Distracting Noise Reduces Task Persistence: A Successful Test of the Strength Model for Self-control

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Abstract

Using unpredictable noise at a moderate level as a new method to produce ego-depletion, this experiment tested predictions from the strength model of self-control (Baumeister, Vohs, & Tice, 2007), which likens willpower to a muscle that becomes fatigued from use (ego-depletion). Participants (68) were randomized to noise or no-noise groups, and worked on two sets of six anagrams where the sixth was unsolvable. As predicted from the strength model, participants in the noise condition persisted for less time on the unsolvable anagrams than those in the no-noise condition (medium effect size of d = 0.588). There was a general decline in persistence over the two trials, but individual tests showed that the decrease was only significant for the no-noise group. In addition, considering self-control as a subject variable, persistence times were unrelated to self-control trait scores, and the effect of noise on persistence did not differ between people who were higher or lower in trait self-control.

Keywords: self-control, cognition, anagrams, noise

According to Baumeister, Vohs, and Tice (2007), "Self-control is the capacity for altering one's own responses, especially to bring them into line with standards such as ideals, values, morals, and social expectations, and to support the pursuit of long-term goals" (p.351). Because Hagger, Wood, Stiff, and Chatzisarantis (2010) argue that a lack of self-control is the basis of many social and personal problems, e.g., obesity, unplanned pregnancy, sexually transmitted diseases, substance abuse, and violent acts, it is important to understand how self-control works.

Baumeister, Bratslavsky, Muravena, and Tice (1998) note that three models have been proposed to explain self-control. In the first, self-control is a skill that may be learned, leading to a gradual increase in task performance over time. In the second, self-control is based on a knowledge structure in which the individual must understand how to respond to certain situations or events. Finally, in the *strength model*, self-control works like a muscle which, over time, becomes tired because it relies on limited energy resources. This reduction in energy is generally known as ego-depletion, and causes a decrease in self-regulation for subsequent actions and behaviors. More specifically, because self-control (or 'willpower'; Baumeister et al., 2007) is theorized to depend on a global biological resource, the exercise of self-control to complete an initial task (ego-depletion task) will deplete that resource, causing reduced performance on a subsequent task (criterion task) that requires self-control (Baumeister et al., 2007). However, like any muscle, self-control should regain its energy after a rest period (Baumeister et al., 1998; Hagger et al., 2010).

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Using this dual-task paradigm, Baumeister and his associates have conducted many successful tests of the strength model. An early study (Baumeister et al., 1998) required food-deprived participants, while exposed to the sight and aroma of chocolate cookies, to eat either radishes or cookies while unsupervised. It was predicted that being required to eat radishes and resist the temptation to eat the cookies would drain the self-control resources of the experimental group and lead to ego-depletion. However, the control group, who ate the cookies, should not experience temptation or ego-depletion. In the subsequent (criterion) task, in which all participants worked on an unsolvable puzzle, the results confirmed this prediction, as those participants who had eaten radishes did not persevere as long as those who had eaten cookies (9 vs. 18 min). The authors therefore concluded that self-control was depleted in the experimental participants, in accordance with the strength model.

According to Hagger et al. (2010), although these results have received considerable research support, some investigators have been unable to replicate Baumeister et al.'s (1998) classic experiments. Furthermore, others have failed to find the ego-depletion effect using related paradigms (e.g., Clohecy, Standing, & McKelvie, 2015). To examine this issue systematically, Hagger et al. (2010) conducted a meta-analysis of 83 studies with the dual-task procedure, and found a significant overall effect of ego-depletion on self-control task performance (d = 0.62, representing medium magnitude). The effect was consistent across different initial depleting tasks and various subsequent criterion tasks. It also generalized to the dependent variables of effort, perceived difficulty, subjective fatigue, glucose levels and positive affect, but not to negative affect or self-efficacy.

