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On thwarted goals and displaced aggression: A compensatory competence model



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ABSTRACT

Thwarted goals and motivational obstacles are antecedents of aggression, but it is not entirely clear what motivates the aggressive response or why it is often displaced onto unrelated targets. The present work applies Goal Systems Theory (Kruglanski et al., 2002) to consider how displaced aggression can sometimes operate like any other means to an end. Specifically, in five studies, we find that thwarted goals motivate displaced aggression to compensate for a threatened sense of competence. First, when an achievement goal is experimentally thwarted, it both threatens self-efficacy beliefs and increases displaced aggression (Studies 1–2). Second, when goal-thwarted individuals have the means to engage in displaced aggression, it reestablishes self-efficacy in the thwarted goal domain (Study 3). However, we find that the superordinate goal being served is competence and not to be aggressive per se: In Study 4, goal thwarted individuals choose to help someone rather than remain idle, even if idleness is the more aggressive alternative. In Study 5, displaced aggression is attenuated among individuals who expect a second performance opportunity in the thwarted goal domain. Together, the results suggest goal-thwarted individuals mainly resort to displaced aggression when they lack other means to interact effectively with the environment.

1. Introduction

Novelist Isaac Asimov once described aggression and violence as “... the last refuge of the incompetent” (Asimov, 1951, p. 58). The sentiment conveys a lay belief that bullies are just compensating for their own inadequacies—in school, in their jobs, or at home. The present work considers whether everyday acts of aggression can indeed be compensatory and serve a person's psychological need for competence.

Thwarted goals and motivational obstacles are antecedents of aggression and hostility (Berkowitz, 1989; Dollard, Doob, Miller, Mowrer, & Sears, 1939). However, it is not yet clear what specifically motivates the aggressive response or why it is often displaced onto unrelated targets. In this research, we consider whether displaced aggression can sometimes be a means to compensate for a threatened sense of competence. *Competence* refers to a belief that one can interact effectively with the environment, and it has been argued to be a fundamental psychological need (Deci & Ryan, 2000; Sheldon, Elliot, Kim, & Kasser, 2001). In a pivotal paper, White (1959) described the need for competence in terms of *effectance*—a driving force in human behavior that motivates people to experience efficacy in their actions and to pursue achievement goals. Bandura (1997) described it in terms

of self-efficacy and wanting to exercise agency upon the world. What binds these concepts is the idea that people want to establish and maintain beliefs in their capability to produce clear effects in the environment.

In the present work, we aim to demonstrate that thwarted goals may often motivate displaced aggression because inflicting harm is a compensatory way to interact with the environment and experience efficacy. A compensatory competence model could help to explain why thwarted goals trigger aggression-related responses by articulating what aggression shares in common with all motivated behaviors: it is a means to an end, where the “end” is not necessarily consciously known to the aggressor or to outside observers. From this perspective, causing harm helps to reestablish a sense of efficacy. This could potentially explain the psychological function of displaced aggression in response to thwarted goals; it also suggests that aggression can sometimes be attenuated if one has alternative means to experience efficacy.

1.1. Displaced aggression as a product of self-regulation

A clear act of *aggression* is any behavior motivated by a (proximal)

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goal to cause harm, wherein one believes the behavior would harm the target and the target is motivated to avoid it (Anderson & Bushman, 2002; Baron & Richardson, 1994). Acts of aggression are often retaliatory and evolutionary psychologists suggest that such behavior can be instrumental if it prevents victimization or deters future would-be harm doers (Buss & Shackelford, 1997). However, many aggressive behaviors otherwise do not seem to have any clear function or purpose: *Displaced aggression* is thought to occur when a motivation to retaliate gets redirected because, for instance, the harm-doer is unreachable or intangible (e.g., foul odors or bad weather, Marcus-Newhall, Pedersen, Carlson, & Miller, 2000, for a review). The person pivots to more accessible means and targets: bullying or sabotaging bystanders, disproportionately retaliating against an unrelated provocateur, or engaging in imagined or fantasized aggression (Bushman, Bonacci, Pedersen, Vasquez, & Miller, 2005; DeWall, Twenge, Gitter, & Baumeister, 2009; Dollard et al., 1939). Prevailing ideas about a proximal psychological function of displaced aggression, such as catharsis or venting, have historically received little empirical support (Bushman, Baumeister, & Stack, 1999; Geen & Quanty, 1977). Given its seeming disconnection from the original harm-doer, displaced aggression instead often appears purely hostile or senseless.

Yet a functional explanation emerges if one considers displaced aggression to be motivated by a need to have an effective interaction with the environment. From a compensatory competence perspective, some perpetrators of displaced aggression might be trying to address a psychological need. This approach – construing previously unexplainable behaviors as special cases of motivation and self-regulation – has already been used to explain the extreme behaviors involved in the maintenance of addictions (e.g., crack cocaine use, Kopetz, Lejuez, Wiers, & Kruglanski, 2013). However, thwarted goals are more commonplace than addictions, suggesting that anyone could experience the resulting aggressive motivations and intentions.

A compensatory competence model could inform theories of aggression in at least two ways. First, it could advance Dollard et al.'s (1939) original Frustration-Aggression hypothesis because it suggests displaced aggression can be psychologically functional even if it appears purely hostile in its manifestation. Second, this model connects socio-cognitive models of goal pursuit to prevailing associative network models of aggression—namely, Berkowitz's Cognitive-Neassociation model (Berkowitz, 1989, 2012) and Anderson and Bushman's (2002) General Aggression Model. These models suggest aggression-related constructs (e.g., aggressive intentions and behavioral scripts) are cognitively associated and that bad experiences (such as pain), or mere exposure to weapons or violence, can trigger them by association. As a result, displaced aggression could often be a byproduct of spreading activation in memory. Yet the General Aggression Model also provides a framework for connecting superordinate goals to subordinate aggressive scripts and behaviors. Our model posits that a threatened sense of competence could sometimes motivate aggression from the top-down. Superordinate goals can govern construct activation in a top-down manner (Kruglanski et al., 2002), which suggests that aggression-related constructs become activated to serve as subordinate means. Thus, our model advances the idea that displaced aggression can be predicted by both top-down processes (goals) as well as bottom-up processes (spreading activation).

1.2. Model overview and assumptions

In developing our model, we integrate the literatures on aggression and compensatory control with social-cognitive theories of goal pursuit. Bushman and Anderson (2001) theorized that aggression could be part of a broader network of goals and that the proximal goal to cause harm could be motivated by some other, superordinate goal. If aggression fits into a goal network, it may operate in some empirically predictable ways. According to Goal Systems Theory (Kruglanski et al., 2002), goals and means are organized hierarchically in memory, such that abstract

superordinate goals are served by more proximal means and subgoals. If competence is indeed a superordinate goal, then achievement goals and other ways to experience efficacy could all represent substitutable means to the same end (Shah, Kruglanski, & Friedman, 2003). This implies that if any single means or subgoal is thwarted (e.g., failure at school), one could compensate by switching to another means (e.g., achievement in sports, video games). People may also turn to aggression to compensate.

