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The Psychological Presence of Family Improves Self-Control

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THE PSYCHOLOGICAL PRESENCE OF FAMILY IMPROVES SELF-CONTROL

By

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ABSTRACT

Three studies supported the hypothesis that the psychological presence of family provides a temporary increase in self-control in three experiments. In Study 1, participants subliminally primed with the names of their family members subsequently performed better at an open-ended language task relative to participants primed with neutral words. Study 2 addressed two alternative ways of interpreting the results of Study 1. Participants in Study 2 who wrote a short essay about a family member with whom they had a good relationship demonstrated more self-control than those who wrote about a humorous episode or an enemy relationship, as measured by their performance on a simple but tedious math test. Study 3 was designed to demonstrate that self-control, rather than motivation, was affected by thoughts of the family. Participants primed with a visual cue of a family member ate fewer cookies than those not primed—when individual differences in eating restraint were controlled.

INTRODUCTION

The importance of self-control in maintaining close relationships is evident when one considers the impact of self-control failures. A mother's failure to control her temper may end with her hurting her children; a husband's inability to refrain from gambling could end in a family's financial ruin. In both examples, close personal relationships are bound to be damaged as a result of self-control failure. That self-control has implications for the functioning of relationships is fairly obvious. I propose a less intuitive connection between self-control and close relationships, namely that close relationships can improve self-control. Specifically, I test the hypothesis that bringing family relationships to mind causes an improvement in one's ability to exercise self-control.

Self-control refers to how one "exerts control over his or her own responses so as to pursue goals and live up to standards" (Baumeister & Vohs, 2004; p. 500). Thus, the anger-prone mother might cool down before reacting to her children for the sake of harmoniousness at home, while the gambling-inclined husband might elect to bypass casinos for the good of the family's financial security. Research has described two distinct kinds of self-control, trait self-control and state self-control. A person with a high degree of trait self-control would avoid unnecessary and costly indulgences in a variety of domains. In other words, someone who pays her taxes on time, eats right, avoids risky sex, and keeps her emotions in check is unlikely to steal a car if the opportunity arises. That is, such a person would be considered to have high trait self-control, in that across different situations and over time she exercises control over impulses in the service of standards or goals.

Research has demonstrated that trait self-control is a good predictor of romantic relationship health (Vohs, Baumeister, & Finkenauer, 2007). In fact, the healthiest relationships in the study by Vohs and colleagues were the ones in which both partners showed a high degree of self-control. Further, the presence of at least one relationship partner with high levels of self-control improved the overall health of the relationship. Although effective trait self-control has clear implications for close relationships, the focus of the current research is on state self-control.

Whereas trait self-control refers to a stable, consistent capacity to restrain one's impulses over time and in different situations, state self-control is transient. That is, state self-control refers to the way in which one's capacity to restrain impulses changes from moment to moment and from situation to situation. This variance in self-control is believed to be due to fluctuations in one's self-control resources. In other words, state self-control is dependent upon a limited resource, such that exercising self-control temporarily depletes this limited resource and leaves an individual less able to exercise self-control successfully.

One early experiment, typical of research using the limited-resource model, is as follows (see Baumeister, Bratslavsky, Muraven & Tice, 1998). All participants arrived at the laboratory having skipped a meal. These hungry participants were required to sit alone in a room in front of freshly baked chocolate chip cookies and a bowl of radishes. The experimenter instructed participants in the control condition to eat several cookies and rate the taste, which did not require self-control. In contrast, participants assigned to the self-control depletion condition were instructed to eat and rate the radishes rather than the deliciously aromatic chocolate chip cookies. Refraining from eating tempting foods like chocolate chip cookies requires self-control, especially when one is hungry.

According to the limited resource model of self-control, those who restrained themselves from eating cookies should have expended more self-control resources than those who had to refrain from eating a radish, leaving fewer self-control resources available for future tasks. Results supported the limited resource model. All participants were asked to complete unsolvable puzzles after several minutes alone with the food. The experimenter measured the amount of time participants persisted at the unsolvable puzzle. Results showed that participants who had previously exerted self-control by refraining from eating the tempting cookies persisted at the puzzle task for significantly less time than participants who had not sapped their self-control resources, indicating weaker state self-control. Consistent with the limited resource model of self-control, a temporary decrease in state self-control following a particularly difficult or prolonged self-control task has been demonstrated in over 85 published experiments using a broad array of experimental manipulations and measures of self-control.

State self-control is important to consider in the context of relationships. Consider a father who has spent the entire day at work biting his tongue in the presence of an obnoxious boss. The prolonged restraint will wear down his self-control resources, and subsequently leave him prone to self-control failure. That is, he may be more likely to snap at his children or belittle his wife in response to even minor provocations. Research by Finkle and Campbell (2001) examined both state and trait self-control in close romantic relationships. In particular, they were interested in how relationship partners react when the other person does something hurtful. The natural tendency is to want to “get even”, or to respond to a perceived harm in kind. The term *accommodation* refers to one’s willingness to restrain a negative response to the hurtful actions of a loved one (Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991). Across four studies, Finkle and Campbell (2001) found that trait self-control predicted one’s readiness to accommodate following a partner’s hurtful behavior.

In a fifth study, these researchers asked participants to recall occasions in which they had engaged in accommodative behavior with their partners, and also occasions in which they had not demonstrated accommodation. Participants were also asked to report the amount of effortful self-control they exerted during the week preceding the incident (e.g., “I had been exerting a lot of ‘willpower’ in my life” or “I had been on a diet”). Instances of non-accommodative behavior were significantly more likely to occur following a week of effortful self-control, whereas accommodative behavior was more likely to occur following a week in which self-control demands were low—indicating that depleted self-control resources led to relationship harming behavior. In sum, when demands for self-control were high, participants reported more relationship-harming behavior relative to when demands for self-control were low.

The connection between accommodation and self-control resources was built upon by other researchers who had participants think about how they would react to a partner’s misdeeds in a current, past, or hypothetical romantic relationship. In all three cases, participants who had depleted self-control resources (the result of a randomly assigned effortful self-control task) were more likely to report that they would destructively respond to a partner’s missteps relative to control participants (Vohs et. al., 2007). This pattern of responding makes sense, given that the impulse to respond to hurtful behavior with further unkindness can be strong, and so restraining that impulse requires adequate self-control resources.