However, Carter, and McCullough (2014) argue that Hagger et al.'s review may suffer from publication bias, due to omitting studies with nonsignificant results. They also suggest that many studies in the review used small sample sizes, which often produce larger effects. Using three statistical methods to correct for this artifact, Carter and McCullough (2014) show that Hagger et al.'s estimate is likely to overestimate the true effect size, which they corrected downwards to d = 0.48, -010, and 0.25. In addition, they claim that it is possible that many studies showing no significant effect overall were transformed into reports with some significant effects by the use of 'researcher degrees of freedom' such as excluding outliers, using many outcome measures, and stopping/continuing data collection on the basis of early results. They also report a simulation study in which publication bias changed a true effect of d = 0 to an effect of 0.35, which was further increased to 0.48 by adding researcher degrees of freedom to the model. These results cast doubt on the ego depletion effect.

Subsequently, Carter, Kofler, Foster, and McCullough (2015) conducted another meta-analysis in which they took careful account of publication bias and small sample effects. They based their analysis on 116 studies with the sequential (dual-task) paradigm, and concluded that there was very little support for the strength model. Moreover, in a stringent, multilaboratory preregistered replication study, Hagger et al. (2016) found that the effect size for ego-depletion was extremely small (d = .04) and statistically nonsignificant, thus contradicting the very existence of the effect.

On the other hand, using yet another statistical strategy to deal with publication bias ('the *p*-uniform procedure', based on different underlying assumptions), Blázquez, Botella and Suero (2017) estimated that the effect sizes from the three previous meta-analyses are all close to d = 0.65. Moreover, Arber, Ireland, Feger, Marrington, Tehan, and Tehan (2017) have recently introduced two new features into the dual-task paradigm: they monitored performance during the ego-depletion task, and they administered the criterion task both before and after it. They obtained three results that supported the strength model. First, performance declined during the ego-depletion task. Second, performance improved over time on the criterion task (a test of working memory). However, the change was smaller in the ego-depletion group than in a control group that engaged in conversation between the two tests. Third, they identified two extreme groups on the ego-depletion task: those whose performance remained constant or improved, and those whose performance deteriorated. For those who did not decline, performance on the memory task improved markedly over time. However, for those who did decline, performance on the memory task did not change. As the authors put it, apparently "the benefits of repetition have been offset by depleted resources" (p. 9)However, one recent analysis concluded that several hundred studies had yielded only 'inconclusive' evidence of ego-depletion effects (Friese, Loschelder, Gieseler, Frankenbach, & Inzlicht, 2018), and an exhaustive Many Labs 3 study involving over 2000 participants, likewise, concluded with a verdict of "not proven" (Vadillo, Gold, & Osman, 2018). Together, these mixed findings leave us with considerable uncertainty as to the reality of the ego-depletion effect, which is also fueled by the current hotly-debated replication crisis both in psychology (e.g., Arber et al., 2017; Pashler & Wagenmakers, 2012) and in other disciplines (e.g., Ioannidis, 2005). One of the reasons for the observed discrepancies may be that, in the dual-task studies, various tasks have been utilized to place demands on self-control in hopes of creating ego-depletion and many of these are of arguable impact upon the participant. For example, participants have been asked to engage in higher-level cognitive processing by writing about their own death. There may be considerable individual differences in cognitive reactions to this task, since some participants may not appraise it as a threat to their sense of security, which would tend to dilute any ego-depletion.

The Present Experiment

The idea behind the present experiment is that at least some of the recent failures to replicate ego-depletion effects may have arisen because the primary tasks employed were not sufficiently draining (e.g., performing the Stroop task or writing about one's mortality seem less than arduous). We therefore sought to find a new source of ego-depletion that would be more potent than typical tasks hitherto employed. We hypothesized that working on a cognitive task under noise distraction would be likely to produce a more reliable depleting effect. Dislike of unwanted noise is an almost universal human reaction, often powerful and operating at close to an automatic level. For example, Jerison (1959) found that noise negatively affected human performance on a prolonged vigilance task compared to a quiet group, and Standing and Stace (1980) found that even moderate and unvarying environmental white noise caused participants to experience a measureable increase in state anxiety.