We regard such aggression as *compensatory* because we think people turn to it as a substitute means to experience efficacy. The logic for our model is derived from research on compensatory control, which suggests people are motivated to perceive they have control over their lives and will compensate for threats to efficacy and control in one domain by asserting control in other, often disconnected domains (Kay, Whitson, Gaucher, & Galinsky, 2009; Landau, Kay, & Whitson, 2015). This potentially includes aggression-related responses. McGregor (2006), for instance, proposed that thwarted goals and other losses of control can invoke a compensatory, defensive zeal that manifests in angry jingoism or extremism. In one demonstration supporting this, a manipulation of academic uncertainty increased support for religious warfare (McGregor, Haji, Nash, & Teper, 2008). Note that we believe *competence* is analogous to a person's sense of personal control (Bandura, 1977; Kay, Sullivan, & Landau, 2015); that is, we assume competence and control both refer to the same underlying idea that people are motivated to effectively interact with the environment. We use the specific term *competence* because it is narrower in scope – it implies a direct personal interaction with the environment wherein the self is the active agent. The term *control* is more expansive in that it can be established either directly from personal interaction or indirectly from endorsing external agents and systems (e.g., God and government, Kay et al., 2009). Furthermore, past work suggests that threats to competence, in particular, underpin many acts of aggression: The link between power and aggression, for instance, is moderated by the extent to which a boss is made to feel incompetent (Fast & Chen, 2009), and a recent study suggests that video games increase aggression when they thwart the need for competence (Przybylski, Deci, Rigby, & Ryan, 2014). These studies suggest a competence-aggression link.

We assume goal-thwarted individuals resort to aggression because it is a primitive and rudimentary means to interact with the environment. Aggression is rooted in (possibly ancient) neurobiology (Siever, 2008), can emerge in infancy (Alink et al., 2006), and is often impulsive and automatic (Anderson, Arlin, & Bartholow, 1998; Todorov & Bargh, 2002). Young children use aggression to manipulate their environment in the pursuit of goals (Hartup, 1974), and they may come to rely on it as an early means to experience efficacy (Andreou, 2004). From this perspective, aggression becomes associated with competence. Yet aggression in young children also tends to decline as they learn to use alternatives (Tremblay et al., 2004). Thus, our model assumes that aggression is a rudimentary means to pursue competence that is eventually replaced with more normative means and goals. However, these replacements are only substitutes—they do not necessarily break the association between aggression and competence. As a consequence, people can always turn to aggression if their goal pursuits do not work out: schoolchildren might turn to bullying when they are unsuccessful at school (Andreou, 2004; Kaukiainen et al., 2002), abusive men turn to aggression when they deem other means of influence inadequate (Prince & Arias, 1994), and extremists turn to terrorism when political activism fails (Kruglanski, Chen, Dechesne, Fishman, & Orehek, 2009). Aggression might linger as a means of last resort.

1.3. Research objectives

In five studies, we test whether goal-thwarted individuals turn to aggression as means to compensate for a threatened sense of competence. We operationalize competence by measuring beliefs about *outcome efficacy*, which refers to one's effectiveness at influencing or

controlling events (Bandura, 1977). White (1959) theorized that experiences of competence produce a feeling of efficacy, which suggests that situational changes in self-reported efficacy gauge whether the superordinate need for competence is served or satisfied in that situation. It is also worth noting that Bandura (2006) defines perceived efficacy as a judgment of capability, which is conceptually and empirically distinct from experienced affect or affective evaluations such as self-esteem (Blascovich & Tomaka, 1991). Although there is a long history of research into the affective predictors of displaced aggression, it remains unclear how threats to perceived efficacy connect to displaced aggression.

Our first model prediction is that thwarting an achievement goal threatens perceived efficacy (Study 1). We subsequently examine whether the thwarting of goals also has downstream consequences for displaced aggression (Study 2), and whether having a clear means to be aggressive attenuates the threat to perceived efficacy (Study 3). We then try to disentangle the aggressive response from the presumed superordinate goal, which is to experience efficacy. We do this by identifying how the response to thwarted goals can be attenuated via the presence of nonaggressive alternatives. In Study 4, we test whether goal-thwarted individuals prioritize taking effective action over the causing of harm per se: we pit an opportunity for relatively passive aggression against effective (helpful) action and predict that goal thwarted participants would rather take effective action to help someone than to remain idle and see them harmed. In so doing, we test whether goal thwarted participants' superordinate goal is to interact effectively with the environment, be it through aggression or helpfulness. In Study 5, we test whether displaced aggression is attenuated when participants have reason to believe they will have a second performance opportunity in the thwarted goal domain; our logic is that a means-shift towards aggression is unnecessary if competence can still be pursued in the thwarted goal domain. Across studies we report all exclusions, manipulations, and dependent measures. Sample sizes were determined before data analyses except where explicitly indicated.

2. Study 1

In Studies 1 and 2, we sought to establish our foundational hypotheses that thwarting an achievement goal threatens perceived efficacy (Study 1) and motivates displaced aggression (Study 2).

2.1. Method

2.1.1. Participants

One hundred forty-five introductory psychology students at a large Midwestern university completed the experiment in exchange for course credit.¹

2.1.2. Procedure

This study used a 2 (achievement prime vs. control) \times 2 (initial task: failure vs. success) factorial design. To instantiate a thwarted goal, participants were first either primed with an achievement goal or not before they completed an achievement-related task wherein success or failure was manipulated (see Chartrand, Cheng, Dalton, & Tesser, 2010, for a similar strategy). We primed an achievement goal because it allows us to tease apart the presence of a goal from a mere task success or failure experience. Achievement primes increase expectations of successful performance and the self-relevance of failure feedback (Custers, Aarts, Oikawa, & Elliot, 2009; Engeser & Baumann, 2014; Moore, Ferguson, & Chartrand, 2011); the priming of achievement can also heighten reactive approach-related tendencies in response to academic uncertainty (Nash, McGregor, & Prentice, 2011). It is worth

noting a recent meta-analysis suggests the priming of goals, through incidentally-presented words, produces robust behavioral effects (Weingarten et al., 2016). Participants were focally instructed to indicate whether each of a series of 75 “flashes” appeared on the left or right side of the screen. The flashes were actually primes that consisted of either achievement words (*achieve, succeed, strive, perform*) or control words (*background, sidewalk, building, calendar*). The words appeared in randomized order in one of the four screen quadrants (60 ms, backwards masked).