Although self-reported data are limited, results of five studies have demonstrated that impaired state self-control leads to behavioral acts of aggression against strangers (DeWall, Baumeister, Stillman, & Gailliot, 2007). In one study, state self-control was manipulated by having some hungry participants refrain from eating tempting foods while other hungry

participants refrained from eating a less enticing food. Aggression was measured by the amount of hot sauce participants dolled out to a fellow student whom they believed would find hot sauce extremely unpleasant. Four other studies found similar results using different ways of depleting self-control resources and different methods of measuring aggression, which lends further credibility to the self-report data showing that adequate self-control resources are essential to relationship-maintaining interactions.

In summary, retrospective accounts of greater state self-control resources corresponded with higher rates of self-reported accommodative behavior (Finkle & Campbell, 2001), while experimentally manipulated self-control resources predicted one's willingness to forgive a hypothetical relationship partner's misdeed (Vohs et. al, 2007), and experimentally manipulated state self-control predicted behavioral aggression in the laboratory (DeWall et. al, 2007). State self-control thus mimics trait self-control, in that more self-control is associated with better relationship functioning.

It has been suggested that the connection between self-control and close relationships is reciprocal, such that self-control improves close relationships and good, healthy, relationships improve self-control (Baumeister & Stillman, in press). One can point to criminological research as supportive of the notion that close relationships improve self-control. A longitudinal study conducted on 200 male juvenile delinquents concluded that those who later married demonstrated more social stability than they had previously shown (Gibbens, 1984). Other criminologists have found that, while marriage did not reduce actual criminality, it did reduce some antisocial behaviors such as heavy drinking and drug abuse (Knight, Osborn, & West, 1977). While marriage does not reduce criminality among repeat offenders, having a strong commitment to one's partner does in fact reduce crime (Sampson & Laub, 1990). The researchers who reached this conclusion examined the lifespan data of a large sample of male offenders for childhood variables (i.e., early antisocial behavior), life events (i.e., marriage), and self-report variables (i.e., attachment to spouse). On the disproportionate reduction of crime among married individuals, they concluded, "it is cohesiveness that is central rather than marriage *per se*" (Sampson & Laub, 1990, p. 620). Thus, the act of marriage was not shown to be sufficient to change a proclivity for committing crimes, but having a healthy and committed relationship did decrease criminality. This finding is consistent with the notion that healthy relationships improve self-control, although one could offer competing explanations for the trend given that it is based on correlational research.

Preliminary experimental evidence comes from research by Fitzsimons and Bargh (2003) who examined goal pursuit. These researchers found participants were more willing to strive towards goals when they were induced to think about loved ones as compared to control participants. In other words, the psychological presence of close relationship partners (one's mother, friend, etc) led to participants trying harder to achieve a goal. Across four studies, participants were induced to think about loved ones via conscious and non-conscious primes. Results showed that when participants had been primed with relationship partners, they behaved in a way that is consistent with high self-control; they worked harder on a verbal task, were more willing to help an experimenter, and put more effort into understanding someone's behavior relative to control participants. Inasmuch as pursuing goals requires effortful self-control, this finding is consistent with our hypothesis that state self-control is increased by the psychological presence of loved ones. However, the Fitzsimons and Bargh investigation did not address self-control, as they focused on a relevant but different topic: the pursuit of goals. Because they did not expressly investigate the limited resource model, there was no manipulation of state self-

control. That is, self-control resources were not assigned by virtue of an effortful self-control task.

Current Investigation

The psychological presence of an important figure affects people in notable ways. This was demonstrated in a classic study by researchers who subliminally primed graduate students to think about a person with whom they had a salient relationship: the department chair. When these graduate students were subliminally primed with the department chair's scowling face, they gave poorer evaluations to their own research ideas (Baldwin, Carrell, & Lopez, 1990). The implication is that the psychological presence of a relevant and important relationship can influence how people think, and possibly how they behave.

People's relationships with individuals who hold sway over their careers, such as a department chair, are obviously consequential. However, the formation of a few close, positive relationships—such as those people often have with family members—are more than just important. The formation and maintenance of these close, positive relationships can aptly be described as one of the primary motivations for human beings (Baumeister & Leary, 1995; Buss, 1990; Maslow, 1968). What is the effect of bringing to mind close family relationships? In three studies, the current investigation sought to test the hypothesis that the psychological presence of close family relationships improves self-control.

STUDY 1

Participants and Procedure

Study 1 employed a 2(depletion, control) x 2(family prime, control) design to test the hypothesis that the psychological presence of family improves self-control.

Participants were 79 undergraduate students (56 female) who took part in the study in exchange for partial course credit. One participant was excluded because he was able to identify the prime, thus there were 80 participants originally.

Participants arrived in a reception area where they read and signed an informed consent form. The experimenter then explained that the computer they would be using for the study was about to finish a system scan, so there would be a short wait before the study could begin. In fact, the wait was simply a pretext to allow the experimenter to get the names of the participants' family members. The experimenter asked "While we are waiting, would you mind helping us by completing this survey?" All participants were given a questionnaire that asked them to provide the names of family members, among several other unrelated decoy items (i.e., names of pets, favorite letters, etc.).

When participants had finished the name survey, the experimenter explained that she would check on the status of the computer. Checking on the computer allowed her to prepare the computer to prime participants with the appropriate words according to condition. Participants in the control condition would be primed with words of neutral valence (*average, lawn, slope, and neutral*); participants in the family-prime condition would be primed with the words they used to refer to their mother, father, brother, and sister (e.g., *Mommy, Pops, Jer-Bear, Debra*). The number of different primes reflected the number of family members listed by participants, such that participants who did not list names for two siblings or two parents ($n = 9$) were primed with fewer different family-related words (the names they did supply were simply primed more frequently, so that all Ps had the same number of primes overall).

The experimenter seated participants in front of the computer once it was prepared to administer either family primes or neutral primes. The ostensible purpose of the computer task was to measure math skills. Participants were presented with 30 rather simple multiplication problems (e.g., "4 x 21") and were not given scratch paper. Rather, instructions were to make the computations mentally.

Prior to beginning the simple math problems, participants in the depletion condition were asked to "not think about a white bear" while doing the math problems (e.g., Wegner, Schneider, Carter & White, 1987). The experimenter further told those in the depletion condition that if they did think about a white bear, they should "immediately refocus" their attention on the math problems.

Participants in the control condition were not asked to avoid thinking about a white bear. Thus, all participants were required to exert at least a minimum of mental effort in order to answer simple multiplication problems; however, only participants in the depletion condition had to employ additional self-control resources to avoid thinking about a white bear. Traditionally, the white bear manipulation has not been used in combination with math problems as it was in the current investigation. The purpose of the simple math problems was not to deplete participants' state self-control; rather it was to ensure that participants were paying attention to the computer screen (and therefore capable of being primed).

