, DeWall, Slotter, Oaten, & Foshee, 2009). Even interactions that do not require emotion regulation, but merely require increased attention, can deplete self-control (Dalton, Chartrand, & Finkel, 2010; Finkel et al., 2006; Muraven, 2008; Vohs, Baumeister, & Ciarocco, 2005). After enacting effortful self-control, therefore, people might be motivated to avoid social interaction.

In summary, engaging in social interaction can restore self-control, but it can also deplete self-control. Thus, people may experience simultaneous motivations both to approach and to avoid social interaction. Given this goal conflict, people might seek an alternative to social interaction to restore self-control.

People can be remarkably flexible when it comes to meeting their needs. Previous research has shown that otherwise unfulfilled needs can often be met through *social surrogacy*: "Interaction" with nonhuman or fictional social targets.[1] When "real" social interaction is unavailable, people meet belongingness needs through parasocial interaction with television characters (Knowles & Gardner, 2011), immersion in favorite television programs (Derrick et al., 2009), and transportation into engaging literature (Green, 2005; Mar & Oatley, 2008). Through assimilation to social surrogates, people high in collective self-construal improve their life satisfaction and mood (Gabriel & Young, 2011), low self-esteem people decrease self-discrepancies (Derrick, Gabriel, & Tippin, 2008), and young women become more satisfied with their bodies (Young, Gabriel, & Sechrist, in press).

Most types of social surrogacy are one sided, making effortful interaction unlikely and the experience of rejection rare (but see Cohen, 2004). Engaging in social surrogacy should therefore be less depleting than true social interaction. Moreover, social surrogates might restore self-control. Social surrogates improve mood and decrease aggressive urges (Lakey, Cooper, & Cronin, 2012; Twenge et al., 2007), two types of regulation that require self-control (Dewall et al., 2007; Muraven et al., 1998). Thus, social surrogacy might be a "safe" method of seeking restoration.

The current research examines *social surrogate restoration*: The possibility that immersion in a familiar fictional world (e.g., a favorite television program) restores self-control. I expected to find that people seek social surrogacy after exerting self-control (Hypothesis 1) and exposure to social surrogacy restores self-control (Hypothesis 2). These hypotheses were examined in two studies using experimental and daily diary methodology.

Study 1: Experimental Evidence

Participants in the current experiment underwent an adaptation of the standard self-control depletion paradigm. As in hundreds of studies conducted using this paradigm (e.g., Baumeister et al., 1998; Muraven et al., 1998), half of the participants completed an effortful first task that involved regulating their behavior. After this initial depletion manipulation, they completed the restoration manipulation (i.e., the social surrogacy manipulation). Half of the participants completed the social surrogacy essay, and half completed a neutral listing task.

The social surrogate manipulation also served as the first outcome variable. Exerting effortful self-control should increase participants' desire to think about and enjoy a favorite television program (Hypothesis 1; Schmeichel et al., 2010). If depleted participants write longer essays about their favorite television program than nondepleted participants, it would suggest that they were "seeking," or at least spending more time thinking about, their favorite television program (see Derrick et al., 2009, Study 2). Importantly, this hypothesis is directly opposite to what might typically be expected after depletion. Writing a longer essay (in terms of word count) should be more effortful, and thus, something that depleted participants would avoid.

After completing the social surrogate manipulation, participants completed a second effortful task as a behavioral assessment of their remaining self-control. Depleted participants who had completed the neutral listing task should perform worse on this task than nondepleted participants. Yet, thinking about a favorite television program should eliminate this effect. In other words, thinking about a favorite television program should restore self-control (Hypothesis 2).

Method

Participants and Design

Participants were recruited online through Mechanical Turk (https://www.mturk.com). MTurk allows "requesters" to post tasks for "workers" to complete in exchange for monetary compensation (see Buhrmester, Kwang, & Gosling, 2011). Each worker received USD 0.50 in exchange for participation. A total of 205 participants (71 male, 132 female, and 2 transgender) completed the study. They averaged 33.31 (SD = 11.21) years of age. Most were White (81.5%; n = 166); the remainder was predominantly Black (n = 9), Asian American (n = 15), and Hispanic (n = 9). The experiment employed a 2 (Self-Control: Regulated Writing vs. Free Writing) × 2 (Social Surrogacy: Television Essay vs. Neutral Listing) design.

Self-control manipulation. The self-control manipulation was adapted from previous research on self-control depletion (Schmeichel & Vohs, 2009). Participants in the free writing condition described a recent trip. Participants in the regulated writing condition also described a recent trip but were not permitted to use the letters "a" or "i." Participants in both conditions were asked to write at least 10–12 sentences. Directly

after the self-control manipulation, participants responded to the manipulation checks, ''How hard was it to complete the essay?'' and ''How much effort do you feel you put into completing the essay?'' on 7-point scales. The 2 items were averaged to create a measure of effort ($M = 4.50$, $SD = 1.75$, $\alpha = .61$).