Participants were then given a word formation task that consisted of a blank sheet of paper with eight letters at the top of the page. To avoid consciously activating an achievement goal, it was presented as a “fun filler task” that involved a “word formation game” (Chartrand et al., 2010). The task was to form as many words as possible with those letters. Participants in the success condition received common letters (R, L, E, T, A, N, O, S), which made it easy to form words (e.g., *tar, not, tan, let*). Participants in the failure condition received uncommon letters (P, V, O, M, I, C, U, F), which made it nearly impossible to form many words. Participants were stopped after 3 min.

Self-efficacy beliefs were then assessed in counterbalanced order with an academic test. Embedded among a series of filler items was a question that assessed predicted outcome efficacy. Bandura (2006) distinguished perceived efficacy is a judgment of capability and thus recommended the use of performance predictions to measure it. Participants read, “If, right now, someone gave you one of the following tests, what percentage of the items on the test do you think you would get correct?” (rated 1 (0–9% of items correct) to 10 (90–100% of items correct)). The critical domain was “test of language skills”, which was closest to that of the word formation task they completed. Other domains included “test of math skills”, “test of spatial skills”, and “test of analytical skills”. In addition to the above was a slightly different measure, “How good are you at the following domains?” which also included “language skills” (rated on a 9-point scale). However, it did not refer to any particular behavior so we analyzed it separately. The academic test was a 16-item verbal GRE test (obtained from a practice book for the Graduate Record Examination). Participants were fully debriefed at the end of the study.

2.2. Results and discussion

2.2.1. Self-efficacy

We conducted a 2 (achievement prime vs. control) \times 2 (initial task failure vs. success) ANOVA on predicted test performance. Results indicated no main effects of either the achievement prime, $F(1, 141) = 2.53, p = 0.114, \eta_p^2 = 0.018$, or initial task success/failure, $F(1, 141) = 1.92, p = 0.168, \eta_p^2 = 0.013$, but rather a two-way interaction between these variables, $F(1, 141) = 4.35, p = 0.039, \eta_p^2 = 0.030$. Simple effects tests indicated that only the achievement primed participants reported lower outcome efficacy after the task failure manipulation ($M_{failure} = 6.83, SE = 0.52$ vs. $M_{success} = 8.12, SE = 0.22, p = 0.012$); their non-primed counterparts showed no such difference ($M_{failure} = 8.19, SE = 0.77$ vs. $M_{success} = 7.94, SE = 0.39, p > 0.25$). These “goal thwarted” participants also reported lower outcome efficacy than participants in the failure condition who were not achievement primed (vs. $M = 8.19, SE = 0.77, p = 0.010$). This suggests a threat to their sense of competence.

With regards to the general measure of how good they were in the domain of language skills, there was no main effect of the achievement prime, $F(1, 141) = 0.04, p = 0.841, \eta_p^2 = 0.000$, no main effect of initial task success/failure, $F(1, 141) = 0.30, p = 0.583, \eta_p^2 = 0.002$, and no two-way interaction, $F(1, 141) = 0.04, p = 0.841, \eta_p^2 = 0.000$. The measure was presumably too general – Bandura (2006) argued against general measures of self-efficacy because any capability judgment should pertain to specific performance attainments in specific situational contexts. The performance prediction was thus the better measure because it referred to a specific type of test and participants

¹ Note that Study 1 is based on summary data collected by the second author at a prior institution; the raw data are no longer available.

had just completed a similar task that provided some context for their judgments.

2.2.2. Goal-directed behavior

A 2×2 ANOVA on GRE performance indicated no main effects of the achievement prime, $F(1, 141) = 2.46, p = 0.119, \eta_p^2 = 0.017$, or initial task success/failure, $F(1, 141) = 2.10, p = 0.149, \eta_p^2 = 0.015$, but rather a two-way interaction between these variables, $F(1, 141) = 6.37, p = 0.013, \eta_p^2 = 0.043$. The pattern for GRE performance was nearly identical to the pattern for self-efficacy beliefs; the variables were also positively correlated ($r = 0.52, p < 0.001$) and we observed reliable moderated mediation between the two (indirect effect = $-0.45, CI_{95\%} [-0.97; -0.05]$, PROCESS Model 8, 5000 resamples, bias-corrected, see Hayes, 2013). The threat to self-efficacy corresponded with actual performance decrements in the thwarted goal domain.

The above results validate our prediction that thwarting a primed achievement goal can harm one's self-efficacy beliefs—specifically those that pertain to perceived outcome efficacy.

3. Study 2

Next, we tested whether the same conditions that threaten self-efficacy also increase displaced aggression. We specifically aim to demonstrate that it is not just a failure experience per se that motivates the aggressive response, but the thwarting of goals in particular.

3.1. Method

3.1.1. Participants

Three hundred eighty-six participants were recruited from Amazon's Mechanical Turk (215 female [2 not reported], Age $M = 37.63$). We recruited only US-based participants and paid \$0.75. An additional fourteen participants were excluded for providing blatantly low-quality responses and four were excluded for having duplicate IP addresses.²

3.1.2. Procedure

This study used a 2 (achievement prime vs. control) \times 2 (initial task: success vs. failure) factorial design. To instantiate a thwarted goal, participants were first either primed with an achievement goal or not with a Scrambled Sentence Task (Chartrand & Bargh, 1996). In this task, participants are given 20 sets of five words each with focal instructions to create coherent sentences with four of the five words. In the achievement prime condition, words related to achievement are embedded throughout (e.g., “gain”, “win”); in the control condition, neutral words are embedded instead (e.g., “want”, “kept”). To instantiate a success or failure experience, participants were then given either an easy or extremely difficult anagram task (Chartrand et al., 2010; Trope & Pomerantz, 1998). In the success condition, participants were presented with 15 four-letter anagrams (e.g., hose \rightarrow shoe) and were instructed it was standard to solve each anagram in about 60 s (but there was no time limit). In the failure condition, participants received an extremely difficult version involving 20 six-letter anagrams (e.g., dauber \rightarrow earbud) and they only had 15 s to solve each difficult anagram.

