

## The “Selfless” and Self-Regulation: The Role of Chronic Other-Orientation in Averting Self-Regulatory Depletion

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*Baumeister and colleagues (e.g., Baumeister, Heatherton, & Tice, 1994) have recently proposed a limited-strength model of self-regulation, whereby the effort of overtly controlling one’s behavior requires considerable energy, and may lead to rapid depletion of the resource. The current research investigated individual differences in social orientation (e.g., collectivist cultural background and interdependent beliefs; other-directed self-monitoring), hypothesizing that those high in social orientation would be more motivated to engage in self-regulation in everyday social interaction, and thus may, over time, build greater self-regulatory strength. As expected, whereas those low in these motives replicated prior findings of depletion after self-regulation, individuals higher in these motives failed to show evidence of depletion. It appears as if chronic socially motivated exertion of self-control may lead to stable individual differences in self-regulatory performance.*

Exerting self-control is often difficult. Whether it’s eating or drinking too much, spending instead of saving, or daydreaming instead of writing a paper, failures to regulate one’s own behavior are common. These failures often carry minor penalties such as a few extra pounds or a lower grade in a course, but sometimes lead to devastating consequences. For instance, failure at self-control has been linked to depression (e.g., Kaslow et al., 1988), criminal behavior (e.g., Arneklev, Cochran, & Gainey, 1998; Leblanc, Ouimet, & Tremblay, 1988), and higher rates of divorce for men (Kelly & Conley, 1987). Indeed, a recent review by Baumeister, Heatherton, and Tice (1994) catalogued failures at self-regulation that included child abuse, sexual abuse, drug abuse, and violent crimes. They concluded that self-regulatory failures represent a “spreading epidemic,” and go so far as to suggest that failures at self-regulation are *the* defining problem for modern U.S. society. It is therefore essential to understand the processes of self-regulation, and the parameters that determine its success.

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Self-regulation is generally considered to be any effort a person makes to alter his or her own responses. Although psychologists have increasingly recognized the prevalence of automatic determinants of our behavior (e.g., Bargh & Ferguson, 2001), some of our actions are likely altered through the exertion of active will. Self-regulation includes any of the behaviors, thoughts, feelings, or desires that a person intentionally puts into motion (Baumeister et al., 1994). Often recognized as the inhibition of natural impulses, self-regulation also involves behavioral activation. For instance, getting out of bed on a cold morning, persisting at a difficult task, or forcing oneself to be gregarious after an exhausting day are all examples of self-regulation that require both the inhibition of one set of behaviors (e.g., pulling the covers over one's head, quitting, snapping at loved ones), and their replacement with willfully chosen behaviors.

Unfortunately, our "chosen behaviors" do not always come to pass. Baumeister and his colleagues have recently conducted a line of research aimed at addressing the question "When will self-regulation fail?" According to Baumeister (1998, 2000), attempts at self-control may fail as a result of faulty appraisal processes, or as a result of "ego depletion." Ego-depletion is a term used to explain a state of mental fatigue that leads to a breakdown of self-regulation. Baumeister argues that ego-depletion occurs because people have a limited supply of self-regulatory resources, and that these resources are quickly depleted by any task requiring controlled, willful behavior. Exertion of self-control leads to ego-depletion, which results in poor performance on subsequent tasks requiring self-control. In a standard depletion experiment, participants are asked to perform a task (e.g., regulating emotional responses to an upsetting movie, persisting at a frustrating paper and pencil task) and then depletion is indicated by their poor performance on a second self-control task (e.g., Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven & Baumeister, 2000; Muraven, Tice, & Baumeister, 1998). A "real world" illustration of the exertion-depletion pattern is the binge that often follows a restrictive diet. After several days of controlling one's impulse to eat, a person's self-regulatory resource can become depleted, leaving the person vulnerable to failures at self-control. Overeating is often the ironic result (e.g., Vohs & Heatherton, 2000).

Although our limited self-regulatory resources appear to be easily depleted, there is some reason for optimism. Rather than depletion being inevitable, people who are highly motivated may be able to overcome these effects. For instance, Muraven (1998) showed that individuals who were well paid for their performance did not show signs of regulatory depletion in a situation where less-motivated participants did show these effects.