Of relevance here, Glass, Singer, and Friedman (1969) examined unpredictable noise. They included four noise conditions in which the noise was either unpredictable or predictable, and louder (110 decibels) or softer (56 decibels), plus a control condition with no noise. Participants exposed to unpredictable noise made fewer attempts to solve an unsolvable puzzle compared to those exposed to predictable noise, who did not differ from the control group. Loudness had no effect with predictable noise, but when the unpredictable noise was delivered at 110 decibels, it created anxiety and had a stronger effect than noise at 56 decibels. Baumeister et al. (1998) cite Glass et al.'s finding of a “psychic cost” of adapting to unpredictable noise, and interpret this as involving resource depletion. As researchers have not subsequently examined the effect of noise in the context of the strength model, the main purpose of the present experiment was to examine this question.

What is the mechanism by which noise might have a “psychic cost”? We suggest that if unpredictable noise is present while participants are performing a task, then ignoring this distraction to focus attention on the task will deplete their psychological resources. Ignoring other kinds of distraction in order to focus attention has been theorized to involve ego-depletion (Baumeister et al., 2007), and there is evidence that distraction during an initial task impairs performance on a future self-control task (e.g., Fischer, Greitemeyer, & Frey, 2008; Schmeichel & Vohs, 2009; Steimke et al., 2016). Furthermore, in their meta-analysis, Hagger et al. (2010) found that controlling attention had a negative effect on subsequent task performance, and that the size of this effect ($d = 0.65$) was similar to the overall ego-depletion effect ($d = 0.62$). The present experiment seeks to determine whether unpredictable noise would also function in this manner.

Glass and his colleagues (1969) investigated whether environmental stressors decreased human cognitive performance, focusing on the difference between a loud unpredictable noise group and the control group. However, we were only interested in the effect of unpredictable noise on ego-depletion, not the effect of stress. To accomplish this goal, the noise was presented at a moderate level of approximately 60 decibels, similar to Glass et al.’s low noise group and corresponding to the intensity of normal speech. This might create mild irritation, but not stress.

We hypothesized that unpredictable noise would lead to ego-depletion, causing the experimental group to persist for less time in trying to solve an unsolvable anagram when compared to the control group not exposed to noise. This would support the strength model. We also predicted that experimental (noise) participants would not persist as long on the unsolvable anagram on Trial 2 as on Trial 1, due to cumulative energy depletion. Control (no-noise) participants might also break off more quickly on Trial 2 than on Trial 1, perhaps due to fatigue, but the decline would be less. In contrast, for five initial solvable anagrams, we expected that both groups would work for the same amount of time on each trial.

Thus, our main goal was to investigate ego-depletion by experimentally manipulating unpredictable noise, with the prediction that it would lead to a decrease in task persistence (Hypothesis 1). It was also expected that persistence would be less on Trial 2, particularly for the experimental group (Hypothesis 2). Another goal was to investigate self-control as a subject variable, in line with Duckworth and Kern’s (2011) recommendation to include both task-performance and questionnaire measures of self-control (see also Baumeister, Hagger et al., 2010). Some studies have incorporated the trait of self-control into their research design with mixed results; in some cases, ego-depletion was less in those people who were higher in self-control, but in other cases it was not (Hagger et al., 2010). However, we predicted that task persistence would be greater for people who are higher than those who are lower on a questionnaire measure of self-control (Hypothesis 3), and that the effect of noise on task persistence would be less for people who are higher on self-control than for those who are lower (Hypothesis 4). Finally, it was expected that participants' self-control scores would correlate positively with their persistence on the unsolvable anagrams in both the noise and no-noise conditions (Hypothesis 5).

Method

Participants

Sixty-eight participants (mean age 21.53) were recruited as volunteers from undergraduate psychology classes at Bishop's University, receiving a 1% course credit bonus for participation; they were randomly assigned to a noise group (34) or to a control group (34). The genders were proportionally distributed, with a female/male split of 26/8 in the noise group and 24/10 in the controls. Participants were also balanced according to their mother tongue (English/other), with 14/20 in the noise and 16/18 in the control group.

Sample size was planned using an expected effect size of $d = 0.62$ (Hagger et al., 2010), with alpha set at .05 and power at .80 (https://www.stat.ubc.ca/~rollin/stats/ssize/n2.html). This yielded a target group size of 41. With 34 people actually tested in each group, power was .72.