Displaced aggression was assessed immediately afterwards, via an opportunity to harm another person's chance to earn money. The logic and design of our measure is based on a task developed by Saleem, Anderson, and Bartlett (2015), who showed that aggressiveness can be operationalized through the assignment of more difficult problems to another person (see also Liebert & Baron, 1972).³ In our study, the

² A blatantly “low-quality response” was detected by nonsensical answers on the scrambled sentence task (Study 2: $n = 14$, Study 3: $n = 13$; Study 5: $n = 22$), or clear evidence of straight lining (Study 3: $n = 1$).

cover story was that the researchers were currently running a different study, at the university campus, in which a person would be solving a series of puzzles and receive \$1 for each correct answer. Participants were to choose five of the puzzles to send to one of these on-campus participants. Each puzzle comprised a pattern of abstract shapes and objects, but with a piece missing. To solve the puzzle one must choose the correct missing piece from a set of options below. Participants were given an easy example and then presented with twelve puzzles from which to choose five to send to the other person. The puzzles were from Raven's Progressive Matrices (Raven, 1962). They were arranged into three rows comprising easy, medium, and hard difficulty. The easy row had simple patterns with six answer options; the medium row also had simple patterns but with eight answer options; the hard row had very complex patterns with eight answer options. Given that the person could ostensibly receive \$1 for each correct answer, displaced aggression score was operationalized via the number of hard puzzles sent. Preliminary analyses indicated that men generally assigned more hard problems than women, ($M = 1.24, SE = 0.08$ vs. $M = 0.92, SE = 0.07$), $t(382) = 2.90, p = 0.004$, so we included gender as a factor.

Next, we assessed self-reported affect and motivation to examine whether these variables corresponded with the sending of hard puzzles. Participants rated themselves on nine randomized affective states that comprised anxious affect (*tense, anxious, nervous*, rated 1 = *Not at all*, to 7 = *Very intense*, $M = 2.50, SD = 1.59, \alpha = 0.90$), hostile affect (*angry, irritated, frustrated*, $M = 2.28, SD = 1.60, \alpha = 0.89$), and quiescent affect (*calm, relaxed, serene*, $M = 4.19, SD = 1.62, \alpha = 0.88$ (adapted from Schaefer, Nils, Sanchez, & Philippot, 2010)).

Next, participants reported their motivation to help or harm with the puzzle assignment task (Saleem et al., 2015): They rated the extent to which, when selecting the puzzle pieces, “...I wanted to make it difficult for the other participant to win money” (rated 1 = *strongly disagree* to 5 = *strongly agree*, $M = 2.23, SD = 1.30$), and “...I wanted to help the other participant win money” ($M = 3.81, SD = 1.17$). Participants were fully debriefed at the end of the study.

3.2. Results and discussion

3.2.1. Hard puzzles sent to target

A 2 (achievement prime vs. control) \times 2 (task failure vs. success) \times 2 (gender) ANOVA resulted in no main effect of the achievement prime, $F(1, 376) = 0.09, p = 0.770, \eta_p^2 = 0.000$, but rather a significant main effect of task failure, $F(1, 376) = 4.60, p = 0.033, \eta_p^2 = 0.012$, and a significant two-way interaction of the achievement prime and task failure, $F(1, 376) = 10.75, p = 0.001, \eta_p^2 = 0.028$. There was also a separate main effect of gender, $F(1, 376) = 11.90, p = 0.001, \eta_p^2 = 0.031$, but no two-way interaction of gender and the achievement prime, $F(1, 376) = 0.24, p = 0.625, \eta_p^2 = 0.001$, no two-way interaction of gender and task failure, $F(1, 376) = 0.04, p = 0.836, \eta_p^2 = 0.000$, and no three-way interaction, $F(1, 376)$

³ We used a different design from Saleem et al. (2015), partly out of concern that many users of Amazon's Mechanical Turk would already have experience with their Tangram task. The main differences are: (1) we used multiple-choice puzzles from Raven's Progressive Matrices. (2) Participants chose 5 of 12 puzzles to send (rather than 11 of 30), simply because only 12 puzzles (with answer options) would fit on a single screen. (3) Our cover story implied that every hard puzzle sent would potentially harm the target's chance of winning \$1, allowing each hard problem sent to represent one unit of aggression. (4) To minimize demand characteristics, we did not give explicit labels of puzzle difficulty. We instead piloted a range of puzzles to identify ones that were readily identifiable, to a casual observer, as hard, medium, or easy. Specifically, $N = 63$ acquaintances of the research assistants were asked to just rate the difficulty of a series of puzzles after merely 10s of exposure, without any intention to solve them (rated 0 = *easy* to 100 = *hard*). Items were selected based on these difficulty ratings. (5) To properly anchor participants' perceptions of puzzle difficulty, prior to the task they received an easy example that was explicitly labeled as “one of the easier problems”.

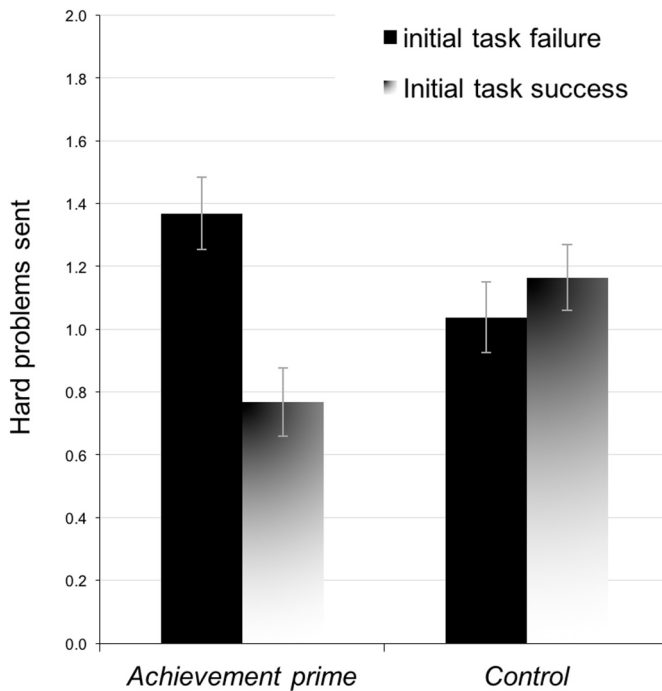


Fig. 1. Study 2: displaced aggression as a function of whether or not participants were achievement primed prior to completing an easy task (success condition) or difficult task (failure condition). Values are estimated marginal means and standard errors.

$= 0.01, p = 0.920, \eta_p^2 = 0.000$.^{4,5}

As illustrated in Fig. 1, goal-thwarted participants (achievement prime + task failure) showed the most displaced aggression. Simple effects tests indicated that the achievement-primed participants sent more hard puzzles in response to the task failure manipulation ($M_{failure} = 1.37, SE = 0.12$, vs. $M_{success} = 0.77, SE = 0.11$, $p < 0.001$); their non-primed counterparts showed no such difference ($M_{failure} = 1.04, SE = .11$, vs. $M_{success} = 1.16, SE = .11$, $p = 0.30$). The goal-thwarted participants also sent more hard puzzles than other participants in the failure condition who were not achievement primed ($M = 1.37$ vs. $M = 1.04$, $p = 0.041$). This suggests compensation, with increased aggression, to address the threatened need. In turn, achievement-primed participants in the success condition sent fewer hard puzzles than other participants in the success condition who were not achievement primed ($M = 0.77$

⁴ On the displaced aggression measure, $n = 35$ participants selected a number of puzzles other than five to send to the other participant. This tendency was not predicted by the manipulations ($Wald(s) < 1.3$), nor was it inherently problematic because there were only four hard puzzles to select. Excluding these participants also did not alter the results: for the number of hard puzzles sent, there remained a main effect of failure, $F(1, 341) = 6.14, p = 0.014, \eta_p^2 = 0.018$, a two-way interaction of the achievement prime and failure, $F(1, 341) = 11.73, p = 0.001, \eta_p^2 = 0.033$, and a separate main effect of gender, $F(1, 341) = 10.16, p = 0.002, \eta_p^2 = 0.029$. For the self-reported motivation to cause harm, there also remained a two-way interaction of the achievement prime and failure, $F(1, 341) = 4.74, p = 0.030, \eta_p^2 = 0.014$, and a separate main effect of gender, $F(1, 341) = 17.05, p < 0.001, \eta_p^2 = 0.048$.