Although monetary compensation is certainly a driving force in many efforts to self-regulate, theorists have argued that the most basic reason that people self-regulate is in order to get along with others. According to Heatherton and Vohs (1998), self-control is ultimately socially induced, shaped through societal forces and driven by our fundamental need to be socially accepted (Baumeister & Leary, 1995). They argue that from an evolutionary standpoint, those individuals who were able to control their behavior to match group requirements would avoid being expelled from social groups and derive numerous benefits (e.g., shared resources and workload). Help from others would increase chances of survival and reproduction, perpetuating the need to belong and the accompanying self-regulatory skills. Certainly in modern times, knowing which behaviors are acceptable and having the ability to control ourselves to meet these standards helps us to fit in and get along with others. Thus, we have hypothesized that individuals who are more sensitive to society's demands

may be more motivated to self-regulate on a habitual basis. As a result, socially-oriented individuals should be less likely to show signs of regulatory depletion in many situations.

Beyond motivation, there is further reason for optimism regarding the human ability to self-regulate. Specifically, new research suggests that individuals who *practice* at self-control are able to improve their self-regulatory abilities (Muraven, Baumeister, & Tice, 1999).<sup>1</sup> In one study, participants who spent two weeks practicing a self-control exercise showed significant improvement in their general self-regulatory performance. Participants who had practiced self-control appeared to retain their self-regulatory stamina and avoided showing signs of self-regulatory depletion.<sup>2</sup> Muraven et al. (1999) concluded that a series of exercises in building self-control might make people less vulnerable to the general tendency for self-control to deteriorate quickly in response to immediate demands.

In combination, the benefits of motivation and practice may make socially oriented individuals particularly competent at self-regulation. In short, those who are most sensitive to society's demands should be motivated to expend self-regulatory effort in a range of situations. Over time, these efforts may serve as chronic "practice" at self-control. Reflecting on the gains made by short-term practice, one would imagine that chronic practice at self-control might improve self-regulatory ability considerably. Over time, different amounts of practice at self-control may lead to stable individual differences in self-regulatory ability. Ultimately, this greater self-regulatory strength may extend well beyond situations related to social motivation, allowing other-oriented individuals to perform any type of self-regulatory task with greater ease.

If an other-directed social orientation motivates consistent self-regulatory effort, one might expect both cross-cultural differences and individual differences in socially motivated self-regulation. For example, members of individualistic and collectivist cultures have been described as distinct in both the magnitude of societal pressures and in dimensions of self-control. Thus, our first exploration concerned cultural value differences that may lead to differences in self-regulatory stamina, and our second study more directly examined the influence of individual differences in other-focused social orientation.

Our examination of cultural value differences began with a comparison of individualistic and collectivist values. A basic premise of "individualism" is, not surprisingly, the importance of the individual. In the West, there is talk of "knowing oneself," "finding oneself," and being "true" to oneself. In contrast, members of collectivist cultures emphasize the interdependence and connectedness of all people (Gardner, Gabriel, & Lee, 1999; Markus & Kitayama, 1991; Triandis, 1989). In such cultures, children are taught of their place in relation to society and of the obligations they have to others (e.g., Wang & Leichtman, 2000). Thus, whereas an individualistic orientation may emphasize a person's need to "be himself" and to do what comes naturally, a collectivist orientation emphasizes the opposite, encouraging meeting the needs and expectations of others over the expression of one's individuality.

It is easy to imagine situations that call for self-control in both cultural worldviews. For example, the increasing self-reliance so strongly encouraged in individualist cultures may result in situations that demand great acts of will (e.g., separating oneself from one's family when moving away to college, telling a well-liked employer that one is resigning to start one's own business). However, theorists have argued that self-regulation is more central to collectivist cultures. In fact, self-

control is considered fundamental to the development of the self in collectivist cultures (Sinha & Tripathi, 1996). Theorists have described the focus on self-control in East Asian cultures to be a remnant of the “Confucian ethic” (e.g., Gardner, & Seeley, 2001; Kahn, 1979; Kahn & Pepper, 1979), and consider self-control to be one of the most basic dispositional factors defining East Asian cultures (Yang & Cheng, 1987, as cited in Yu & Yang, 1996).<sup>3</sup> As an example of how this might play out in everyday interactions, Markus and Kitayama (1991) note the difference between individualistic and collectivist cultures in the expression of anger. In Japan, expressing anger in public would be frowned upon, whereas in the United States, it is believed that the expression of anger may be necessary to assert a person’s rights and needs. Although feigning a pleasant response may be socially advantageous in a collectivist culture, in a Western culture, it would often be deemed insincere (Baumeister, 1998). Indeed, the presence of much stronger “display rules” governing the expression of emotion in collectivist cultures has long been recognized in the emotions literature (see Ekman, 1999, for review).