Materials

The brief 13-item self-control questionnaire of Tangney et al. (2004) was used to measure the participant's self-rated level of self-control (see Appendix). Tangney et al. (2004) reported a correlation of .93 between the brief version of this questionnaire and the full version. They also found it to be reliable, with an alpha of .83 on the first trial and .85 on the second, indicating high internal consistency, and a test-retest reliability of .87.

This study employed two series of anagrams, which each consisted of five solvable, and one unsolvable six-letter anagram (scrambled versions of *resort, filter, duster, caller,* and *actors*, with *ensoul* as the unsolvable item, or scrambled forms of *arches*, *marine*, *master*, *lemons*, and *desert*, with *anoles* as the unsolvable item). These items were written on flash cards. The series were randomly distributed to the participants to avoid possible bias from item difficulty, so some participants started with the first series and others with the second. The words were written in different colors, so that the experimenter would know when participants had arrived at the unsolvable anagram and could start a timer for that participant. A random noise generator app on an iPhone was used for the noise group only (Tegdimretnum, 2015). This was connected to a wireless speaker positioned in an adjoining room behind a vented door, and generated about 60 dbA of random computer noise (beeps) in the lab, whereas the background sound level was scarcely noticeable, at about 30 dbA. Lastly, each participant was asked, using a single question, whether the noise had annoyed him/her during the experiment.

Design

This study employed a 2 × 2 mixed ANOVA design, the independent variables being Distraction (experimental noise vs. no-noise control, between groups) and Trials (Trial 1 vs. Trial 2, within groups). The dependent variable of self-control was measured as the duration in seconds of the subject's persistence on an unsolvable anagram. (As a check, the same analysis was run for the time spent on the solvable anagrams). Additionally, self-control trait scores were measured via questionnaire.

Procedure

Participants were tested in small groups of eight or fewer. Participants first gave informed consent, and completed Tangney et al.'s (2004) self-control scale. They were told about the nature of an anagram, and that they would receive two sequences of six 6-lettter anagrams each. Items would be attempted sequentially, without backtracking, although they would be allowed to move on to the next item if they could not solve a given anagram. It was stressed that this was not a competition between participants. They then took the first test, which consisted of five solvable anagrams followed by one unsolvable item. The five solvable anagrams on average required 605.9 sec to complete on Trial 1. However, the last anagram was unsolvable, yielding a measure of self-control, as participants worked on it as long as they wanted before they gave up and moved on to the second block. The noise group was exposed to unpredictable noise throughout the time that they worked on the anagrams (both solvable and unsolvable), whereas the control group experienced only the faint background noise of the lab (air-conditioning hiss). The times for which participants worked on the unsolvable anagram were recorded, plus their overall times on all five solvable anagrams. The participants were asked to raise their hands to show when they were done with the first test; they then took the second test, which also consisted of five solvable anagrams (averaging 658.9 sec for these on Trial 2), followed by one unsolvable anagram. Again, the time of the unsolvable item measured self-control. Lastly, participants were asked whether noise had bothered them. (See Figure 1 for a block diagram of the design).