⁵ When excluding gender from the analysis, a 2 (achievement prime vs. control) \times 2 (task failure vs. success) ANOVA on the number of hard puzzles sent resulted in a marginal main effect of failure, $F(1, 382) = 3.05, p = 0.081, \eta_p^2 = 0.008$, and a significant two-way interaction, $F(1, 382) = 8.104, p = 0.005, \eta_p^2 = 0.021$. There was still a simple effect of failure only in the achievement prime condition ($M_{failure} = 1.30, SD = 1.18$, vs. $M_{success} = 0.79, SD = 0.98, p = 0.001$), and not in the control condition ($M_{failure} = 1.02, SD = 1.05$, vs. $M_{success} = 1.14, SD = 1.08, p = 0.436$). Within the failure condition, there was a marginal effect of the achievement prime, ($M_{achievement} = 1.30$, vs. $M_{control} = 1.02, p = 0.083$); within the success condition, there was a significant effect of the achievement prime ($M_{achievement} = 0.79$ vs. $M_{control} = 1.14, p = 0.022$). With regards to the self-report dependent measure, motivation to cause harm with the puzzle task, excluding gender resulted in a marginal two-way interaction of the manipulations, $F(1, 382) = 2.84, p = 0.093, \eta_p^2 = 0.007$, and no main effects ($F_s \leq 0.133, ps \geq 0.715$).

vs. $M = 1.16, p = 0.009$). The reduction in aggression is consistent with the idea that goal satiation may have inhibited aggression altogether (Marsh, Hicks, & Bink, 1998).

3.2.2. Self-report measures

Of all the self-report items, the only one to correlate positively with the sending of hard puzzles was the item representing motivation to harm with the puzzle assignment task (“...I wanted to make it difficult for the other participant to win money,” $r = 0.59, p < 0.001$). This item has corresponded with the sending of harder puzzles in other aggression research (Saleem et al., 2015). A separate ANOVA on this item indicated no main effects of either the achievement prime, $F(1, 376) = 0.20, p = 0.654, \eta_p^2 = 0.001$, or initial task failure, $F(1, 376) = 0.42, p = 0.515, \eta_p^2 = 0.001$, but rather a two-way interaction of the achievement prime and task failure, $F(1, 376) = 4.07, p = 0.044, \eta_p^2 = 0.011$. There was also a separate main effect of gender (men reported more motivation to harm), $F(1, 376) = 21.15, p < 0.001, \eta_p^2 = 0.053$, but no two-way interaction of gender and the achievement prime, $F(1, 376) = 0.84, p = 0.359, \eta_p^2 = 0.002$, no two-way interaction of gender and task failure, $F(1, 376) = 1.72, p = 0.190, \eta_p^2 = 0.005$, and no three-way interaction, $F(1, 376) = 1.50, p = 0.221, \eta_p^2 = 0.004$. The pattern of the data, for self-reported motivation to harm, resembled that for displaced aggression: there was a marginal, positive simple effect of failure (vs. success) among achievement-primed participants ($M_{failure} = 2.41, SE = 0.14$ vs. $M_{success} = 2.06, SE = 0.13, p = 0.064$), but not among participants in the control condition ($M_{failure} = 2.20, SE = 0.13$ vs. $M_{success} = 2.38, SE = 0.13, p = 0.300$).

There was no such effect for self-reported motivation to help: Although motivation to help was negatively correlated with the sending of hard puzzles ($r = -0.59, p < 0.001$), there were no significant effects of the manipulations: no main effects of either the achievement prime, $F(1, 375) = 0.05, p = 0.822, \eta_p^2 = 0.000$, or task failure, $F(1, 375) = 0.08, p = 0.782, \eta_p^2 = 0.000$, and no two-way interaction of the achievement prime and task failure, $F(1, 375) = 1.77, p = 0.184, \eta_p^2 = 0.005$. There was a separate main effect of gender (women reported more motivation to help), $F(1, 375) = 18.29, p < 0.001, \eta_p^2 = 0.047$, but no two-way interaction of gender and the achievement prime, $F(1, 375) = 3.03, p = 0.083, \eta_p^2 = 0.008$, no two-way interaction of gender and task failure, $F(1, 375) = 0.13, p = 0.720, \eta_p^2 = 0.000$, and no three-way interaction, $F(1, 375) = 2.31, p = 0.129, \eta_p^2 = 0.006$.

There was no indication that the displaced aggression corresponded with negative affect: None of the affect measures – hostile, anxious, or quiescent affect – correlated with the sending of hard puzzles ($r_s < \pm 0.05, ps > 0.40$). The achievement prime also did not increase negative affect from the failure experience. To briefly summarize, separate ANOVAs indicated no main effects of the achievement prime on the affect measures (anxious affect: $F(1, 376) = 2.07, p = 0.151, \eta_p^2 = 0.005$; hostile affect: $F(1, 376) = 0.89, p = 0.345, \eta_p^2 = 0.002$; quiescent affect: $F(1, 376) = 2.28, p = 0.132, \eta_p^2 = 0.006$); critically, there were no two-way interactions of the achievement prime and task failure on the affect measures (anxious affect: $F(1, 376) = 0.70, p = 0.404, \eta_p^2 = 0.002$; hostile affect: $F(1, 376) = 2.46, p = 0.118, \eta_p^2 = 0.007$; quiescent affect: $F(1, 376) = 0.28, p = 0.597, \eta_p^2 = 0.001$), nor was there a three-way interaction with gender (anxious affect: $F(1, 376) = 0.01, p = 0.932, \eta_p^2 = 0.000$; hostile affect: $F(1, 376) = 1.56, p = 0.212, \eta_p^2 = 0.004$; quiescent affect: $F(1, 376) = 0.57, p = 0.452, \eta_p^2 = 0.002$), or any other notable effects of gender. Instead, there were only positive main effects of task failure on anxious affect, $F(1, 376) = 19.39, p < 0.001, \eta_p^2 = 0.049$, and hostile affect: $F(1, 376) = 51.33, p < 0.001, \eta_p^2 = 0.120$, and a negative main effect of failure on quiescent affect: $F(1, 376) = 36.00, p < 0.001, \eta_p^2 = 0.087$. The failure task generally made participants feel bad, but this was independent of the effects of the thwarted goal on

displaced aggression.⁶ The only self-report measure to correspond with aggressiveness was motivation to cause harm.