As participants responded to each of the 30 math problems, new problems would appear. The primes were administered following responses to each problem. Stimuli were administered using Inquisit (Millisecond Software, 1998) on a 15-inch Dell color monitor controlled by a computer running Microsoft Windows. The sequence of stimuli was as follows: 1) a plus sign in the center of the screen for 300 ms, 2) a 200-ms forward mask (XXXXXXXXXXXXX), 3) a 33-ms family or control prime, and 4) a 33-ms backward mask (XXXXXXXXXXXXX). Following this, a multiplication problem appeared. These steps were repeated for each of the 30 math problems.

Upon completion of the math problems, self-control resources were assessed. The assessment of self-control resources was done by measuring persistence on an open-ended, resource-dependent task that has been used to measure depletion successfully in other research (DeWall, Baumeister, & Vohs, 2007). Onscreen instructions directed participants to create as many words as possible from a list of letters. All participants were presented with the letters *m, p, l, a*, and *e*. Participants were provided with a space in which to type all of the words they could come up with. Participants whose self-control resources were intact were expected to persist longer than participants whose self-control resources had been depleted, as measured by the number of words they came up with. When participants finished creating words, they signaled the experimenter, who probed participants for suspicion, debriefed them, and thanked them for their participation.

Results and Discussion

Results of a 2(depletion vs. control) x 2(family prime vs. neutral control) ANOVA did not demonstrate a main effect for depletion as measured by the number of words created (after eliminating non-words and duplicate words), $F < 1$, *ns*. One reason for this non-finding could be that the participants were distracted by the math problems, such that the participants assigned not to think about a white bear—like those in the control condition—simply focused on doing the problems rather than on controlling their attention. In short, we may have inadvertently made the depletion task ineffective by providing participants with a distraction. However, the effect of family priming was significant; participants who were primed with the names of family members created more words ($M = 9.63$, $SD = 3.26$) than those who were primed with neutral words ($M = 8.08$, $SD = 3.13$), $F(1,76) = 4.48$; $p = .038$, see figure 1. The interaction was not significant, $F < 1$, *ns*.

Planned contrasts revealed a marginally significant difference among participants who were given the depletion manipulation: Those who received the family prime had greater self-control resources as evidenced by the number of words created ($M = 9.86$, $SD = 3.59$) than those who had received the neutral prime, $M = 8.05$; $SD = 1.88$; $F(1,76) = 3.38$; $p = .07$. Among participants who were not given the depletion manipulation, means were in the predicted direction but failed to reach significance, $F(1,76) = 1.40$; $p = .24$. These data do not clearly indicate whether the effect is stronger among depleted or control participants.

Figure 1. Self-control resources as a function of prime and depletion condition.
Note. Bars correspond to mean number of words. Higher scores indicate more words.

The strongest conclusion to be drawn from Study 1 is based on the significant family priming effect. Participants in Study 1 who were primed with the family appear to have had greater self-control resources, as measured by the number of words they created. Our conclusion that the between-groups difference in number of words created was due to differences in state self-control is in part an inference on our part, mainly because alternative explanations—such as the psychological presence of family improving intelligence or verbal skills—are less plausible.

STUDY 2

Overview

There are plausible alternative interpretations to the improvement in self-control following the psychological presence of the family in Study 1. One is that the observed effect is due to the general positivity of the family prime relative to the control prime. In other words, participants' increased self-control might not be due specifically to the psychological presence of a family relationship and might instead be due to the priming of positive thoughts. That is, participants may have perceived the names of family members as more positive than the neutral control primes, and the resulting difference in self-control could simply be a reflection of this difference. A second plausible alternative interpretation for Study 1 is that the results were due to the personal significance of the primes. Namely, the reason the family primes improved self-control is that the control primes were not personally relevant (i.e., being primed with the word "neutral") while the family primes are highly personally relevant (e.g., "Daddy").

Study 2 was designed to address these alternative interpretations in a 2(depleted or control) x 3(personally relevant prime, positive topic prime, or family relationship prime) design. Consistent with the Study 1, we hypothesized that participants primed with thoughts of the family would show increased self-control resources relative to participants given control primes. Given that both control primes in Study 2 could conceivably improve state self-control, we considered this a more rigorous test of our hypothesis that the psychological presence of family improves self-control.

One drawback of Study 1 is that the manipulation of self-control resources was unsuccessful in producing a measurable difference in state self-control. In Study 2, we changed the self-control resources manipulation from the white bear task to an attention-control task in which participants in the depletion condition must focus their attention on a video while ignoring words scrolling across the bottom of the screen.

To test our hypothesis in a more conclusive manner, we altered the way in which we induced the psychological presence of family. Whereas in Study 1, participants were subliminally primed with thoughts of loved ones, participants in Study 2 were consciously aware of the thoughts that were primed. Additionally, Study 1 measured self-control resources using an open-ended task. In contrast, participants in Study 2 were given a fixed time (five minutes) in which to complete resource-dependent problems, to determine whether psychological family presence improves performance only on a specific, open-ended task or whether the improvement in self-control is more generalizable. Study 2 also included a search for possible mediation. Specifically, both the perseverance and ambition subscales of GRIT were examined (Duckworth, Peterson, Matthews, & Kelly, in press), as was trait self-control (Tangney, Baumeister, & Boone, 2004), positive and negative affect (Brief Mood Introspection Survey; Mayer & Gaschke, 1988), and subjectively experienced depletion (Twenge, Muraven, & Tice, 2004).

Participants and Procedure

Participants were 139 undergraduates (86 women, 8 not reporting gender) who took part in this study in exchange for partial course credit. Six participants (4%) were excluded from all analyses for failing to follow directions. Thus there were originally 145 participants.

Upon arrival at the laboratory, all participants were instructed to complete a small packet of questionnaires that contained measures to be tested as mediators. Specifically, participants completed one packet assessing both perseverance and ambition in pursuit of long-term goals (GRIT; Duckworth et al., in press) as well as self-control (Tangney, Baumeister, & Boone, 2004). The other potential mediators, positive affect, negative affect, and subjectively experienced depletion were assessed after the experimental manipulations.

Once the questionnaires were completed, the experimenter asked participants to watch a short video. The video, the experimenter explained, would be a soundless clip of a woman being interviewed. He further explained that participants were to make their impressions of her based on her nonverbal behavior. He then notified all participants that words would appear in the bottom corner of the screen. Further instructions varied according to condition. Participants in the depletion condition were instructed that it was very important that they focus their attention exclusively on the woman's face and that they ignore the words that would appear. In contrast, participants in the control condition were instructed simply to watch the clip as though watching TV at home. In short, participants in the depletion condition were required to exert self-control over their attention while those in the control condition had no self-control demands made on them, as previously demonstrated by DeWall et al. (2007).