Additional research supports the notion that people who endorse collectivist beliefs alter their desires or behavior in order to fit in with others. For example, Ybarra and Trafimow (1998) demonstrated that the bases of behavioral intentions changed as a function of whether people were defining the self in a more individualist or collectivistic manner. In their studies, participants primed with an individualistic self-view intended to behave in accordance with their personal attitudes more than the perceived norms of society, whereas those primed with a collectivist self-view placed more weight on subjective norms than on their own attitudes in deciding how to behave. Similarly, a meta-analytic review by Bond and Smith (1996) reported that members of collectivist cultures tend to show higher levels of conformity to others’ behaviors than members of individualistic cultures. Indeed, of all the potential moderators of conformity investigated in their meta-analysis, the cultural difference was the largest.

For individualists, a lesser feeling of obligation to others and a wider range of acceptable behaviors should translate into less motivation to control oneself to fit in, as compared to collectivist counterparts. Less pressure to control oneself to fit in should, in turn, translate into less practice at self-control. Motivation and practice at self-control have both been shown to improve self-regulatory ability, and collectivist individuals are presumably more chronically motivated. Thus, collectivist individuals should be more practiced than individualistic ones, and it can be reasoned that they will be better at self-regulation than those who live in a more independent culture.

## **Overview of the Current Research**

In our first study, we will examine the relationship between collectivist orientation and self-control. In comparison to U.S. students, we expect that individuals socialized to endorse collectivist beliefs will show less self-regulatory depletion. Less indication of self-regulatory depletion by our collectivist participants might result if chronic motivation to please others and repeated practice at self-control work to strengthen the self-regulatory “muscle.” To the extent that individuals socialized in collectivist cultures (or who espouse more collectivist beliefs) generally engage in more frequent self-regulation, they might build larger self-regulatory resources.

Study Two extends this notion by examining the role of Other-directed self-monitoring (Snyder, 1974) in regulatory depletion. If Heatherton and Vohs (1998) are correct in asserting that self-regulation may arise from social pressure,

individuals who are more sensitive to such pressure, even in an individualistic culture, might be better at self-regulation. In our effort to determine whether socially motivated efforts at self-control will result in greater self-regulatory stamina, we expected the component of self-monitoring termed “other directedness” to be most relevant (Briggs, Cheek, & Buss, 1980). This subscale measures people’s sensitivity to the impression they are making on those around them, and the frequency with which they exert self-control in the management of that impression. We expected that this enhanced motivation to please others might lead participants to exert greater self-regulatory effort in the face of self-regulatory depletion. Moreover, individuals who regularly adapt their behavior to suit the social environment may be more “practiced” at self-control, and thus, less easily depleted.

### **Study One**

The purpose of Study One was to explore whether collective orientation moderated self-regulatory stamina. To this end, the self-regulatory performance of Asian nationals and American citizens were compared in conditions that were either ego-depleting as a result of a prior self-control task, or not. In addition to examining cultural differences, we also measured interdependent orientation (Singelis, 1994). In both cases, we expected that individuals socialized to maintain more collectivist values would show less ego-depletion. We based this expectation on the increased social sensitivity that may spur a heightened motivation to self-regulate as well as the practice at self-regulation that is inherent in a collectivist orientation.

#### *Method*

##### ***Participants***

One hundred twelve graduate and undergraduate students (61 men, 51 women) were recruited on a university campus and each paid \$10 for participating. Thirty-nine foreign-born Asian students were recruited through website postings at Asian student organizations. Seventy-three native-born U.S. students were contacted from a list of paid participants and campus advertisements.

##### ***Design and Procedures***

When participants arrived at the experimental session, they were asked to fill out a consent form and to take a seat in one of the room’s small chambers. Next, each participant filled out a measure designed to tap cultural differences in individualist and collectivist orientations—the Singelis Self-Construal Scale (Singelis, 1994). This scale asks for an endorsement of items designed to measure traditional cultural differences in self-construal (e.g., “I have respect for the authority figures with whom I interact” and “It is important for me to maintain harmony within my group”) on a 7-point scale, where higher numbers indicate greater endorsement. In utilizing this measure, we hoped to get a sense of endorsement for traditional collectivist orientation; for example, the sense that individuals must behave in accordance with their place in society, or that it is important to make personal sacrifices for the good of the group. Strong endorsement of this orientation was expected to predict greater strength of self-control.

Participants were then randomly assigned to an experimental and a control condition. To manipulate self-regulatory exertion, participants in the experimental condition completed a thought suppression task, similar to the procedure employed

by Muraven et al. (1998). Experimental participants were first asked to imagine a white bear, and then to suppress any thoughts of this bear. Control participants were instructed that they could think about anything they wanted, including, but not limited to a white bear. Both groups of participants were asked to fulfill this request while speaking into a tape recorder for five minutes; they were instructed that they should say anything that came to mind and that their recording would be anonymous. The only difference between the groups was the request for thought suppression in the experimental condition, a task that has been shown to require a good deal of self-control (e.g., Wegner, Schneider, Carter, & White 1987).