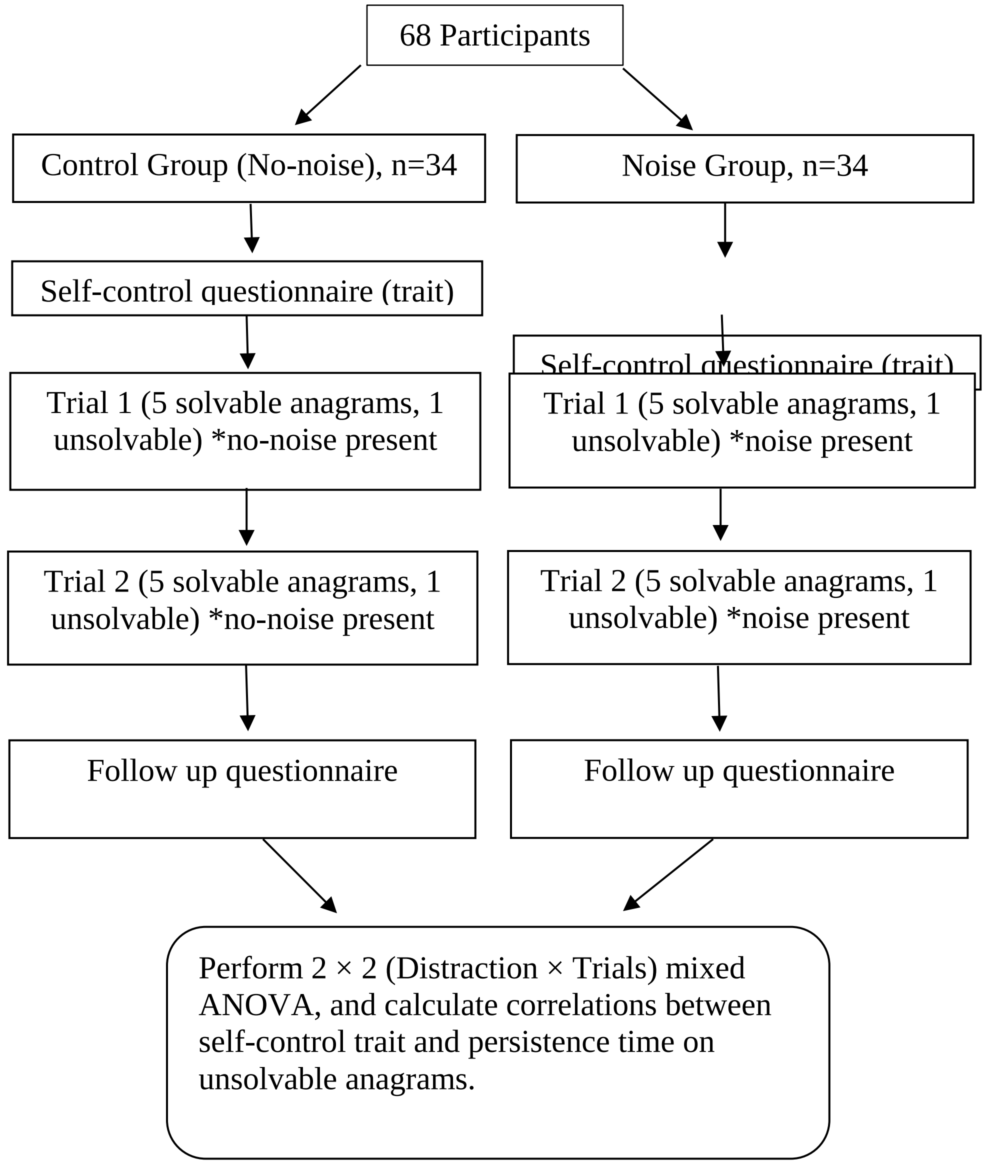

Figure 1. Block diagram of procedural steps.

Results

To check the randomization of participants, the experimental noise and no-noise control groups were compared, using *t*-tests, for their age and self-control trait scores. As anticipated, no significant differences were found, both *ps* > .05. Additionally, a 2 × 2 ANOVA (Distraction × Trials) was run on the participants' times to complete the solvable anagrams. No differences were observed between the groups or the trials, or for their interaction, *ps* > .05.

To assess self-control, the mean persistence times under the four experimental conditions were tabulated, as shown in Table 1 and Figure 2. A 2 × 2 (Distraction × Trials) ANOVA for these variables indicated that the noise group persisted in the unsolvable anagram task for less time than the no-noise control group, $F(1, 65) = 5.68$, $p = .020$, $d = 0.588$. Participants overall persisted longer on Trial 1 than on Trial 2, $F(1, 65) = 4.06$, $p = .048$, $d = 0.346$. However, there was no Distraction × Trials interaction, $F(1, 65) = 2.53$, $p = .117$.