Social surrogacy manipulation. Next, participants completed the social surrogacy manipulation. Participants in the television essay condition wrote about a favorite television program (see Derrick et al., 2009). Participants in the neutral listing condition listed the items in their room. The social surrogacy essays were also used to assess time spent thinking about the favorite television program. The online version (http://www.liwc.net/tryonline.php) of the software, Linguistic Inquiry and Word Count (LIWC; Pennebaker, Booth, & Francis, 2007) was used to assess the total word count of each essay ($M = 77.82$, $SD = 59.08$) and to code the content of the essays. LIWC provided percentages of social words ($M = 6.45$, $SD = 6.36$), positive mood words ($M = 3.20$, $SD = 3.26$), negative mood words ($M = 1.08$, $SD = 1.58$), and self-references ($M = 4.66$, $SD = 4.17$).

Behavioral outcome. Participants completed a 10-item easy version of the Remote Associates Test as the primary outcome measure (RAT; Lupien, Seery, & Almonte, 2012; McFarlin & Blascovich, 1984). For each RAT stimulus item, participants were given three words. They were asked to generate a fourth word that was somehow related to the previous three. For example, an item might consist of the words ''sea,'' ''home,'' and ''stomach.'' The correct response would be ''sick.'' The number of correct responses was summed ($M = 5.99$, $SD = 2.69$, $\alpha = .79$).

Negative mood. Negative mood was included as an additional outcome measure because a recent meta-analysis concluded that negative mood is a consistent (though modest) indicator of self-control depletion (Hagger, Wood, Stiff, & Chatzisarantis, 2010).[2] Participants rated the extent to which they felt each of the three negative moods (angry, dejected, and sad) on a scale from 1 (*not at all*) to 7 (*completely*). The responses were averaged to create the negative mood composite ($M = 2.46$, $SD = 2.33$; $\alpha = .85$).

Pilot Experiment

Prior to fielding the full experiment, I conducted a pilot experiment ($n = 46$). The procedures were identical except that there was no social surrogacy manipulation. As expected, participants in the regulated writing condition reported using greater effort, $t(44) = 7.81$, $p < .001$, $d = 2.36$, correctly completed fewer of the word puzzles, $t(44) = -2.68$, $p = .010$, $d = -0.81$, and reported greater negative mood, $t(44) = 2.47$, $p = .018$, $d = 0.74$, than participants in the free writing condition.

Results and Discussion

Each outcome was submitted to a 2 (Self-Control: Regulated Writing vs. Free Writing) × 2 (Social Surrogacy: Television Essay vs. Neutral Listing) analysis of variance (ANOVA). The significance of simple effects was examined with pairwise comparisons using the Sidak adjustment ($\alpha = .05$).

Manipulation Check

Did participants expend more effort in the regulated writing condition than in the free writing condition? The main effect for self-control was significant, $F(1, 201) = 327.87$, $p < .001$, $\eta_p^2 = .62$. As expected, regulated writers ($M = 5.92$, $SE = 0.11$) reported expending significantly more effort than free writers ($M = 3.17$, $SE = 0.11$). The social surrogacy manipulation had not yet been administered, so the main effect for social surrogacy, $F(1, 201) = 0.00$, $p > .99$, $\eta_p^2 < .01$, and the Self-Control × Social Surrogacy interaction, $F(1, 201) = 1.39$, $p = .24$, $\eta_p^2 < .01$, were not significant.

Social Surrogacy

Did depleted participants write more (and thus think longer) about their favorite television program (Hypothesis 1)? Both the main effect of self-control and the main effect of social surrogacy were significant, $F(1, 201) = 22.25$, $p < .001$, $\eta_p^2 = .10$, and $F(1, 201) = 72.62$, $p < .001$, $\eta_p^2 = .27$, respectively. As expected, these main effects were qualified by a significant Self-Control × Social Surrogacy interaction, $F(1, 201) = 32.87$, $p < .001$, $\eta_p^2 = .14$. When they listed items in their room, the essays of regulated writers ($M = 47.12$, $SE = 6.61$) and free writers ($M = 53.78$, $SE = 6.55$) did not differ in length.[3] When describing their favorite television program, however, regulated writers ($M = 140.53$, $SE = 6.68$) wrote significantly longer essays than free writers ($M = 72.06$, $SE = 6.36$). In other words, depleted participants thought more than nondepleted participants about a familiar fictional world (but not about items in their apartment).