In sum, the combination of an achievement goal and task failure increased displaced aggression and this corresponded with self-reported motivation to cause harm. The pattern for displaced aggression was independent of anxious or hostile affect, which is interesting because it revives the notion of a cold, purposive form of aggression (versus a hot emotional aggression). The present study does not, however, indicate what the purpose of the displaced aggression is. In the next study, we consider whether the aggressive response is compensatory in the sense it can attenuate the initial threat to perceived efficacy.

4. Study 3

Studies 1 and 2 suggest that thwarting an achievement goal can threaten perceived efficacy and motivate displaced aggression. Next, we test the psychological functionality of displaced aggression—namely, whether having a clear means of displaced aggression can attenuate the threat to perceived efficacy. In Study 3, participants either had a goal thwarted or not and then received either a clear means to be aggressive or not. We hypothesized that only participants who received a clear means of aggression would show a boost to self-efficacy. We first present a small pilot study that explored real behavior and performance outcomes. In the main study, we try to isolate the proposed effect to efficacy-related perceptions and beliefs.

5. Pilot Study

This was an underpowered lab study that we only present here because it provided the logic and design of Study 3 and the results are highly consistent with the main study. Forty-nine male undergraduates from a private university were recruited (only males were recruited because both research assistants were male). To induce goal failure, participants were first either primed with an achievement goal or not, via a scrambled sentence task, before completing an extremely difficult anagram task. Participants then completed one of two variants of the classic hot sauce allocation task—a common measure of aggression (Lieberman, Solomon, Greenberg, & McGregor, 1999). Participants were first given a penciled-in form indicating that the target hates spicy foods (in this case, an ostensible second male participant). Thus, allocating hot sauce would clearly cause harm. However, we manipulated whether participants received a version of the sauce allocation task that would serve as an effective means of displaced aggression. Specifically, participants allocated either *hot sauce* or *barbecue sauce* to the target person. Allocating hot sauce is clearly harmful because spiciness causes pain and the target explicitly dislikes spicy foods. The effect of allocating barbecue sauce is unclear – although it may be unpalatable in large amounts, it does not guarantee pain, nor did the target report disliking it. Allocating hot sauce would thus produce a clearer effect on the target than barbecue sauce. A second pilot study indeed indicated that, whereas hot sauce is perceived to have an above-chance likelihood to cause harm ($M = 63.3\%$), barbecue sauce is perceived to have a below-chance likelihood ($M = 43.1\%$).⁷

⁶ There were also no main effects of gender on the affect measures ($F_{anxious}(1, 376) = 0.03, p = 0.868, \eta^2_p = 0.000$; $F_{hostile}(1, 376) = 1.98, p = 0.161, \eta^2_p = 0.005$; $F_{quiescent}(1, 376) = 0.87, p = 0.352, \eta^2_p = 0.002$); no interactions of gender with task failure ($F_{anxious}(1, 376) = 0.05, p = 0.817, \eta^2_p = 0.000$; $F_{hostile}(1, 376) = 0.30, p = 0.585, \eta^2_p = 0.001$; $F_{quiescent}(1, 376) = 1.15, p = 0.284, \eta^2_p = 0.003$); there was only one marginal interaction of gender and the achievement prime ($F_{anxious}(1, 376) = 0.003, p = 0.955, \eta^2_p = 0.000$; $F_{hostile}(1, 376) = 0.45, p = 0.502, \eta^2_p = 0.001$; $F_{quiescent}(1, 376) = 3.79, p = 0.052, \eta^2_p = 0.010$); and as reported in the main text, there were no three-way interactions.

⁷ In response to reviewer feedback, we tested our assumption that hot and barbecue sauce differ in their perceived likelihood of having a clear effect on the target. In a separate study, $N = 442$ MTurk participants all received the goal thwarting manipulation and then imagined allocating either hot sauce or barbecue sauce to someone who “*doesn't like spicy foods*”. Immediately afterwards, participants rated the probability (%) their hot/

Our first dependent measure was the amount of sauce allocated (in ml; $n = 1$ missing); values were log-transformed to adjust for positive skew. Participants then completed a 20-item GRE sentence completion task as an indirect indicator of self-efficacy.

With regards to the amount of sauce allocated, a 2 (thwarted goal) \times 2 (sauce type) ANOVA indicated a positive main effect of the thwarted goal, $F(1, 45) = 6.67, p = 0.013, \eta^2_p = 0.129$. Goal-thwarted participants allocated more hot sauce as well as barbecue sauce (untransformed: $M_{thwarted} = 27.04, SE = 4.01$ vs. $M_{control} = 10.68, SE = 3.75$). Goal-thwarted individuals allocated more sauce in general, even if the type of sauce afforded to them was less certain to cause harm. There was also a separate main effect of sauce type, $F(1, 45) = 7.01, p = 0.011, \eta^2_p = 0.135$; that is, participants generally dished out more barbecue sauce than hot sauce ($M = 22.35, SE = 4.08$ vs. $M = 15.37, SE = 3.67$). There was no interaction between the thwarted goal and sauce type, $F(1, 45) = 0.02, p = 0.890, \eta^2_p = 0.000$.

With regards to subsequent GRE performance, a 2 \times 2 ANOVA indicated no main effects of the thwarted goal, $F(1, 45) = 0.02, p = 0.888, \eta^2_p = 0.000$, or sauce type, $F(1, 45) = 2.28, p = 0.138, \eta^2_p = 0.048$. There was instead a two-way interaction, $F(1, 45) = 5.23, p = 0.027, \eta^2_p = 0.104$. Goal-thwarted participants performed better as a function of allocating hot sauce versus barbecue sauce ($M = 13.92, SE = 0.77$ vs. $M = 10.90, SE = 0.87, p = 0.013$); participants in the control condition showed no such difference ($M = 12.21, SE = 0.74$, vs. $M = 12.83, SE = 0.80, p > 0.25$). The functionality of dishing out hot sauce was specific to goal-thwarted participants. Interestingly, higher sauce allocation did not predict higher performance ($r = -0.25, p = 0.09$). It did not seem to matter how much sauce was allocated; what mattered was whether it was clearly causing harm – its perceived outcome efficacy. Note that we cannot conclude that the change in task performance represents a change in self-efficacy beliefs; we can only infer it from past research that links self-efficacy to performance (Bandura, 1977; Pajares & Graham, 1999). In the main study, we will test whether the same pattern emerges when we measure self-efficacy beliefs directly.