After participants had watched the video clips, the experimenter administered a second small packet of questionnaires. The packet contained three items: a manipulation check, stationery for writing an essay, and an affect measure. The manipulation check simply asked participants to rate how much effortful self-control was required for the video watching task. Ratings were from one (not any effort) to four (great effort required). Next, participants wrote an essay on one of three randomly assigned topics. Participants assigned to the *personally-relevant* condition were asked to write about "a person you consider an enemy." Participants who could not think of an enemy *per se* were instructed to write about a person who actively wants to see them fail. Research has demonstrated that enemy relationships have a high degree of personal salience (Sinclair & Gitter, 2007), so this is a fitting manipulation of personal relevance.

Those assigned to the *positive-topic* condition were asked to describe a humorous scene from a movie or television program. Research indicates that experiencing humorous material improves positive affect and reduces anxiety (Szabo, Ainsworth, & Danks, 2005), so this is a suitable way to operationalize a positive topic. Last, participants assigned to the *family prime* experimental condition were instructed to describe their relationship to a close family member with whom they have a close relationship. Thus, participants in this condition were in the psychological presence of a close family member. Following completion of the essay, all participants completed the Brief Mood Introspection Survey (BMIS; Mayer & Gaschke, 1988). When participants had finished the BMIS, they signaled the experimenter to return.

The experimenter explained that participants would have five minutes to take a brief math test. The experimenter urged participants to work as quickly and accurately as possible and not to skip any problems. Most college students are capable of doing basic math, so differences in the number of problems solved were expected to be partly due to self-control. The math test consisted of three-digit by three-digit multiplication problems (e.g., "146 x 279"). The intellectual capacity to compute these math problems is expected of college students, although the problems do require sustained effortful self-control. At the end of the five-minute math test

participants were given a measure of subjectively experienced depletion (Twenge, Muraven, & Tice, 2004) to test as a possible mediator (e.g., Finkel, Campbell, Brunell, Dalton, Chartrand, & Scarbeck, 2006). Lastly, participants were probed for suspicion, debriefed, and thanked for their participation.

Results and Discussion

To ensure that the different directions for the video watching task differed in the amount of self-control resources required, participants rated how much effortful self-control was required to complete the task. Ratings were from one (not any effort) to four (great effort required). When participants were asked to control their attention, they rated the task as requiring more effort ($M=2.65$, $SD=.80$) than participants who were asked to watch the video normally, $M=2.33$, $SD=1.02$; $F(1,130)=4.13$, $p=.04$

To ensure that the priming manipulation engaged participants to think about the topics they were assigned to write about, we simply read their essays. Nearly all participants wrote about the topics they were assigned, with just six responding in a way that indicated that the directions were misunderstood or not heeded. These six participants were excluded from all analyses, as mentioned above. Thus, all essays included in this analysis were written on the assigned topic.

Eight participants (6%) failed to keep within the guidelines clearly set by the experimenter: four answered the multiplication problems by cheating with a calculator, three skipped difficult problems, and one participant summed the numbers rather than multiplying them. Given that these mistakes can be interpreted as self-control failure, these participants were counted as getting no problems correct. Nevertheless, the central findings of this study are unchanged with these participants excluded rather than assigned zeros. In general, there was considerable variability in the number of correct answers provided by participants, ranging from zero to nine.

Results of a two-way ANOVA indicated that the main effect for depletion was significant such that depleted participants answered fewer questions successfully ($M=2.49$, $SD=1.79$) than did non-depleted participants, $M=3.13$, $SD=2.83$; $F(1,133)=4.47$, $p=.04$, see figure 2. The main effect for priming condition, as operationalized by the essay topic, was also significant, $F(2, 133)=3.33$, $p=.04$. The interaction did not reach significance, $F(2,133)=2.13$, $p=.12$.

Planned contrasts revealed that overall, participants who wrote about a close relationship ($M=2.78$, $SD=3.23$) solved more math problems correctly than did participants who wrote about a humorous episode, $M=2.50$, $SD=2.65$; $F(1,133)=5.49$, $p=.02$. Likewise, those primed with thoughts of a family relationship solved more math problems than did participants who were primed with an enemy relationship, $M=2.57$, $SD=1.95$; $F(1,133)=3.91$, $p=.05$. These are particularly persuasive results, given that both control conditions could have conceivably improved self-control.

Among depleted participants, the number of multiplication problems answered correctly when primed with the family ($M=2.58$, $SD=1.79$) did not differ significantly relative to the combined average of the two control conditions ($M=2.43$, $SD=1.82$), $F<1$, *ns*. However, among non-depleted participants, priming the family did result in significantly greater self-control resources relative to the combined control conditions, $M=2.64$; $SD=2.71$ $F(1,133)=8.47$, $p=$

.004. While Study 1 did not indicate whether the thoughts of the family would affect state self-control primarily among depleted or control participants, the current study demonstrates that the effect is strongest among non-depleted participants.

Figure 2. Self-control resources as a function of prime and depletion condition.
Note. Bars correspond to mean number of math problems answered correctly. Higher scores indicate more responses that are correct.

To determine whether the observed pattern of responses is mainly due to mood, I conducted two two-way ANOVAs separately on both the mood valence and arousal dimensions of the BMIS. A two-way ANOVA on mood valence revealed that the main effect for depletion condition was marginally significant, $F(1,126)=3.29$, $p = .07$. Priming condition did not significantly change mood valence, $F<1$, *ns*. The interaction was not significant, $F<1$, *ns*. A second two-way ANOVA on arousal demonstrated that the main effect for depletion condition was not significant ($F<1$, *ns*), while there was a main effect for priming condition, $F(2,126) = 3.00$; $p = .05$. The interaction was not significant, $F(2,126) = 1.00$; $p = .37$.

Given that one central aim of the study was to pit close relationships against a positive topic (a humorous scene) and a negative topic (enemies), some variance in mood is not surprising. To determine better whether mood was primarily responsible for the observed differences in self-control resources, I controlled for both mood valence and arousal using analyses of covariance (ANCOVAs). When arousal is statistically controlled, the main effects for depletion condition and priming condition remain significant, $F_s \leq 3.80$, $p_s \leq .05$. Controlling for arousal does not change the interaction, which remains short of statistical significance $F(2,125)=1.61$; $p=.20$.