Restoration

Did thinking about a favorite television program restore self-control (Hypothesis 2)? The main effect of self-control was significant for both the number of correct RAT items, $F(1, 201) = 5.81$, $p = .02$, $\eta_p^2 = .10$, and negative mood, $F(1, 201) = 7.74$, $p < .01$, $\eta_p^2 = .04$. The main effect of social surrogacy was also significant for both the number of correct RAT items, $F(1, 201) = 4.97$, $p = .03$, $\eta_p^2 = .02$, and negative mood, $F(1, 201) = 5.15$, $p = .02$, $\eta_p^2 = .03$. As predicted, these main effects were qualified by significant Self-Control × Social Surrogacy interactions, $F(1, 201) = 4.02$, $p < .05$, $\eta_p^2 = .02$ for correct RAT items, and $F(1, 201) = 4.23$, $p = .04$, $\eta_p^2 = .02$ for negative mood. These interactions are depicted in Figure 1 (correct RAT items) and Figure 2 (negative mood). When they listed items in their room, regulated writers completed fewer RAT items correctly and reported greater negative mood than free writers. As expected, these differences were no longer significant when they described their

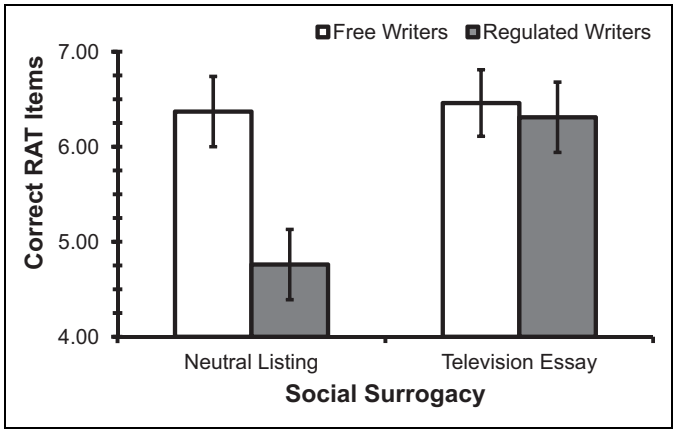

Figure 1. The number of correct RAT items as a function of self-control and social surrogacy in Study 1. Error bars represent standard errors. RAT = Remote Associates Test.

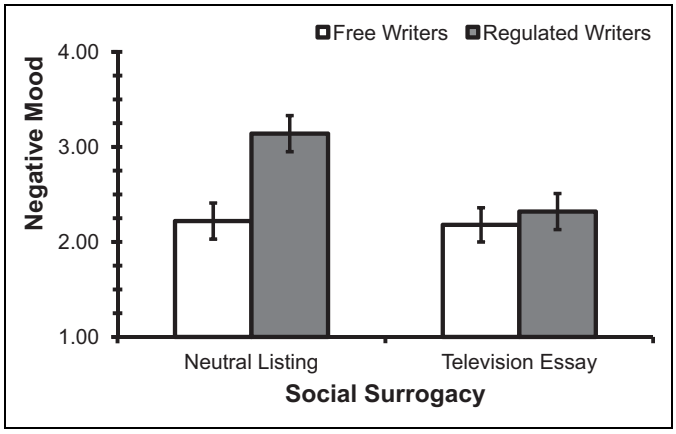

Figure 2. Negative mood as a function of self-control and social surrogacy in Study 1. Error bars represent standard errors.

favorite television program. Thinking about a familiar fictional world restored self-control.

Mechanisms and Alternative Explanations

To determine whether seeking social surrogacy was the *reason* depleted participants demonstrated an increase in self-control, total word count on the social surrogacy essay was tested as a mediator of the path from condition to each outcome variable. Because an analysis of covariance can lead to biased estimates when testing mediation in the context of two manipulated variables (Muller, Yzerbyt, & Judd, 2008), I used the INDIRECT macro (http://www.afhayes.com) to test for mediation using a resampling, or bootstrapping, methodology (see Preacher & Hayes, 2008). Results of these analyses are presented in Table 1. The total effect of the Self-Control × Social Surrogacy interaction was significant for both correct RAT items and negative mood (as described previously), but the direct effect was no longer significant for either outcome. The indirect effect through total word count to each outcome variable was significant. In other words, seeking social surrogacy mediates the restoration effect.

There are at least three possible explanations for the restorative effect of thinking about a favorite television program. First, as argued in the Introduction to this article, it may be the case that social surrogacy provides supplemental social interaction (e.g., Derrick et al., 2009). If so, regulated writers should have used more social words (e.g., talk, they, child) than free writers when describing their favorite television program. Alternatively, it is possible that describing a television program involving positive mood could have contributed to this restoration (Lakey et al., 2012; Tice et al., 2007). That is, regulated writers might have been more likely than free writers to think of positive programming when prompted to describe their favorite television program. If so, they should have used more positive mood words or fewer negative mood words. Finally, it is possible that thinking about a favorite television program directs attention away from the self, decreasing self-focus and potentially improving self-control (Moskalenko & Heine, 2003; Muraven, 2005). If this is the case, regulated writers should have used fewer self-references (e.g., I, me, my) than free writers.