Table 1
Mean Persistence Times in sec for Unsolvable Anagrams (with SD), as a Function of Distraction and Trials

Distraction	Trial 1	Trial 2
Noise	363.62 (312.2)	346.62 (279)
No-noise	621.62 (489)	477.29 (383.2)

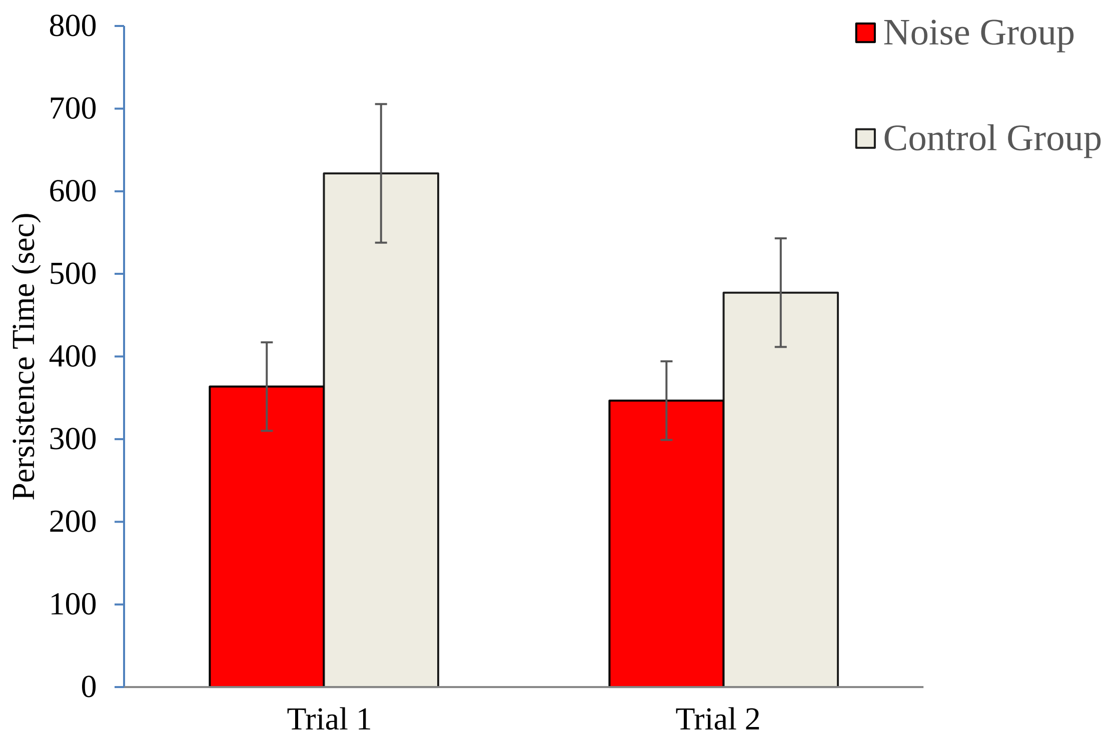

Figure 2. Mean persistence times with unsolvable anagrams for the control and noise groups over Trials 1 and 2, with error bars (showing SEM).

Although the interaction was not significant, we had predicted that the decline in persistence time between Trial 1 and Trial 2 would be greater for experimental participants than for control participants. Specific comparisons indicated that the no-noise control group worked longer on Trial 1 than on Trial 2, $t(33) = 2.36$, $p = .024$, $d = .405$. However, for the experimental noise group, scores did not differ between the two trials, $t(33) = .33$, $p = .745$, $d = .056$. The noise group thus persisted for significantly less time than the control group on Trial 1, $t(66) = 2.59$, $p = .007$, $d = .628$, but not on Trial 2, $t(66) = 1.61$, $p = .071$, $d = .389$.

The mean self-control trait scores for the noise and no-noise groups were 43.18 (SD = 8.21) and 39.38 (SD = 7.80) respectively; this difference was not significant, $F(1, 66) = 244.7$, $p = .055$. Participants were classified as higher or lower in self-control on the basis of a median split, and this subject variable was included in 2 × 2 × 2 (Distraction × Self-Control × Trials) ANOVA for the time spent on the unsolvable anagram tasks. Neither the main effect of self-control, $F(1, 59) = 0.05$, $p = .829$, nor the interaction between distraction and self-control, $F(1, 59) = 0.62$, $p = .434$, was significant. The only effect to approach significance was distraction, $F(1, 59) = 3.51$, $p = .066$. As in the experimental analysis, persistence was lower in the noise group than in the no-noise group. In addition, no correlation was found between participants' trait scores for self-control and their persistence time under any of the four treatment conditions, rs (32-34) = -.031 to .22, all $ps > .20$. Finally, all participants in the noise group stated that the noise was distracting to them.