Participants were seated in private cubicles in front of tape recorders and asked to knock on the desk in front of them each time they thought of a white bear during the five-minute session. When it was clear that the participant understood his or her instructions, the experimenter closed the door and began timing the participant with a stopwatch.

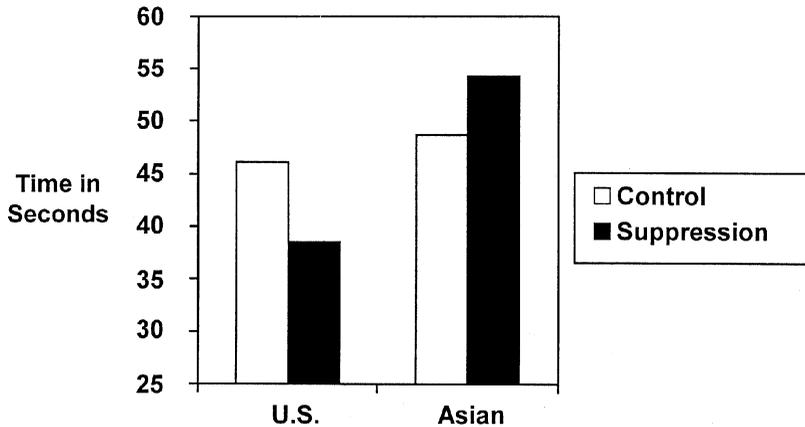
When participants had recorded their thoughts for five minutes, the experimenter knocked on the door and re-entered the cubicle. At this time, the experimenter asked the participant how many times he or she had knocked on the desk and then gave a demonstration of how to squeeze a handgrip exerciser. This tool is designed to strengthen the muscles of the hand and quickly becomes painful when squeezed continuously; therefore it requires self-regulatory strength to persist at the task (Muraven et al., 1998). To complete the task, the experimenter placed a piece of paper in the handgrip before participants had closed it completely, and students were asked to squeeze the grip for as long as they could. The experimenter began a stopwatch as participants closed the grip, and stopped timing when the paper fell out. To explain this task, participants were told that the experimenter was looking for a baseline measure of grip strength for a future experiment.<sup>4</sup>

Participants were then debriefed and probed for suspicion. None of the participants speculated that the questionnaires, tape recording, and handgrip tests were related, nor that the latter two tasks were tapping self-regulatory processes.

### *Results and Discussion*

To investigate whether culture played a role in regulatory performance, a 2 (Condition: control, suppression)  $\times$  2 (Citizenship: Asian, U.S.)  $\times$  2 (Sex of Participant: male, female) ANOVA was performed on the main dependent variable of time spent squeezing the handgrip. There was a main effect of Sex; men on average squeezed the grip for 65.28 seconds and women for 28.50 seconds,  $F(1, 111) = 53.67$ ,  $p < .05$ .

More importantly, an examination of the influence of Citizenship upon regulatory depletion was supportive of our hypothesis that Asian participants would be less vulnerable to regulatory exhaustion. Although the omnibus interaction test did not reach significance,  $F(1, 112) = 1.734$ ,  $p = .19$ , a series of one-tailed planned comparisons provided support for the hypotheses. As expected, Asian ( $M = 48.69$  s) and U.S. ( $M = 46.08$  s) students held the handgrip for a similar number of seconds in the control condition,  $F(1, 52) < 1$ . When the handgrip task was performed after suppressing thoughts of a white bear, however, Asians ( $M = 54.3$  s) performed significantly better than U.S. students ( $M = 39.48$  s),  $F(1, 58) = 5.64$ ,  $p < .05$ . Additionally, replicating the pattern found by Baumeister and colleagues (e.g., Baumeister, Bratslavsky, Muraven & Tice, 1998), the U.S. students performed marginally worse in the suppression than in the control condition,  $F(1, 72) = 1.74$ ,  $p = .08$ . However, as hypothesized, the Asian students who were expected to have