To test these competing alternatives, four variables were entered as potential mediators in the INDIRECT macro (Preacher & Hayes, 2008). Specifically, social word use, positive mood word use, negative mood word use, and self-reference use were included as multiple mediators. The direct effect of the Self-Control × Social Surrogacy interaction on each outcome variable again fell to nonsignificance (see Table 1). The bootstrapped indirect effect through social word use was significant for both outcome variables. The bootstrapped indirect effects through the other variables were not significant. In other words, the restorative effect of thinking about a favorite television program is due to its social nature and not to positive programming or decreased self-focus.

Study 2: Daily Diary Evidence

The goal of Study 2 was to examine social surrogate restoration in a real-world setting. To tap effortful self-control, I drew from previous research demonstrating that people expend self-control to regulate emotion and to control or suppress the content of their thoughts (Muraven et al., 1998). Participants also reported on the use of a familiar fictional world (social surrogacy), a novel fictional world (similar interesting activities), and whatever is on television (escapism). Finally, to tap self-control outcomes, participants reported on negative mood (see Study 1; see also Hagger et al., 2010).

Method

Participants

Eighty-six participants (42 male and 44 female) completed the daily diary in exchange for course credit at a large university in the northeastern United States. Participants averaged 18.73 ($SD = 0.96$) years of age. Most participants (75.6%)

Table 1. Results of Mediation Analyses for Study 1.

	Correct items on the RAT			Negative Mood		
	b	*z*	95% CI	*b*	*z*	95% CI
Total effect	.36	2.00*	[.01, .71]	−.20	2.11*	[.01, .39]
Single mediator analysis, *df* = (4, 199)						
Direct effect	.14	0.74	[−.23, .51]	−.13	1.25	[−.07, .33]
Indirect effect—Word count	.23	2.56**	[.06, .44]	−.08	2.00*	[−.17, −.01]
Multiple mediator analysis, *df* = (7, 196)						
Direct effect	.22	1.16	[−.15, .59]	−.13	1.34	[−.06, .33]
Indirect effect—Social words	.12	2.00*	[.02, .30]	−.06	2.00*	[−.16, −.02]
Indirect effect—Positive mood words	.00	0.00	[−.03, .04]	.00	0.00	[−.04, .01]
Indirect effect—Negative mood words	.00	0.00	[−.05, .04]	.00	0.00	[−.05, .01]
Indirect effect—Self-references	.01	0.62	[−.01, .08]	.01	0.62	[−.01, .08]

Note. The main effects of self-control and social surrogacy were included as covariates in the model. The significance of the indirect effects was calculated based on bootstrapped estimates of coefficients and standard errors. *RAT* = Remote Associates Test; *95% CI* = 95% confidence interval; total effect = the effect of the predictor on the outcome; direct effect = the effect of the predictor on the outcome when controlling for the mediator/mediator s; indirect effect = the path from the predictor through the mediator to the outcome.
*$p < .05$. **$p < .01$.

were White (n = 65); the remainder was predominantly Asian American (n = 7) and Hispanic (n = 7).

Procedure

First, participants attended an orientation session. For the next 14 days, they completed a brief survey over the Internet each night before going to bed. The survey included items related to effortful self-control, fictional world use, and mood, among other items not related to the current study (see Young, Gabriel, & Derrick, 2012 with appropriate name and date throughout the article.]). Participants provided demographic information during the first report.

Self-control. Participants responded to the yes/no items: ''I had to control my thoughts'' and ''I had to regulate my mood'' (Muraven et al., 2005). Either behavior should require self-control, so a dichotomous effortful self-control variable was created (0 = *neither*, 1 = *at least one*). The intraclass correlation coefficient (ICC) was .45.

Social surrogacy. Participants responded to yes/no items regarding seeking familiar fictional worlds (''I watched one of my favorite movies''; ''I watched one of my favorite TV shows—a re-run''; ''I read one of my favorite books—NOT including religious texts, class textbooks, or children's books''). These items were used to create a dichotomous familiar fictional world composite (0 = *none*, 1 = *at least one*, ICC = .38), reflecting any exposure to a familiar fictional world.

Fun activities. To differentiate social surrogacy from other interesting activities, participants responded to yes/no items regarding seeking immersion in novel fictional worlds (''I watched a movie I've never seen before''; ''I watched one of my favorite TV shows—an episode I've never seen''; ''I read a book I've never read before—NOT including religious texts, class textbooks, or children's books''). A dichotomous novel fictional world composite was created (0 = *none*, 1 = *at least one*; ICC = .24).

Escapism. To differentiate social surrogacy from mere escapism, participants completed the item, ''I watched TV—just whatever show was on at the time.'' They responded on a yes/no basis (0 = *no*, 1 = *yes*; ICC = .49).

Negative mood. Participants rated the extent to which they felt each of three negative moods (sad, nervous, and anxious) on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Responses were averaged to create the negative mood composite ($\alpha = .75$, $M = 2.99$, $SD = 1.40$, ICC = .58).