Discussion

This study tested five predictions. First, the experimental noise group would work on the unsolvable puzzle for less time than the no-noise group. Second, participants in both groups would work longer on the unsolvable anagram on Trial 1 than on Trial 2, but the decline in persistence over time would be greater for the noise group. In contrast, for the solvable anagrams, persistence times would not differ between the groups. Third, persistence would be greater for people who were higher than lower in trait self-control. Fourth, the effect of noise on task persistence would be less for people who were higher than lower on self-control. Fifth, for both groups on both trials, scores on the self-control questionnaire would correlate positively with their persistence on the unsolvable anagrams.

The 2 × 2 mixed ANOVA showed that persistence times for the noise group were lower than those of the no-noise group. This confirms the first hypothesis and supports the strength model by showing that self-control was reduced by the unpredictable noise. Moreover, the medium effect size (d = 0.588) is similar to the results of Hagger et al.'s (2010) meta-analysis (d = 0.62) and to Blázquez et al.'s (2017) summary of this study and two other meta analyses (d = 0.65). The present result is also consistent with previous findings that unpredictable noise cause participants to make fewer attempts to solve an unsolvable puzzle (Glass et al., 1969), which Baumeister et al. (1998) interpreted as showing resource depletion. Our result therefore offers another method to investigate the strength model of self-control.

The ANOVA also showed that persistence time was lower on Trial 2 than on Trial 1, in line with the second hypothesis. However, the interaction between distraction and trials was not significant, contradicting the hypothesis that the reduction in persistence would be greater in the noise group than in the no-noise group. However, individual tests showed that there was a significant decline in persistence time over trials in the no-noise group, but *not* in the noise group. The decline in the no-noise group was expected from fatigue from working on the task. However, the lack of decline in the noise group was unexpected. Although the delay between trials may have allowed the self-control mechanism to regain its energy (Baumeister et al., 1998; Hagger et al., 2010), the rest period was extremely short. Another possibility is that participants in the noise group were already fully depleted on Trial 1, even though the moderate noise in the experimental condition was not highly stressful and aversive. Because the difference between the two groups was based on individual t-tests and was not shown by a significant interaction between distraction and trials, it should be replicated.

Treating self-control as a subject variable, the ANOVA showed no main effect of trait self-control, and no interaction between noise and self-control. The first finding did not support our third hypothesis that persistence would be greater for people who were higher rather than lower in self-control. The second finding was inconsistent with the fourth hypothesis that the decline in persistence over time would be smaller for people who were higher in self-control than for those who were lower. As noted earlier, previous investigations including trait self-control have yielded mixed results (Hagger et al., 2010) and the present result adds to the nonsignificant findings in that mixture.

Finally, in the correlation analysis, the fifth hypothesis was not supported, as the self-control scores in the two conditions on each trial did not predict how long each individual would persist on the unsolvable anagrams. However, this result agrees with our nonsignificant effect of trait self-control on persistence. Together, these results indicate that the relationship between self-control and task performance is not the same when self-control is experimentally manipulated as when it is treated as a subject variable. In particular, the nonsignificant correlations and lack of a main effect of self-control do not support the notion that people with greater personal self-control would persist longer (Hagger et al., 2010).

One possible factor in these nonsignificant relationships is that Tangney et al.'s (2004) scale may be composed of two factors (restraint and impulsivity) rather than one, and that only the restraint component measures self-control (Maloney, Garwich, & Barber, 2012). Notably, Lurquin and Miyake (2017) argue that we need clearer operational definitions of self-control, better empirical validation of self-control tasks, and well-specified models of self-control that make clear, falsifiable predictions.