6. Main study

The pilot study suggests that the psychological functionality of displaced aggression is rooted in the perceived efficacy of the afforded behavior, in terms of its likelihood to produce a clear effect on the target. If the function of any given act of displacement is to produce clear effects, then even imagined aggression should suffice as long as its outcome efficacy is clear in one's mind. Dollard et al. (1939) theorized displaced aggression can manifest in aggressive fantasy and research has shown that imagined aggression (i.e., psychological enactment of aggressive cognitive scripts) can suffice to alter neurological and physiological responses associated with real aggressive behavior and violence (e.g., orbitofrontal cortex activity, systolic blood pressure, see Pietrini, Guazzelli, Basso, Jaffe, & Grafman, 2000). Indeed, perceived control over trivial effects on a computer can be motivating, as long as control over the effect can be firmly established in the mind (Eitam, Kennedy, & Higgins, 2013). In this main study, we test whether the completion of an aggressive script – the mental representation of outcome efficacy, suffices to reestablish self-efficacy.

(footnote continued)

barbecue sauce would cause the target to: ...react negatively, ...experience pain, ...react positively (r), ...experience pleasure (r), ...experience difficulty, and ...experience disgust ($\alpha = 0.87$). A one-way ANOVA resulted in a large effect of sauce type, $F(1, 440) = 112.30, p < 0.001, \eta^2_p = 0.20$. Hot sauce was perceived significantly more likely to cause harm than barbecue sauce (63.3% vs. 43.1%). The only other relevant findings, which we also observed in the studies reported in the main text, were that participants generally allocated more barbecue sauce than hot sauce, $F(1, 440) = 32.40, p < 0.001, \eta^2_p = 0.069$, and that men generally allocated more sauce than women $F(1, 438) = 8.12, p = 0.005, \eta^2_p = 0.018$.

6.1. Method

6.1.1. Participants

Three hundred thirty-four participants were recruited from Amazon's Mechanical Turk (209 female, Age $M = 35.57$). We recruited only US-based participants and paid \$0.50. An additional fourteen participants were excluded for providing blatantly low-quality responses and four were excluded for having duplicate IP addresses.⁸

6.1.2. Procedure

This study used a 2 (thwarted goal vs. control) \times 2 (clearly vs. ambiguously aggressive) factorial design. To instantiate a thwarted goal, participants were first either primed with an achievement goal or not with a scrambled sentence task, and then all participants were given the extremely difficult anagram task. This way, all participants experienced task failure, but it only represented a thwarted goal to those who were achievement-primed.

The sauce allocation task occurred immediately afterwards. Participants read, "Suppose that someone who doesn't like spicy foods is doing a taste test involving a hot pepper sauce [smoky barbecue sauce]. You can determine the amount of hot [barbecue] sauce the person has to consume to be paid. How much hot [barbecue] sauce will you give?" Participants used a sliding scale to indicate "Amount of sauce in milliliters, 10–50 ml". The minimum amount was set to 10 ml to ensure that all participants symbolically engaged in the behavior ($n = 1$ missing). Values were log-transformed to adjust for positive skew.

Self-efficacy beliefs were assessed next. Participants first received complete instructions for a "Verbal Fluency Test" (verbal analogies from the GRE). On the next screen, participants were asked, "How well do you think you will perform on this Verbal Fluency Test? Do you think you can..." Below this were five progressively higher levels of performance (i.e., "...solve 60% of the problems correctly?" followed by 70%, 80%, 90%, and 100%). To the right of each performance level was "Can you do it?" (click: Yes/No), followed by a confidence rating (0–100%). Predicted outcome efficacy was calculated by summing the confidence ratings for each performance level to which they responded "yes" (range: 0–500). Participants did not actually complete the test and were fully debriefed at the end of the study.

6.2. Results and discussion

6.2.1. Amount of sauce allocated

A 2 (thwarted goal) \times 2 (sauce type) \times 2 (gender) ANOVA indicated only main effects of the thwarted goal, $F(1, 325) = 4.49$, $p = 0.035$, $\eta_p^2 = 0.014$, sauce type, $F(1, 325) = 4.88$, $p = 0.028$, $\eta_p^2 = 0.015$, and gender, $F(1, 325) = 22.65$, $p < 0.001$, $\eta_p^2 = 0.065$. There were no two-way interactions of the thwarted goal and sauce type, $F(1, 325) = 0.24$, $p = 0.622$, $\eta_p^2 = 0.001$, the thwarted goal and gender, $F(1, 325) = 0.78$, $p = 0.377$, $\eta_p^2 = 0.002$, or sauce type and gender, $F(1, 325) = 0.01$, $p = 0.919$, $\eta_p^2 = 0.000$; nor was there a three-way interaction, $F(1, 325) = 1.10$, $p = 0.296$, $\eta_p^2 = 0.003$.⁹ Consistent with the pilot study, goal-thwarted participants allocated more sauce in general (untransformed values: $M_{thwarted} = 22.44$, $SE = 0.83$ vs. $M_{control} = 19.92$, $SE = 0.77$). The other main effects merely suggest participants generally allocated more barbecue sauce than hot sauce ($M = 21.97$, $SE = 0.80$ vs. $M = 20.39$,

⁸ At one hundred nineteen participants, we observed the predicted interaction effect on self-efficacy, $F(1, 111) = 3.98$, $p = 0.038$, $\eta_p^2 = 0.038$, but sample sizes were very uneven across conditions. We thus sought to triple the sample with an a priori decision to accept the final result. Note also that, at the end of the study, we assessed individual differences in General Self-Efficacy (Chen, Gully, & Eden, 2001), and participants did not differ by condition on this measure (nor did controlling for it alter the results).

⁹ When excluding gender from the analysis, a 2 (thwarted goal) \times 2 (sauce type) ANOVA on amount of sauce allocated still resulted in main effects of the thwarted goal, $F(1, 329) = 4.74$, $p = 0.030$, $\eta_p^2 = 0.014$, and sauce type, $F(1, 329) = 5.43$, $p = 0.020$, $\eta_p^2 = 0.016$, and no interaction, $F(1, 329) = 0.00$, $p = 0.982$, $\eta_p^2 = 0.000$.

$SE = 0.80$), and men allocated more sauce than women ($M = 23.80$, $SE = 0.89$ vs. $M = 18.57$, $SE = 0.69$). It is noteworthy that goal-thwarted participants dished out more of both types of sauce; it suggests a general effort to affect the target's task experience, even if the type of sauce afforded to them was less certain to cause harm.