Analysis

Specialized methods are required to account for the interdependence of measurement in daily diary data. In the current study, two-level hierarchical (generalized) linear models with random intercepts were estimated using the program HLM 7.0. Days (Level 1) were nested within participants (Level 2). I used uncentered dummy-coded predictors, a continuous sampling distribution with an identity link for continuous outcomes, and a Bernoulli sampling distribution with a logit link for dichotomous outcomes. Time-lagged (and double-lagged) predictors were used rather than contemporaneous predictors to demonstrate temporal precedence.

Results and Discussion

Participants completed 1,044 (86.7%) out of a total possible 1,204 reports. They exerted effortful self-control on 387 (37.1%) reports. Additionally, they sought a familiar fictional world on 349 (33.4%) reports, a novel fictional world on 505 (48.4%) reports, and escapism on 424 (40.6%) reports. Results for the following analyses are presented in Table 2.

Table 2. Results of Daily Diary Analyses in Study 2.

	Immersion in social surrogacy									Restoration of resources		
	Familiar fictional world			Novel fictional world			Whatever is on TV			Negative mood		
Predictors	*b*	*SE*	OR	*b*	*SE*	OR	*b*	*SE*	OR	*b*	*SE*	*d*
Intercept	−1.40	.19		−0.25	.17		−0.97	.23		2.82	.13	
Lagged DV	.98	.19	2.65***	.20	.16	1.22	.79	.21	2.20***	.14	.04	0.22
Day 1: Effortful self-control	.44	.21	1.55*	.16	.18	1.17	.11	.23	1.11	.24	.09	0.15
Day 2: Familiar fictional world										.15	.10	0.09
Day 1 × Day 2										−.39	.15	−0.16**

Note. *OR* = odds ratio; *d* = Cohen's d, an estimate of effect size; DV = dependent variable.
*p < .05. **p < .01. ***p < .001.

Social surrogacy

Was exerting self-control on Day 1 associated with social surrogate use on Day 2 (Hypothesis 1)? As expected, the association between self-control and use of a familiar fictional world was significant and positive (see Table 2). When participants expended self-control to control their thoughts or regulate emotions on one day, they sought greater immersion in a familiar fictional world the next day. Self-control did not predict use of a novel fictional world or watching whatever is on television, however (see Table 2). After exerting effortful self-control, people selectively seek social surrogacy.[4]

Restoration

Does using social surrogacy restore self-control (Hypothesis 2)? Day 3 negative mood was predicted from a multiplicative two-way interaction between Day 1 Self-Control and Day 2 Familiar Fictional World Use. Analyses revealed the expected interaction (see Table 2 and Figure 3). Among those who did not seek a familiar fictional world, exerting self-control on Day 1 predicted greater negative mood on Day 3, b = .24, SE = .09, $p = .012$, $d = 0.15$. Replicating the neutral listing condition in Study 1, using self-control was associated with greater negative mood. However, among those who sought a familiar fictional world, the association between self-control on Day 1 and negative mood on Day 3 was no longer significant, b = −.15, SE = .13, $p = .261$, $d = -0.07$. Replicating the television essay condition in Study 1, seeking social surrogacy restored participants' depleted self-control.

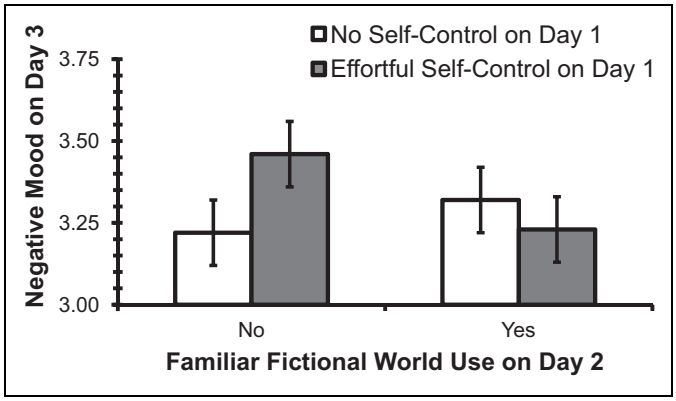

Figure 3. Negative mood on Day 3 as a function of effortful self-control on Day 1 and familiar fictional world use on Day 2. Error bars represent standard errors.

General Discussion

The results of two studies using divergent methodology were consistent with social surrogate restoration. Supporting Hypothesis 1, participants were more likely to seek a familiar fictional world after completing a regulated writing task (Study 1) and after controlling their thoughts or regulating their emotion (Study 2). Supporting Hypothesis 2, seeking a familiar fictional world in response to self-control depletion improved performance on a difficult puzzle task (Study 1) and decreased negative mood (Studies 1 and 2).