Some strengths of the present experiment are that the noise and no-noise groups were matched on a number of variables. They worked on the solvable anagrams for the same amount of time, and there were no significant differences between the groups in age, mother tongue, or personal self-control. In addition, the sample size yielded adequate power. However, although power was adequate for the detection of a general effect of noise in persistence, it was low for the task of examining whether a higher level of self-control would buffer the effect of noise on persistence. Another possible limitation is that the experiment was conducted in groups, which might have led some participants to work longer because they did not wish to be the first to finish. Finally, participants were college students drawn from Western culture, which limits generalizability. According to Savani and Job (2017), almost all the research on ego-depletion has been conducted in the West. However, intriguingly, they found a *reverse* ego-depletion effect with people from India. They also found that Westerners tend to believe that willpower is depleting, whereas people in India believe it is energizing, and they argue that these beliefs play a role in the ego-depletion effect. This means that motivation may be a factor in the ego-depletion effect, undermining the strength model, which is physiologically based (Savani & Job, 2017).

As noted above, the use of unpredictable noise as a depleting task has promise. First, the observed effect of noise extends Glass et al.'s (2009) findings by showing that a low level of noise decreases performance in an unsolvable anagram task. Second, it is consistent with other evidence that distraction has an ego-depleting effect (Fischer, Greitemeyer, & Frey, 2008; Schmeichel & Vohs, 2009; Steimke et al., 2016). Third, it provides another kind of distracting task that can be manipulated in various ways. Finally, it opens the door to investigating other kinds of individual differences. For example, one could take introversion/extraversion into account. Several studies suggest that introverts have greater adverse reactions to noise compared to extroverts. This is in accord with the theory of Eysenck, who postulates that introverts have higher habitual cortical arousal than extraverts, leading them to need less stimulation to reach an optimal functioning level (McLaughlin & Eysenck, 1967). By the same token, extraverts will thus seek situations that produce more arousal (Furnham & Bradley, 1997). Some studies have supported this idea, e.g., Standing, Lynn, and Moxness (1990) found that very modest levels of white noise reduced cognitive performance, especially in introverts. Likewise, Furnham and Bradley (1997) reported that music adversely affected the cognitive test scores of introverts, whereas extraverts received some benefit from it. Hence, future studies ideally would incorporate this variable into their design. It would also be interesting to employ noise as a depleting task with people from different cultures, including India, and with people who vary in their beliefs about the effect of willpower. Conceivably, noise would create a reversed ego-depletion effect with people from India and with people who believe that exercising their willpower is energizing.

Conclusion

Theoretical understanding of self-control requires precise models that offer clear predictions (Lurquin & Miyake, 2017). Because unpredictable noise during an initial task decreased performance on a subsequent self-control task, the present research supports the strength model, according to which self-control works like a muscle. It also offers a new method to explore ego-depletion using irritating noise, and suggests that it is crucial to search for further tasks that may be strongly ego-draining in order to provide a fair test of the strength model.

Future research should explore further how self-control plays a role in obesity, alcohol and drug abuse, or violent acts, which might reveal ways to increase self-control. This would be valuable because high trait self-control has been found to be related to better adjustment, less pathology, better grades and interpersonal success (Tangney, Baumeister, & Boon, 2004). It has also been linked to less binge eating and alcohol abuse, as well as greater happiness (Wiese et al., 2017). A more precise understanding of self-control could potentially suggest adaptive exercises to help strengthen this beneficial trait.

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Appendix
Self-Control Scale (Tangney, Baumeister, & Boone, 2004)

Using the scale provided, please indicate how much each of the following statements reflects how you typically are. Not at all to Very much (1 being not at all, and 5 being very much)

I am good at resisting temptation.	1———2———3———4———5
I have a hard time breaking bad habits.	1———2———3———4———5
I am lazy.	(...etc...)
I say inappropriate things.	
I do certain things that are bad for me, if they are fun.	
I refuse things that are bad for me.	
I wish I had more self-discipline.	
People would say that I have iron self-discipline.	
Pleasure and fun sometimes keep me from getting work done.	
I have trouble concentrating.	
I am able to work effectively toward long-term goals.	
Sometimes I can't stop myself from doing something, even if I know it is wrong.	
I often act without thinking through all the alternatives.	