A second ANCOVA controlled for valence. Results indicated that the depletion manipulation was unaffected, $F(1,125) = 4.31$; $p=.04$. With valence controlled, the main effect

for priming remained marginally significant, $F(2,125) = 2.89$; $p = .06$. Again, the interaction was not significant, $F(2,125) = 1.76$, $p = .18$. Thus, although there was some limited covariation between experimental condition and mood, results do not suggest that mood is the driving force behind the observed differences in self-control resources. This is consistent with previous research (Schmeichel, Vohs, & Baumeister, 2003; Vohs & Schmeichel, 2003).

A search for trait mediators was unsuccessful. I conducted additional two-way ANCOVAs (depletion condition, priming condition) in which I controlled for the perseverance and ambition dimension of GRIT (Duckworth et al., in press), subjectively experienced depletion (Twenge et al., 2004), and trait self control (Tangney et al., 2004). While in some cases controlling for these traits rendered the main effect for depletion less than significant ($2.51 \leq F_s \leq 5.22$; $.02 \geq p_s \leq .12$), in all cases the main effect for priming condition remained significant, $F_s \geq 3.51$, $p_s < .05$. Results indicate that these traits do not mediate the relationship between experimental condition and self-control resources.

STUDY 3

Overview

It is also possible to interpret the results as demonstrating that the psychological presence of the family increases motivation, or possibly academic performance, as opposed to self-control. This is because in Study 1, self-control was measured by performance on an open-ended verbal task, while in Study 2, self-control was measured by performance on timed mathematical problems.

Study 3 was designed to address these alternative interpretations. If self-control is the exerting of control over one's impulses in the pursuit of a goal or standard (Baumeister & Vohs, 2004), then the psychological presence of family should primarily affect individuals who have the goal of exerting control over their responses. Specifically, self-control is needed to refrain from eating delicious but unhealthy foods especially for those who are trying to watch what they eat, but less so for people who do not restrict what they eat. Therefore, the psychological presence of family should cause a change in eating primarily among those who want to avoid eating unhealthy food relative to those who do not monitor what they eat. To provide further evidence that psychological family presence increases self-control (rather than motivation or academic achievement) I sought to demonstrate that inducing thoughts about one's family would result in the eating of fewer tempting treats—when controlling for the extent to which individuals desire to restrict their eating.

To ensure that our results are not method-specific, I again altered the way in which psychological family presence was manipulated. In Study 1, family presence was induced subliminally, while in Study 2 I had participants write about a relationship with a family member. In the current study, I induced family presence by having a photograph of participants' close family members in front of them during a self-control task (or out of view).

Participants and Procedure

Participants were 66 undergraduates (47 female, 19 male) who participated in exchange for course credit. Potential participants were informed of two requirements for participation. First, that they bring a photo of a close family member, and second, that they refrain from eating for two hours prior to participation. All participants included in the analyses met these criteria.

Participants arrived at the laboratory with the expectation that they would be participating in a study investigating facial features and taste preferences. After giving informed consent, the experimenter asked the participant to complete the Restraint Scale, which measures the extent to which one desires to restrain their eating (Herman & Polivy, 1975). Upon completion of this measure, the experimenter asked participants for the photo of their close family member in order to do a "genetic-facial relatedness scan". The purpose of taking possession of the photo was to manipulate psychological family presence later in the experiment.

The experimenter administered the state self-control manipulation in the same manner as Study 2; participants were asked to form impressions of a woman on a soundless video clip.

Those in the depletion condition were tasked with focusing their full attention on the woman while ignoring the words that would scroll across the bottom of the screen. Participants in the control condition were instructed to watch the video normally.

When participants had watched the video, the experimenter returned. For participants assigned to the family-prime condition, the experimenter brought in the participant's photo and said, "The photo scan is complete, but I may need your photo again. Just leave it here for now." The photo was placed face-up in the center of the desk. For participants in the no-prime condition, the photo was not mentioned until it was returned at the end of the experiment. Thus, participants in the family-prime condition had a visual cue of a family member immediately in front of them, while those in the no-prime condition did not.

Following the video and the family-prime cue (or not), participants were told that they would be asked about their taste preferences. The experimenter presented participants with a plate full of cookies and an evaluation form on which to record their appraisal of the cookies. Participants were given three soft, aromatic cookies, each of which was divided into four quarters (making a total of 12 quarters). Participants were instructed to rate the cookies on a variety of dimensions (how creamy, salty, moist, etc.) They were not given instructions about how many cookies they should eat, as they were simply instructed to "taste the cookies and fill out the evaluation". The experimenter left participants alone with the cookies for five minutes. The number of cookie quarters consumed during the five minutes constituted our measure of self-control.

At the end of five minutes, the experimenter returned. Participants completed a mood measure (BMIS; Mayer & Gaschke, 1988), manipulation checks, and a suspicion probe. Lastly, participants were debriefed.

Results and Discussion

When asked whether they had looked at the photo of their family member during the cookie tasting task, participants in the family-prime condition were more likely to report that they had relative to participants in the no-prime control, $\chi^2(1, N = 65) = 10.99, p = .001$. Participants also rated the extent to which the video task required self-control. Ratings were from one (not any effort) to four (great effort required). While participants in the state self-control depletion condition reported exerting more effort ($M = 2.76; SD = .94$) relative to those in the control condition ($M = 2.42, SD = .82$), this difference was not significant, $F(1,62) = 1.94, p = .17$.

Results of a two-way ANOVA showed that the main effect for state self-control depletion did not reach significance, although participants in the depletion condition consumed more cookies quarters ($M = 2.85; SD = 2.46$) than those in the control condition, $M = 2.61, SD = 2.17; F(1,63) < 1, ns$. The null finding here is perhaps due to the high variability in the number of cookies quarters consumed, which ranged from .5 to 10. The interaction did not approach significance, $F(1,63) < 1$.

The two-way ANOVA demonstrated a weak effect for family prime condition, such that participants in the psychological presence of family ate fewer cookies ($M = 2.62, SD = 2.17$) than those in the no-prime control, $M = 2.85, SD = 2.46; F(1,63) = 2.80, p = .1$. However, the consumption of unhealthy foods is a self-control failure only to the extent that one seeks to avoid unhealthy foods. I therefore controlled for restricted eating and conducted a two-way ANCOVA.

While this did not result in a significant main effect for self-control depletion $F(1, 60) < 1$; controlling for individual differences in restricted eating did result in a significant main effect for family prime $F(1,60) = 4.00$; $p = .048$. Consistent with our hypothesis, those primed with thoughts of the family ate fewer cookies, when controlling for restricted eating (see Figure 3).

Figure 3. Self-control resources as a function of prime and depletion condition.

Note. To keep the figures consistent, bars correspond to mean number of cookies *not eaten*. Higher scores indicate fewer cookies consumed (more self-control).