Supplementary analyses in Study 1 indicated that these results are most likely due to the social nature of familiar fictional worlds and not to positive programming or decreases in self-focus. These results are unsurprising, given the strength of social surrogates to enhance the experience of belongingness (e.g., Derrick et al., 2009). Merely reliving past experiences of belonging through cherished souvenirs (Gardner, Pickett, & Knowles, 2005) or comfort food (Troisi & Gabriel, 2011) enhances belongingness. Given that favorite television characters are experienced as "real" (Gardner & Knowles, 2008), the social aspects of a favorite television program or movie might be particularly salient.

Analyses in Study 2 demonstrated that people selectively seek familiar fictional worlds, and not other, similar activities, to restore self-control. These results replicate and extend previous research examining favorite television programs as social surrogates (Derrick et al., 2009). Given that previous research used a reliving essay to manipulate social surrogacy, the topic of the essay would, by necessity, involve a familiar (rather than novel) fictional world. Exploring such boundary conditions is an important task for future research on social surrogacy.

Although Study 2 examined the effects of seeking social surrogacy in an ecologically valid setting, the present studies cannot speak to potential long-term effects. Seeking immersion

in a familiar fictional world, rather than seeking "real" social interaction, appears beneficial in the short term, but it may leave people with relatively fewer social resources over time. Furthermore, previous research has demonstrated that regular exercise can be energizing (e.g., Thayer, Peters, Takahashi, & Birkheadflight, 1993). Seeking sedentary activities to restore self-control, rather than physical exertion, could have deleterious effects on long-term health.

Despite these limitations, the current research is impressive for at least three reasons. First, although hundreds of studies have examined self-control depletion, this article is among the first to use a daily diary study and is one of only a handful (e.g., Schmeichel & Vohs, 2009; Thoman et al., 2011; Tice et al., 2007) to demonstrate self-control restoration through cognitive/behavioral, rather than physiological means. Second, although other studies have shown that relationships increase energy and the resources required for self-control (Luke et al., 2012; Stillman et al., 2009), this is the first article to demonstrate that (pseudo)relationships can in fact *restore* depleted self-control (i.e., the other studies have not demonstrated a Significant Depletion × Relationship interaction). Finally, this article is one of a growing number demonstrating that media use can have unexpected psychological benefits. Television, movies, and books can be more than mere leisure activities; in some cases, they fulfill needs, like restoring self-control, that people are reluctant or unable to fulfill through other means. Rather than seeking television and other fictional media to "zone out" or escape, as is often believed, the current research suggests that people seek familiar fictional worlds to become rejuvenated.

Acknowledgments

The author wishes to thank Ariana F. Young, Shira Gabriel, and Jordan D. Troisi for providing the daily diary data presented in Study 2. Additionally, the author thanks Shira Gabriel, Matthew J. Perry, Lisa R. Milford-Szafran, Maria Testa, and Ariana F. Young for comments on a draft of this manuscript.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Notes

1. One might argue that social surrogates are not fictional in reality television programming, documentaries, biographies, or parasocial relationships with celebrities, but the events are not occurring in people's living rooms, and people are not actually friends with the celebrity.
2. Positive mood (happy, content, cheerful) was also assessed in both studies. Consistent with the meta-analysis, I did not find any significant effects for positive mood in either study.
3. This null effect is unsurprising. The listing task should not be restorative, so there is no reason to expect that depleted participants would list more items than nondepleted participants. Additionally, the neutral listing task was not effortful, so participants' performance should not have been impaired (e.g., Muraven et al., 2006; Muraven & Slessareva, 2003).
4. Cross-day (rather than same-day) analyses were chosen for methodological (i.e., demonstrating temporal precedence) and for conceptual reasons. Days when college students have to exert self-control are likely days when stressful events are happening (e.g., studying for an exam; fighting with one's partner). Accordingly, participants may not have time to engage in leisure activities on such days. Rather, they may turn to leisure activities for recuperation the following day (e.g., after the exam is finished; after they have made up with their partner).

   Supplementary analyses revealed that days when participants exerted self-control were also days when they experienced negative interactions with partners, friends, and family and received negative feedback at school. In additional analyses, exerting self-control did not predict use of a familiar fictional world on the same day, $z = 0.40$, $p = .69$; same-day analyses also were not significant (and were in the opposite direction) for novel fictional worlds, $z = -1.14$, $p = .26$, and for escapism $z = -0.19$, $p = .85$. It appears that participants do not enact leisure activities on days requiring self-control; rather, they seek recuperation the next day.