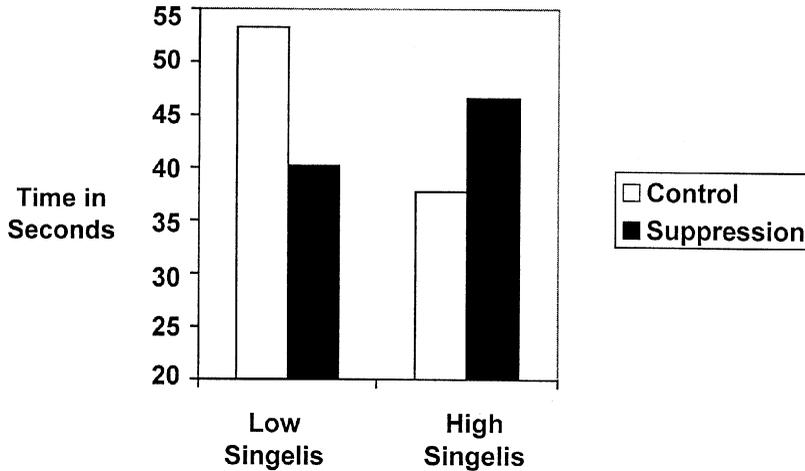
**FIGURE 1** Mean handgrip time in seconds as a function of Citizenship and Condition.

enhanced motivation to please others and a greater history of practice at self-control, did not differ in the two conditions ( $F < 1$ ). (See Figure 1.)

Based on the great variability in this data resulting from differences in hand strength, we would have preferred to increase our power by utilizing more Asian students. Unfortunately, we were limited by the number of Asian students available on campus. Thus, we chose to explore differences in interdependent orientation (Singelis, 1994), as a potential moderator of self-regulatory performance.

Interdependent orientation is known to vary within as well as across cultures (e.g., Gardner et al., 1999; Singelis, 1994; Triandis, 1996; Watkins et al., 1998). Indeed, examination of individual differences in interdependence has yielded differences similar to, or even stronger than those seen in cross-cultural comparisons (e.g., Lee, Aaker, & Gardner, 2000; Singelis, Bond, Sharkey, Lai, & Siu, 1999). Because we believe it is the emphasis on social concerns rather than culture per se that leads to greater self-regulatory resources, we anticipated that a participant's endorsement of interdependent values would further predict self-regulatory patterns.

To test this prediction, we performed at 2 (Citizenship: Asian, U.S.)  $\times$  2 (Condition: control, suppression)  $\times$  2 (Level of Interdependence: high, low)  $\times$  2 (Sex: male, female) between subjects ANOVA on the amount of time participants squeezed the handgrip. To determine "high" versus "low" interdependent values, we divided participants at the median score of 4.08 on a 7-point scale. Aside from the main effect of Sex, the only significant result of this test was an interaction between Condition and Level of Interdependence,  $F(1, 111) = 5.63, p < .05$ . A series of planned comparisons revealed that participants who were low in interdependence performed significantly worse in the suppression condition ( $M = 40.2$ ) than they did in the control condition ( $M = 53.3$ ),  $F(1, 55) = 4, p < .05$ . In contrast, participants high in collectivist orientation repeated the pattern suggested by the comparison of Asian and U.S. students, showing no significant difference in the control and suppression conditions. A final interesting result is that in the control condition, students low in collectivist orientation actually performed better than those high in collective orientation ( $M = 37.7$ ),  $F(1, 52) = 5.7, p < .05$ . (See Figure 2.) This may argue against the notion that motivation to please others is sufficient to explain our differences in self-regulatory performance. If motivation was solely responsible, we



**FIGURE 2** Mean handgrip time in seconds as a function of Collectivist Beliefs and Condition.

would expect those more other-directed participants to perform better than less motivated participants in both conditions.

Together, the results of Study One imply that both cultural background and individual differences in interdependent orientation play key moderating roles in self-regulation. We replicated the findings of Muraven et al. (1998), showing a significant depletion of regulatory performance after a prior self-regulation task, but importantly, this decrease was shown to be limited to individuals born and raised in an individualistic culture and to those who held independent values.

We hypothesized that cultural differences in self-regulatory resources would emerge from differential sensitivity and concern with social pressure. If belonging needs encourage self-regulation (e.g., Heatherton & Vohs, 1998), then those cultural ideals that place greater emphasis upon collective needs over individual desires should provide for chronic motivation and frequent practice at self-regulation. Both the findings of cultural differences, and the findings of interdependent values moderating self-regulatory depletion appear to provide evidence that this is the case. However, to further investigate this thesis we conducted a second study in which only members of an individualistic culture were examined, and a different measure of social orientation was used. In this way we hoped to provide a conceptual replication and extension of Study One, showing that it is social orientation and not culture per se driving the differences in regulatory depletion.