Planned contrasts demonstrated a pattern consistent with the results of Study 2 when controlling for eating restraint. Participants in the depletion condition were not affected by the family prime, $F(1,60) < 1$, *ns*. However, the self-control resources of those in the control condition varied in a marginally significant way according to whether they received the family prime or no prime. Those who received the family prime ate fewer cookies ($M = 1.85$; $SD = 1.39$) than those who received no prime, $M = 3.21$, $SD = 2.49$; $F(1,60) = 3.65$, $p = .06$.

To determine if the observed effects were due primarily to mood, we conducted separate two-way ANOVAs on both the arousal and valence dimensions of the BMIS. Depletion did not affect valence ($F < 1$, *ns*), nor did the family prime ($F < 1$, *ns*). Likewise, arousal was not affected by the depletion manipulation, $F(1,58) = 1.91$, $p = .17$, or the family prime ($F < 1$, *ns*). Given the lack of mood effects in Study 2 and Study 3, mood does not appear to be driving the results.

GENERAL DISCUSSION

Pictures of loved ones are one of the most common personal artifacts people keep in their workspaces. Why is this practice common, when one rarely finds pictures of family in places of leisure? Keeping a photo of a relationship partner is also uncommon in a car, unless the owner of the vehicle is employed as a taxi cab driver. Given the above findings, we suggest that one reason people place pictures of family at their place of work may be that work is an environment in which people need the additional self-control resources brought about by the comforting psychological presence of loved ones. That this is the motivation behind displaying pictures of loved ones at one's workplace is speculative on our part, but in three studies we demonstrated that additional self-control resources do result from thoughts of family.

Self-control is dependent upon the availability of self-control resources, and those resources naturally replenish over time. Sleep is a natural way in which the self regains strength. The current findings fit within a growing, but very limited line of research on factors that replenish state self-control resources. One study demonstrated that participants who practiced self-control for a two-week period by keeping a food diary or by improving their posture, later showed better performance on a physically demanding self-control task (Muraven, Baumeister, & Tice, 1999). Thus, one way to maintain high levels of self-control resources is by persistent self-control exercise.

Researchers have also established that providing participants with additional motivation to perform self-control tasks causes participants to regain resources (Muraven & Slessareva, 2003). Specifically, when participants were told that their efforts on a frustrating self-control task would benefit themselves, they performed better than participants who were not told there would be a benefit. The same pattern was found in follow-up study when participants were told that their performance would benefit someone else. Results of a third study likewise showed the same pattern, but self-control resources only affected participants' performance on a difficult task that requires self-control (drinking a large quantity of an unpleasant beverage), and not a difficult task that did not require self-control (drinking a large quantity of a pleasant beverage).

There is also evidence that the expectations one has about a task can influence self-control resources (Martijn, Tenbült, Merckelbach, Dreezens, & De Vries, 2002). When researchers told participants that the difficult self-control task they were assigned to complete would not cause impaired performance on a subsequent self-control task, participants' performance was not affected by the first task—although it did reduce self-control resources for participants in the control condition. Thus, one's expectations about how depleting a task can be may influence the amount of self control-resources available.

Recent research indicates that positive affect also replenishes self-control resources (Tice, Baumeister, Shmueli, & Muraven, in press). Across four studies, Tice and colleagues depleted participants' self-control resources using a variety of methods. These methods included a thought-suppression task in which participants were asked to not think about a white bear (Wegner et al., 1987) and an orthographical task in which participants first learned a habit and then had to break it (e.g., Muraven, Baumeister, & Tice, 1998). A third operationalization of self-control resources involved participants' refraining from eating freshly baked cookies and M&M candies (Baumeister et al., 1998). Thus, all participants had their self-control resources depleted using one of several methods. Subsequently, positive mood was induced in some participants by random assignment. Here too, multiple methods were used. In one study, some participants were

given a neatly wrapped bag of candy as a surprise gift (Isen, 1984), while participants in the other three studies were shown one of two different comedy routines.

Results demonstrated that positive mood counteracted the effect of depletion in participants, as indicated by several measures of self-control resources. Specifically, participants who were given a positive affect boost had improved state self-control as measured by the amount of a healthy but unpleasant tasting beverage consumed (Baumeister, DeWall, Ciarocco, & Twenge, 2005), the duration participants persisted at difficult puzzles (Baumeister et al., 1998), and the duration participants endured the strenuous physical demands of a handgrip exerciser. In sum, positive affect increases self-control resources.

The effect of positive affect on self-control is particularly meaningful given the results of Study 2, in which I demonstrated that writing about one's family improved self-control resources relative to both recalling a humorous scene and describing an enemy relationship. While Tice et al. (in press) found that experiencing comical media (and thereby inducing positive affect) was sufficient to restore self-control resources, in Study 2 I found that when participants thought about a close family relationship they demonstrated greater self-control resources than those who recalled a comical movie scene. I suggest two possible explanations for this. One, participants in the Tice et al. (in press) studies actually experienced humorous material, whereas participants in Study 2 just recalled a humorous TV or movie scene. Recalling something funny and actually experiencing something funny are different, and simply recalling something funny may not be sufficient to improve self-control (although simply recalling a close relationship is sufficient). Two, participants who recalled a humorous scene in Study 2 might actually have experienced a boost in self-control resources relative to a previous state, in which case the effect of psychological family presence on self-control may simply have a relatively stronger impact.

In sum, there are a growing number of studies demonstrating ways in which self-control resources can be replenished. These include persistent practice at self-control over several days (Muraven et al., 1999), personally benefiting from effective self-control (Muraven & Slessareva, 2003), having a positive outlook on the self-control task (Martijn et al., 2002), and experiencing positive affect (Tice et al., in press).

One can point to empirical studies of parenting as supportive of our hypothesis that thoughts of the family improve self-control. A ten-year longitudinal study assessed the impact that preparing to have a first child has on couples (Cowan & Cowan, 1999). In the nine months of pregnancy, approximately 10% of expectant fathers changed jobs, presumably to provide better for their growing families. These researchers observed, "...expectant fathers who were not changing directions seemed to be rededicating themselves to their work" (Cowan & Cowan, 1999, p. 67). Thus, the awareness of an impending birth caused men to exert themselves more than they had previously, consistent with our findings that psychological family presence increases self-control. This is not an isolated finding. The tendency for men to take employment more seriously when a child is expected or born (admittedly, sometimes accompanied by doing fewer domestic chores) has been shown in several studies using different methodologies (Grossman & Winicoff, 1980; Gutmann, 1975; Lewis, 1986).