References

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

Baumeister, R. F., DeWall, C. N., Ciarocco, N. J., & Twenge, J. M. (2005). Social exclusion impairs self-regulation. *Journal of Personality and Social Psychology*, *88*, 589–604. doi:10.1037/0022-3514.88.4.589

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk. *Perspectives on Psychological Science*, *6*, 3–5. doi:10.1177/1745691610393980

Cohen, J. (2004). Parasocial break-up from favorite television characters: The role of attachment styles and relationship intensity. *Journal of Social and Personal Relationships*, *21*, 187–202. doi:10.1177/0265407504041374

Dalton, A. N., Chartrand, T. L., & Finkel, E. J. (2010). The schema-driven chameleon: How mimicry affects executive and self-regulatory resources. *Journal of Personality and Social Psychology*, *98*, 605–617. doi:10.1037/a0017629

Derrick, J. L., Gabriel, S., & Hugenberg, K. (2009). Social surrogacy: How favored television programs provide the experience of belonging. *Journal of Experimental Social Psychology*, *45*, 352–362. doi:10.1016/j.jesp.2008.12.003

Derrick, J. L., Gabriel, S., & Tippin, B. (2008). Parasocial relationships and self-discrepancies: Faux relationships have benefits for low self-esteem individuals. *Personal Relationships*, *15*, 261–280. doi:10.1111/j.1475-6811.2008.00197.x

Dewall, C. N., Baumeister, R. F., Stillman, T. F., & Gailliot, M. T. (2007). Violence restrained: Effects of self-regulation and its depletion on aggression. *Journal of Experimental Social Psychology*, *43*, 62–76. doi:10.1016/j.jesp.2005.12.005

Finkel, E. J., & Campbell, W. K. (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

Finkel, E. J., Dalton, A. N., Campbell, W. K., Brunell, A. B., Scarbeck, S. J., & Chartrand, T. L. (2006). High-maintenance interaction: Inefficient social coordination impairs self-regulation. *Journal of Personality and Social Psychology*, *91*, 456–475. doi:10.1037/0022-3514.91.3.456

Finkel, E. J., DeWall, C. N., Slotter, E. B., Oaten, M., & Foshee, V. A. (2009). Self-regulatory failure and intimate partner violence perpetration. *Journal of Personality and Social Psychology*, *97*, 483–499. doi:10.1037/a0015433

Fitzsimons, G. M., & Finkel, E. J. (2011). Outsourcing self-regulation. *Psychological Science*, *22*, 369–375. doi:10.1177/0956797610397955

Fitzsimons, G. M., & Fishbach, A. (2010). Shifting closeness: Interpersonal effects of personal goal progress. *Journal of Personality and Social Psychology*, *98*, 535–549. doi:10.1037/a0018581

Gabriel, S., & Young, A. F. (2011). Becoming a vampire without being bitten: The narrative collective-assimilation hypothesis. *Psychological Science*, *22*, 990–994. doi:10.1177/0956797611415541

Gardner, W. L., & Knowles, M. L. (2008). Love makes you real: Favorite television characters are perceived as 'real' in a social facilitation paradigm. *Social Cognition*, *26*, 156–168. doi:10.1521/soco.2008.26.2.156

Gardner, W. L., Pickett, C. L., & Knowles, M. (2005). Social snacking and shielding: Using social symbols, selves, and surrogates in the service of belongingness needs. In K. D. Williams, J. P. Forgas, & W. von Hippel (Eds.), *The social outcast: Ostracism, social exclusion, rejection, and bullying* (pp. 227–241). Hove, England: Psychology Press.

Green, M. C. (2005). Transportation Into narrative worlds: Implications for the self. In A. Tesser, J. V. Wood, & D. A. Stapel (Eds.), *On building, defending and regulating the self: A psychological perspective*. (pp. 53–75). New York, NY: US Psychology Press.

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

Knowles, M. L., & Gardner, W. L. (2011). *"I'll be there for you" Favorite television characters as social surrogates*. Manuscript submitted for publication.

Lakey, B., Cooper, C., Cronin, A., & Whitaker, T. (2012). *Symbolic providers help people regulate affect relationally: Implications for Social Support Theory*. Manuscript submitted for publication.

Luke, M. A., Sedikides, C., & Carnelley, K. (2012). Your love lifts me higher! The energizing quality of secure relationships. *Personality and Social Psychology Bulletin, 38*, 721-733. doi:10.1177/0146167211436117

Lupien, S. P., Seery, M. D., & Almonte, J. L. (2012). Unstable high self-esteem and the eliciting conditions of self-doubt. *Journal of Experimental Social Psychology, 48*, 762-765. doi:10.1016/j.jesp.2012.01.009

Mar, R. A., & Oatley, K. (2008). The function of fiction is the abstraction and simulation of social experience. *Perspectives on Psychological Science*, *3*, 173–192. doi:10.1111/j.1745-6924.2008.00073.x

McFarlin, D. B., & Blascovich, J. (1984). On the Remote Associates Test (RAT) as an alternative to illusory performance feedback: A methodological note. *Basic and Applied Social Psychology*, *5*, 223–229. doi:10.1207/s15324834basp0503_5

Moskalenko, S., & Heine, S. J. (2003). Watching your troubles away: Television viewing as a stimulus for subjective self-awareness. *Personality and Social Psychology Bulletin*, *29*, 76–85. doi:10.1177/0146167202238373

Muller, D., Yzerbyt, V. Y., & Judd, C. M. (2008). Adjusting for a mediator in models with two crossed treatment variables. *Organizational Research Methods*, *11*, 224–240. doi:10.1177/1094428106296636