## Study Two

Based on the differences in self-regulatory performance among U.S. students in our first sample, we reasoned that other measures of social orientation should produce the same pattern of results. To measure the socially oriented exertion of self-control in Study Two, we chose Snyder's (1974) Self-Monitoring Scale. Many items on the Self-Monitoring Scale *directly* measure people's motivation to control their own behavior in social settings. These items describe people who pay attention to the environment so that they may control their behavior to get along with others and to

behave in a socially appropriate fashion (e.g., “When I am uncertain how to act in social situations, I look to the behavior of others for cues,” and “In order to get along and be liked, I tend to be what people expect me to be rather than anything else”). This set of 11 related items clustered as one of three subscales of the Self-Monitoring Scale outlined by Briggs et al. (1980). Briggs and colleagues termed this subscale “Other-directedness” and it appears to closely fit our theoretical interest, as it contains questions related both to motivation to self-control, and to chronic self-regulatory behavior. It thus addressed our interest in self-regulatory “practice” (e.g., “Even if I am not enjoying myself, I often pretend to be having a good time”). The remaining two components of the self-monitoring scale measure Acting (e.g., “I would probably make a good actor”), and Extraversion (e.g., “In a group of people I am rarely the center of attention”), neither of which addressed our theoretical interest in socially motivated attempts at self-control. Because only the items on the Other-directedness subscale address the social nature of self-regulation, as well as the frequency with which self-regulatory attempts are made, we anticipated that only this measure would be related to self-regulation.

Our hypothesis was again derived from the notion that self-regulation is driven by social concerns (Heatherton & Vohs, 1998). In this study, we expected that individuals with heightened social awareness and a belief that they could improve their social outcomes by exerting self-control would show better performance. Likewise, to the extent that participants reported above-average motivation to adapt their behavior to please others, we expected less sign of self-regulatory depletion. As in Study One, being other-directed and channeling that focus to self-regulatory efforts was expected to result in greater self-regulatory stamina.

### *Method*

#### ***Participants***

One hundred fifty-one undergraduates (67 men, 84 women) from Northwestern University participated in exchange for partial course credit; all were U.S. born. Students participated individually and in groups of two or three, but completed the task in separate experimental chambers.

#### ***Design and Procedure***

The design and procedure of Study Two were nearly identical to those of Study One. The major difference in Study Two was the addition of the Self-Monitoring Scale, and the examination of only North American students. In addition to the procedure of Study One, participants were asked to fill out the 25-item Self-Monitoring Scale (Snyder, 1974).

As previously discussed, we anticipated that questions on the Self-Monitoring Scale related to the purposeful control and self-regulation of one’s own behavior would tap our motivation and practice constructs. After collecting the final questionnaire, participants were debriefed and probed for suspicion. None of the participants speculated that the questionnaires, tape recording, and handgrip tests were related, nor that the latter two tasks were tapping self-regulatory processes.

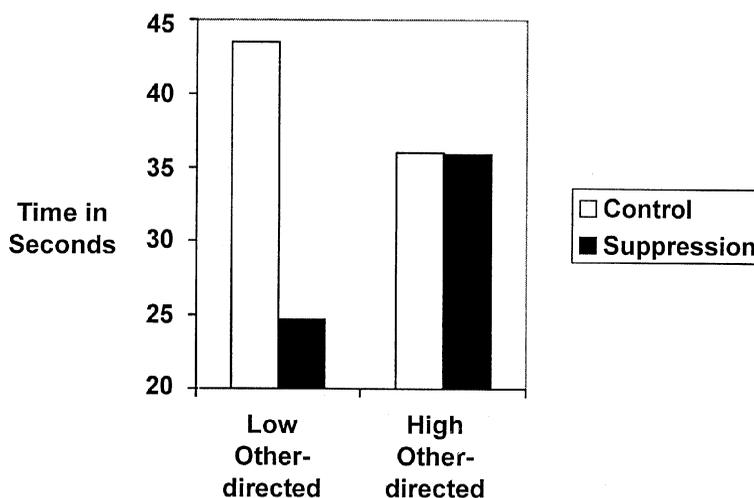
### *Results and Discussion*

We first examined the Self-Monitoring Scale. Reliability analyses indicate that the alpha coefficients for the three subscales were similar to those found by Briggs et al.

(1980). The Acting subscale had an alpha of .64 ( $N = 153$ ), the Extraversion subscale had an alpha of .64 ( $N = 152$ ), and the Other-directedness subscale had an alpha of .61 ( $N = 150$ ). Moreover, although Acting and Extraversion were highly correlated at  $r(153) = .56$ ,  $p < .001$ , Other-directedness was correlated to a lesser extent with the other two subscales, with Acting at  $r(153) = .18$ ,  $p < .05$  and with Extraversion at  $r(153) = .16$ ,  $p < .1$ , supporting the hypothesis that Other-directedness may be a distinct component of self-monitoring.