Expectant women also demonstrated a tendency to work harder, but a preponderance of pregnant women focused their increased efforts in domestic matters (Cowan & Cowan, 1999). A nationally representative study of nearly 2000 adults found that married women with children spent more time doing housework than married women who did not have children (Nomaguchi & Milkie, 2003). Indeed, the amount of housework and childcare done by mothers expands drastically when a child is born (Cowan et al., 1985). Although finding that women concentrate

more on domestic chores when they are expecting a child (or when they have a child) is not surprising, it is consistent with our hypothesis that thoughts of family increase self-control. That men and women differ somewhat in the focus of their increased efforts is perhaps less revealing than the fact that both genders respond to a new close family relationship by working harder. Work, almost by definition, requires self-control to override the natural tendency to conserve energy.

Thus, the looming birth (or actual birth) of a child results in parents of both genders doing more work. This is consistent with our interpretation of the three studies presented here—that the psychological presence of family improves self-control—but it also suggests a potential reason why. Certainly, parents' increased capacity for effortful self-control benefits newborn children. Given the fragility of life at this young age, nature may have imbued human parents with a needed capacity to respond to a new family relationship with increased self-control. Thus, the improvement in self-control following thoughts of one's family may be an evolved, natural capacity. Of course, this explanation is plausible but purely speculative, so additional data is needed before these claims are substantiated.

The present findings are bolstered by research in developmental psychology. Following Baumrind's (1971) classifications of parenting styles, authoritative parents set consistent limits for their children in a warm and loving environment. In contrast, permissive parents rarely correct their children's misbehavior, preferring to let children manage themselves. Mauro and Harris (2000) found that authoritative parents have children with better self-control than the children of permissive parents, as measured by the children's capacity to refrain from touching a brightly wrapped gift when left alone with the instructions not to touch it. In other words, a parenting style associated with warmth, love, and direction corresponds with better self-control than does a laissez-faire approach to parenting—consistent with our findings that psychological family presence results in improved self-control. Similar results were found using different methods. Neitzel and Stright (2003) found that mothers who were observed interacting with their children in a loving and supportive fashion at a preliminary meeting had children who persisted longer at a task given several months later, relative to children whose mothers appeared less supportive and loving at the preliminary meeting. Again, the presence of a loving parental relationship predicts childhood self-control.

Research on the problem behaviors of adolescents is also consistent with our research question. Specifically, children and teens (age 9 to 17) that report having good relationships with their parents are less likely to develop substance abuse problems than adolescents who have poor relationships with their parents (Coombs, Paulson & Richardson, 1991). This too supports the notion that close relationships improve self-control, although directionality is not clear in correlational studies. Retrospective accounts of family relationships also suggest that positive close relationships yield better self-control resources. Self-control, as measured by questionnaire, is higher among people who report having been raised in a positive family environment compared to those who report having been raised in a dysfunctional family (Tangney et al., 2004).

Our conclusion that the psychological presence of family improves self-control is supported by several studies that show that expecting parents (or new parents) show an increased capacity for effort both in the home and in one's career, while children who have warm and healthy relationships with a parental figure likewise demonstrate better self-control. There are plausible alternative explanations for these findings—for instance, one could suggest that parents are more likely to have a warm and happy relationship with a child who is obedient and self-

controlled. However, in the context of the experimental evidence shown here, there is reason to believe that the psychological presence of family has a causal effect on self-control.

Although I have interpreted the effects of psychological family presence in terms of self-control, one cannot rule out interpreting our results as being nonconscious goal pursuit. Fitzsimons and Bargh (2003) found that the psychological presence of the family resulted in participants working harder on a verbal task, putting more effort into understanding others' behavior, and being more willing to help an experimenter relative to controls. They interpreted these results as demonstrating that the psychological presence of relationship partners promotes the pursuit of goals which are consistent with the goals of that relationship. In step with this interpretation, Fitzsimons and Bargh (2003) demonstrated that performance on a verbal task was improved when participants were primed with thoughts of their mothers—but this effect was stronger for participants who desired to make their mothers proud relative to those who did not have the goal of making their mother proud.

Because the pursuit of goals requires self-control, I do not consider the Fitzsimons and Bargh (2003) goal-pursuit explanation as irreconcilable with our self-control explanation. Indeed, people who have added self-control should be better able to pursue their goals than they otherwise would. Although speculative, it is plausible that relationship-specific goals striving is made possible by the increased self-control that results from thinking about that relationship.

The main limitation of the current work is that the state self-control manipulation failed to bring about significant differences in our self-control measures in Studies 1 and 3. Although the results of Study 2 and Study 3 suggest that the increase in self-control occurs mainly among non-depleted participants, the lack of strong state self-control depletion findings limits the conclusions one can draw about when priming the family will have its strongest effect.

Future research might also focus on the individuals who are most affected by the psychological presence of close relationships. It is plausible that those with suboptimal family life might not respond to the psychological presence of close relationships in the same way. Individuals from unhappy homes might experience a smaller boost in self-control resources when induced to think about positive close relationships. Likewise, the present research focused on how family relationships affect self-control; future research could include how the psychological presence of other close relationships, such as romantic relationships, affects self-control.

Whereas the current investigation focused on state self-control, future research could explore how close relationships affect trait self-control. As discussed, there is correlational research that suggests that having positive close relationships improves trait self-control over time (Cowan & Cowan, 1999). Although one cannot randomly assign long-term close relationships, rigorous longitudinal studies could assess the effect of close relationships on trait self-control in a way that sheds light on causality.

While self-control is clearly important for healthy close relationships, the current investigation suggests that family relationships and self-control have a bidirectional relationship in that the psychological presence of close family relationships affects self-control. Three studies, using different methods and measures, demonstrated that thoughts of family improve self-control. In Study 1, participants were subliminally primed with the names of family members, while in Study 2, participants were asked to consciously reflect on a close family relationship. In Study 3, I placed a photo of a close family member in front of participants. Despite the fact that the presence of family was brought about in these very different ways, it produced a similar increase in self-control—as defined by better performance on an open-ended

linguistic task in Study 1, a simple but tedious timed math test in Study 2, and the consumption of fewer cookies in Study 3. In sum, the present investigation provides evidence that the psychological presence of a family relationship increases state self-control.

APPENDIX A

Human Subjects Approval

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2763
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 9/13/2004

To:
Nathan DeWall
MC: 1270

Dept.: PSYCHOLOGY DEPARTMENT

From: John Tomkowiak, Chair

A handwritten signature in cursive script, reading "John Tomkowiak M.D.", written over the printed name.