Muraven, M. (2005). Self-focused attention and the self-regulation of attention: Implications for personality and pathology. *Journal of Social and Clinical Psychology*, *24*, 382–400. doi:10.1521/jscp.24.3.382.65615

Muraven, M. (2008). Prejudice as self-control failure. *Journal of Applied Social Psychology*, *38*, 314–333. doi:10.1111/j.1559-1816.2007.00307.x

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

Muraven, M., Collins, R. L., Shiffman, S., & Paty, J. A. (2005). Daily fluctuations in self-control demands and alcohol intake. *Psychology of Addictive Behaviors, 19*, 140–147. doi:10.1037/0893-164x.19.2.140

Muraven, M., Shmueli, D., & Burkley, E. (2006). Conserving self-control strength. *Journal of Personality and Social Psychology*, *91*, 524–537. doi:10.1037/0022-3514.91.3.524

Muraven, M., & Slessareva, E. (2003). Mechanisms of self-control failure: Motivation and limited resources. *Personality and Social Psychology Bulletin*, *29*, 894–906. doi:10.1177/0146167203253209

Muraven, M., Tice, D. M., & Baumeister, R. F. (1998). Self-control as limited resource: Regulatory depletion patterns. *Journal of Personality and Social Psychology*, *74*, 774–789. doi:10.1037/0022-3514.74.3.774

Oaten, M., Williams, K. D., Jones, A., & Zadro, L. (2008). The effects of ostracism on self-regulation in the socially anxious. *Journal of Social and Clinical Psychology*, *27*, 471–504. doi:10.1521/jscp.2008.27.5.471

Pennebaker, J. W., Booth, R. J., & Francis, M. E. (2007). *Linguistic Inquiry and Word Count: LIWC*. Austin, TX: LIWC.net.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*, 879–891. doi:10.3758/BRM.40.3.879

Schmeichel, B. J., Harmon-Jones, C., & Harmon-Jones, E. (2010). Exercising self-control increases approach motivation. *Journal of Personality and Social Psychology*, *99*, 162–173. doi:10.1037/a0019797

Schmeichel, B. J., & Vohs, K. D. (2009). Self-affirmation and self-control: Affirming core values counteracts ego depletion. *Journal*

of Personality and Social Psychology, *96*, 770–782. doi:10.1037/a0014635

Stillman, T. F., Tice, D. M., Fincham, F. D., & Lambert, N. M. (2009). The psychological presence of family improves self-control. *Journal of Social and Clinical Psychology*, *28*, 498–529. doi:10.1521/jscp.2009.28.4.498

Thayer, R. E., Peters, D. P., Takahashi, P. J., & Birkheadflight, A. M. (1993). Mood and behavior (smoking and sugar snacking) following moderate exercise: A partial test of self-regulation theory. *Personality and Individual Differences*, *14*, 97–104. doi:10.1016/0191-8869(93)90178-6

Thoman, D. B., Smith, J. L., & Silvia, P. J. (2011). The resource replenishment function of interest. *Social Psychological and Personality Science*, *2*, 592–599. doi:10.1177/1948550611402521

Tice, D. M., Baumeister, R. F., Shmueli, D., & Muraven, M. (2007). Restoring the self: Positive affect helps improve self-regulation following ego depletion. *Journal of Experimental Social Psychology*, *43*, 379–384. doi:10.1016/j.jesp.2006.05.007

Troisi, J. D., & Gabriel, S. (2011). Chicken soup really is good for the soul: "Comfort food" fulfills the need to belong. *Psychological Science*, *22*, 747–753. doi:10.1177/0956797611407931

Twenge, J. M., Zhang, L., Catanese, K. R., Dolan-Pascoe, B., Lyche, L. F., & Baumeister, R. F. (2007). Replenishing connectedness: Reminders of social activity reduce aggression after social exclusion. *British Journal of Social Psychology*, *46*, 205–224. doi:10.1348/014466605x90793

Vohs, K. D., Baumeister, R. F., & Ciarocco, N. J. (2005). Self-regulation and self-presentation: Regulatory resource depletion impairs impression management and effortful self-presentation depletes regulatory resources. *Journal of Personality and Social Psychology*, *88*, 632–657. doi:10.1037/0022-3514.88.4.632

Young, A. F., Gabriel, S., & Derrick, J. L. (2012). *Desperately seeking celebrities: A daily diary study of exposure to favorite celebrities and body satisfaction*. Manuscript submitted for publication.

Young, A. F., Gabriel, S., & Sechrist, G. B. (**in press**). The skinny on celebrities: Parasocial relationships moderate the effects of thin media figures on women's body image. *Social Psychological and Personality Science*.

Author Biography

Jaye L. Derrick is a research scientist at the Research Institute on Addictions. Her research focuses on close relationships (including parasocial relationships), well-being, and health.