Turning to the central hypotheses, we divided participants at the median score of Other-directedness (5 on an 11-point scale) into “high” and “low” groups. A 2 (Condition: control, suppress)  $\times$  2 (Other-directed Self-Monitoring: high, low)  $\times$  2 (Sex: male, female) ANOVA was performed on the main dependent variable of time spent squeezing the handgrip. This analysis replicated the main effect for Sex; men squeezed the grip longer ( $M = 47.7$  seconds) than women ( $M = 22.6$  seconds),  $F(1, 150) = 28.8$ ,  $p < .05$ . Once again, sex did not interact with any of the other variables.

More importantly, results of the Condition  $\times$  Other-directedness test indicate a significant interaction  $F(1, 150) = 4.1$ ,  $p < .05$ . We replicated the self-regulatory depletion effect of Muraven et al. (1998) for individuals who were not socially motivated to self-regulate on a consistent basis, as well as replicated the patterns of moderation we found for both culture and interdependent orientation in Study One. One-tailed planned comparisons revealed that low Other-directed individuals held the grip for less time in the suppression condition,  $M = 24.7$  than in the control condition,  $M = 43.5$ ,  $F(1, 53) = 8.7$ ,  $p < .05$ . In contrast, the high Other-directed individuals held the grip for the same amount of time in the control  $M = 36$  and suppression conditions  $M = 35.9$ ,  $F < 1$ . Our results showed that in the suppression condition, high Other-directed participants maintained the grip for longer than low Other-directed participants  $F(1, 78) = 2.6$ ,  $p = .05$ . Finally, the better performance of low self-monitors in the control condition was marginally significant,  $F(1, 71) = 1.6$ ,  $p = .1$ . (See Figure 3.) This pattern again implies that motivational differences



**FIGURE 3** Mean handgrip time in seconds as a function of Other-directed self-monitoring and Condition.

may not be sufficient to explain our results. If motivation alone accounted for our findings, we would expect more Other-directed individuals to outperform their less motivated counterparts in both conditions.

Finally, recall that Other-directedness was found to be only modestly correlated with Extraversion and Acting. As Heatherton and Vohs's (1998) model would predict, neither of the latter two subscales were related to the amount of time participants could squeeze the handgrip ( $F_s < 1$ ). These null effects suggest that it is not sociality alone that drives people to self-regulate. Only the Other-directedness subscale addresses the link between social motivation and self-regulation, and as expected, it was the only moderator.

The findings from Study Two demonstrate that a chronic self-regulatory orientation can improve a person's self-regulatory performance. Participants high in Other-directed self-monitoring are students who reported paying close attention to the social cues around them in an effort to behave in an appropriate fashion. Participants who acknowledged regulating their behavior in this manner showed different patterns of self-control than those who did not. These participants were able to complete two self-regulatory tasks without showing diminished ability to self-control. On the other hand, participants who were low in Other-directedness showed a sizable impairment when they were asked to exert self-control on two consecutive tasks. These participants could squeeze the handgrip adequately in the control condition, but the suppression task seemed to deplete their self-regulatory resource.

## General Discussion

Studies One and Two provide further evidence for a strength model of self-regulation, and lend support to the idea that chronic self-regulatory effort may protect an individual from regulatory depletion. In line with the model, participants low in other-directed social orientation, whether assessed using cultural origin, interdependent values, or other-directed self-monitoring, showed a general pattern of impaired performance after an initial act of self-regulation. Only their highly socially orientated counterparts did not show regulatory impairment after an initial self-control task.

These findings also provide support for the notion that increased belongingness concerns are a driving force in self-regulation. Importantly, several measures of sociality *not* theoretically linked to practice at social self-regulation (e.g., extraversion, acting ability) were also not linked to superior self-regulatory ability. Instead, the factors that were shown to moderate regulatory depletion were centered on concerns with regulating oneself to suit the social environment. Whether this impetus was driven by cultural beliefs concerning the importance of the collective over the individual (Study One) or by individual differences in changing one's own behavior to be socially appropriate (Study Two), chronic efforts at self-control led to the same results. Thus, our data provide a critical link between the theory that a fundamental need to belong spurs us to self-regulate (Baumeister & Leary, 1995; Heatherton & Vohs, 1998), and research demonstrating the numerous benefits derived from the development of effective self-control (e.g., Mischel, Shoda, & Peake 1988).