Re: Use of Human Subjects in Research
Puzzles, language ability, and impression formation

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Exempt per 45 CFR § 46.101(b) 2 and has been approved by an accelerated review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If the project has not been completed by 9/9/2005 you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

Cc: Roy Baumeister
HSC No. 2004.555

APPENDIX B

Informed Consent Forms

Study 1

I freely and voluntarily and without element of force or coercion, consent to be a participant in the research project entitled “I have thoughts and feelings.” This research is being conducted by Tyler Stillman, a graduate student at Florida State University. I understand the purpose of this research project is to better understand the relationship between mathematics and linguistics.

I understand my participation is totally voluntary and I may stop participation at anytime. The total time commitment would be about 30 minutes for the entire project. I will be compensated by receiving 1/2 credit toward by General Psychology class. If I decide to stop participation, I will still be entitled to the 1/2 credit. I understand that my responses to the questions will be read by the experimenter alone. I also understand that my name will not appear on any of the results.

No individual responses will be reported. Only group findings will be reported. Consent forms will be stored in a location separate from the experimental materials and destroyed on or before February 10, 2011.

I understand that I must be at least 18 years of age in order to participate. I understand there is a possibility of a minimal level of risk involved if I agree to participate in this study. The research assistant will be available to talk with me about any emotional discomfort I any experience while participating. I am also able to stop my participation at any time I wish.

I understand there are benefits for participating in this research project. First, it will benefit my own knowledge of mathematics, word creation, self-control, and their interrelationships. Second, I will develop a better understanding of research methodology and will be providing researchers with valuable insight.

I understand that this consent may be withdrawn at any time without prejudice, penalty or loss of benefits to which I am otherwise entitled. I have been given the right to ask and have answered any inquiry concerning the study. Questions, if any, have been answered to my satisfaction.

I understand that I may contact Tyler Stillman, Florida State University, Department of Psychology 112 Psychology Bldg., 345 – 8295, or Dr. Roy Baumeister, 102A Psychology Bldg., 644-4200, for answers to questions about this research or my rights. Group results will be sent to me upon my request. If I have questions about my rights as a subject/participant in this research, or if I feel I have been placed at risk, I can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Office of the Vice President for Research, at (850) 644-8633

I have read and understand this consent form.

(Participant)

(Date)

Study 2

I freely and voluntarily and without element of force or coercion, consent to be a participant in the research project entitled “Writing and Watching.” This research is being conducted by Tyler Stillman, a graduate student at Florida State University. I understand the purpose of this research project is to better understand the relationship between close relationships and self-control.

I understand my participation is totally voluntary and I may stop participation at anytime. The total time commitment would be about 30 minutes for the entire project. I will be compensated by receiving 1/2 credit toward by General Psychology class. If I decide to stop participation, I will still be entitled to the 1/2 credit. I understand that my responses to the questions will be read by the experimenter alone. I also understand that my name will not appear on any of the results.

No individual responses will be reported. Only group findings will be reported. Consent forms will be stored in a location separate from the experimental materials and destroyed on or before February 10, 2011.

I understand that I must be at least 18 years of age in order to participate. I understand there is a possibility of a minimal level of risk involved if I agree to participate in this study. The research assistant will be available to talk with me about any emotional discomfort I any experience while participating. I am also able to stop my participation at any time I wish.

I understand there are benefits for participating in this research project. First, it will benefit my own knowledge of relationships, academic performance, and self-control. Second, I will develop a better understanding of research methodology and will be providing researchers with valuable insight.

I understand that this consent may be withdrawn at any time without prejudice, penalty or loss of benefits to which I am otherwise entitled. I have been given the right to ask and have answered any inquiry concerning the study. Questions, if any, have been answered to my satisfaction.

I understand that I may contact Tyler Stillman, Florida State University, Department of Psychology 112 Psychology Bldg., 345 – 8295, or Dr. Roy Baumeister, 102A Psychology Bldg., 644-4200, for answers to questions about this research or my rights. Group results will be sent to me upon my request. If I have questions about my rights as a subject/participant in this research, or if I feel I have been placed at risk, I can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Office of the Vice President for Research, at (850) 644-8633

I have read and understand this consent form.

(Participant)

(Date)

Study 3

I freely, voluntarily, and without element of force or coercion, consent to be a participant in the research project entitled “Taste Preferences and Personality.” This research is being conducted by Tyler F. Stillman, a graduate student at Florida State University. I understand that if I participate in this project I will be asked questions about my preferences and personality. I WILL ONLY PARTICIPATE IF I AM ABLE TO EAT NUTS, CHOCOLATE, DAIRY, SUGAR AND FLOUR. I WILL NOT PARTICIPATE IF I AM ALLERGIC TO NUTS, CHOCOLATE, DAIRY OR FLOUR, HAVE HIGH CHOLESTEROL, OR CANNOT EAT SUGAR. Allergic reactions are possible from any product and although uncommon, cannot be predicted. You should stop eating the food if any rashes, difficulty breathing or other adverse/allergic symptoms occur and seek medical advice. I understand that the total time commitment will be about 20 minutes, and I will be compensated by receiving the appropriate credit points for my time.

I understand that I must be 18 years of age to participate. I understand that my participation is totally voluntary and I may stop participation at anytime. If I decide to stop participation, I will still be entitled to the compensation of credit points. All my responses to the tasks will be coded by an anonymous subject number and will not be tied back to me personally. My name will not appear on any of the results. No individual responses will be reported in any publication. Only group findings will be reported. All data, identified only by subject code number, will be stored in a locked file cabinet behind the locked doors of the social psychology laboratory facility, and will be destroyed by September 1st, 2015. My participation in this project will remain confidential to the extent allowed by law.

I understand there is a possibility of a minimal level of risk involved if I agree to participate in this study. I might experience anxiety, frustration, or discomfort when completing the tasks. The research assistant will be available to talk with me about any discomfort I may experience while participating. I am also able to stop my participation at any time I wish.

I understand that this consent may be withdrawn at any time without prejudice, penalty, or loss of benefits to which I am otherwise entitled. I have been given the right to ask and have answered any inquiry concerning the study. Questions, if any, have been answered to my satisfaction.

I understand that I may contact Tyler F. Stillman, Florida State University, Department of Psychology, Psychology building room A303, (805) 345-8295, or Dr. Roy Baumeister, Florida State University, Department of Psychology, Psychology building room A315, (850) 644 – 4200, for answers to questions about this research or my rights. Group results will be sent to me upon my request. If I have questions about my rights as a subject/participant in this research, or if I feel I have been placed at risk, I can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Office of the Vice President for Research, at (850) 644-8633.

I have read and understand this consent form.

(Signature)

(Date)

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