A chronic social orientation is the motivation to behave in accordance with other's expectations. We believe that in the short term this motivation may lead people to self-regulate, and that over time, it amounts to chronic practice at self-control. However, because we did not explicitly ask participants to report the frequency of their self-regulatory efforts, it is possible that our findings were not the

result of chronic practice at self-control, but only the motivation of our socially oriented participants to please the experimenter. Of course, because of the quasi-experimental nature of all studies of individual differences, a better test of the motivation hypothesis might be to prime social orientation. Future research that employs a task completely absent of social concerns should also help clarify this issue. In the meantime, our data suggests that these findings were not driven solely by situational motivation. If motivation to please the experimenter drove our effects, we would expect socially oriented participants to try harder and perform better across conditions. However, in none of our analyses did more socially oriented participants outperform less socially oriented participants in the control condition. In fact, socially oriented participants sometimes showed *poorer* handgrip performance in the control condition.

There are several potential explanations for socially oriented participants performance in the control condition. First, it is possible that more other-directed individuals may have come into the lab already depleted, given that they were hypothesized to be engaging in greater self-regulation in daily life. Additionally, it is possible that our socially oriented participants may have chosen to conserve their strength. Muraven (1998) demonstrated that people tend to conserve their self-regulatory resources when future tasks await them, in order to avoid complete depletion. If our socially oriented participants were accustomed to chronic self-regulation, they would have anticipated the need for conservation of their resources. It is an interesting possibility that chronic self-regulators become adept at exerting a constant, replenishable amount of effort.

This research also poses questions regarding the overall capacity and boundary conditions of the regulatory advantage shown by Other-directed individuals. For instance, at what point (if at all) will these individuals become depleted? Must they exert the same amount of effort to obtain the same results? Finally, will these individuals only excel at certain tasks? A potential weakness of this work was that it only examined the depleting effects of suppression, a task of behavioral inhibition. It is possible that Asians, with their emphasis on conformity, restraint, and fitting in, would excel at this sort of self-control task, but lose their advantage in a situation that required behavioral activation (e.g., exaggerating one's emotional response). Study Two may have partially addressed this issue by showing similar effects for self-monitoring individuals who were experienced at both inhibiting and activating behaviors in order to fit in (e.g., saying what someone else wanted to hear). Because Study Two also used the inhibition task to produce regulatory fatigue, however, it limits the generalizability of these effects to other situations of behavioral inhibition. Though most problems of self-control are problems of faulty inhibitions, future research should explore a more diverse array of self-regulatory scenarios.

In conclusion, the limited strength model of self-regulation may at first appear discouraging in its implication that for many of us, any intentional act of will may be sufficient to deplete self-regulatory resources. As self-regulation demands cognitive resources to override, alter, or inhibit responses dictated by habit, learning, situation, or physiology, its appetite may ironically bar us from the outcomes we seek. The encouraging news provided in this report is that repeated exercise of self-control may build self-regulatory ability over time, and moreover, that social orientation may encourage this exercise. Who among us has not, at some point in time, begun a self-improvement project (e.g., starting a diet, quitting smoking, becoming more organized) in the hopes of impressing a new love interest, colleagues, or group of friends? To the extent that the social environment can provide continued motivation through

the first few bouts of the needed behaviors, the repeated practice of self-regulation should ultimately bolster the likelihood of success. When we practice, we use our cognitive resources more efficiently so that eventually, our overt regulation becomes more efficient. Likewise, over time, some of the goals that initially demanded self-regulation might become automatic, diminishing the effort needed to sustain them. Furthermore, individuals who regularly practice self-control may learn tactics that make self-regulation easier. With time, it is even possible that a person's efficacy, optimism, and perceived control will improve as well, furthering the likelihood of effective self-regulation (e.g., Carver & Scheier, 1981). Finally, the social impetus for self-regulation may help explain why self-regulation that takes place as part of a social enterprise (e.g., Alcoholic Anonymous meetings, fitness partners) is often more successful than that attempted alone (McAuley, Blissmer, Katula, & Duncan, 2000; Smith, 1993). All told, this is an encouraging story for those interested in self-control.

## Notes

1. Although evidence suggests that self-regulatory ability may still be fairly constant over a person's life course (e.g., Arneklev et al., 1998; Arneklev, Grasmick, & Bursik, 1999; Mischel et al., 1988).
2. Maintaining performance or "stamina" is the opposite of self-regulatory depletion (Baumeister et al., 1994).
3. One might also argue that the Taoist/Buddist "wu wei," which involves "non-action" and "letting things go their own way" is another example of a cultural emphasis on changing oneself to suit the situation. This belief system asserts that rather than making difficult decisions about how to behave, one should instead "listen" and be "sensitive to circumstances." The circumstances then dictate how a person should behave (Tao of Pooh, pp. 75, 78, 85, as cited in Life Theory, n.d.).
4. In contrast to Muraven et al. (1999), participants only performed the handgrip task once. Although this between-subjects design had less power, participant pool restrictions and ease of administration favored this design.

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