6.2.2. Self-efficacy

A corresponding ANOVA indicated no main effects of the achievement prime, $F(1, 325) = 0.29$, $p = 0.589$, $\eta_p^2 = 0.001$, sauce type, $F(1, 325) = 0.53$, $p = 0.469$, $\eta_p^2 = 0.002$, or gender, $F(1, 325) = 1.27$, $p = 0.261$, $\eta_p^2 = 0.004$. However, in support of our model, the predicted two-way interaction of the thwarted goal and sauce type was marginally significant, $F(1, 325) = 3.84$, $p = 0.051$, $\eta_p^2 = 0.012$. Else, there were no two-way interactions of the thwarted goal and gender, $F(1, 325) = 0.12$, $p = 0.730$, $\eta_p^2 = 0.00$, or sauce type and gender, $F(1, 325) = 2.55$, $p = 0.111$, $\eta_p^2 = 0.008$, nor was there a three-way interaction, $F(1, 325) = 0.01$, $p = 0.944$, $\eta_p^2 = 0.000$.¹⁰ Having the means to allocate hot sauce reestablished perceived efficacy. As illustrated in Fig. 2, goal-thwarted participants predicted marginally higher GRE performance when they allocated hot sauce as opposed to barbecue sauce ($M_{hot} = 208.19$ vs. $M_{bbq} = 163.78$, $p = 0.067$); participants in the control condition showed no such difference ($M_{hot} = 184.71$ vs. $M_{bbq} = 205.15$, $p = 0.369$).

Subsequent discriminant validity tests indicated that the specific amount of hot or barbecue sauce allocated was uncorrelated with predicted outcome efficacy ($r_s = 0.03$ – 0.11 , $p_s > 0.14$). What this means is that the amount of sauce allocated did not matter for reestablishing perceived self-efficacy; what mattered was whether it produced a clear effect (hot sauce) or not (barbecue sauce). If the functionality of the sauce allocation task had been rooted in some other psychological mechanism, such as venting frustration or severity of harm caused, then perhaps we might have observed a correspondence between amount of sauce allocated and amount of self-efficacy restored. Ultimately, the allocation of more sauce may just indicate greater motivation to produce a given effect, but the present study suggests that what matters is perceived outcome efficacy – a qualitative feature of a behavior that may not be easily substituted via quantity.

To summarize, the results are only marginal but they do provide three possible insights: first, that having a clear means to engage in displaced aggression can reestablish perceived efficacy in the thwarted goal domain. This fits a compensation model and shows how clear acts of aggression may provide a confidence boost. Second, we observed that mere completion of an aggressive script sufficed to reestablish self-efficacy, which supports both Eitam et al. (2013) logic that trivial acts on a computer screen can be motivating as long as control over the effect can be firmly established in the mind, as well as Dollard et al.'s (1939) speculation about the function of aggressive fantasy. A third insight is that goal-thwarted individuals appeared to use whatever means of displacement was available to them, even if it was less certain to harm the target (i.e., barbecue sauce). This may illustrate the importance of disentangling goal-thwarted individuals' intent to produce an effect from their perceived success at producing an effect.

7. Study 4

Studies 4–5 test whether the superordinate goal is competence and not to be aggressive per se. If the superordinate goal is to experience efficacy, then Goal Systems Theory (Kruglanski et al., 2002) may predict that displaced aggression will be attenuated when alternative means are available to pursue the superordinate goal. From a compen-

¹⁰ When excluding gender from the analysis, a 2 (thwarted goal) \times 2 (sauce type) ANOVA on predicted outcome efficacy still resulted in no main effects of the thwarted goal, $F(1, 329) = 0.266$, $p = 0.606$, $\eta_p^2 = 0.001$, or sauce type, $F(1, 329) = 1.23$, $p = 0.268$, $\eta_p^2 = 0.004$, but rather a marginal two-way interaction $F(1, 329) = 3.42$, $p = 0.065$, $\eta_p^2 = 0.01$.

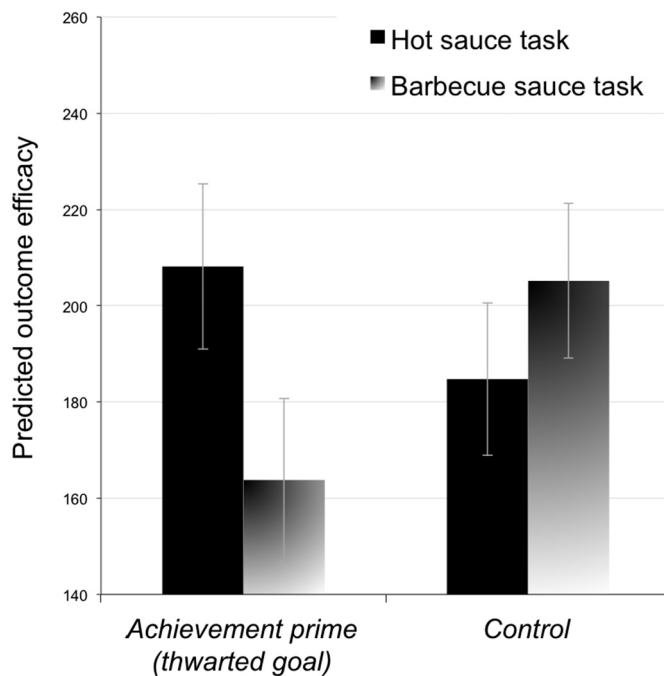


Fig. 2. Study 3: predicted test performance (outcome efficacy) as a function of whether or not participants had a goal thwarted before they performed a clearly aggressive act (allocating hot sauce) or a more ambiguous act (allocating barbecue sauce). Values are estimated marginal means and standard errors.

satory competence perspective, people resort to aggression because they lack other means to interact effectively with the environment.

This study follows up on the finding of Study 3 that goal-thwarted individuals will act upon whatever means of displacement they have available, even if it is less certain to harm the target. We specifically test whether goal thwarted individuals will prioritize taking effective action over being aggressive per se. If this were true, they may even prefer to help someone if the choice was between helping and doing nothing. There is evidence suggesting that taking effective action, to help someone, can provide a sense of efficacy and satisfy the need for competence (Dunn, Aknin, & Norton, 2014; Weinstein & Ryan, 2010). Here, we pit an opportunity for passive aggression against an opportunity to take effective action to help. We predict that goal thwarted participants would rather take effective action than remain idle, even if idleness is clearly the more aggressive alternative. The need for competence would be better served if one took effective action regardless of whether it was aggressive or helpful.

7.1. Method

7.1.1. Participants

Ninety-nine undergraduates (74 female, Age $M = 21.85$), from an international psychology program at a Dutch university, participated for course credit.

7.1.2. Procedure

All participants were greeted by a same-sex experimenter and seated in a private room. A simple cover story was used to imply the study was about speed and accuracy on a series of cognitive tasks and their scores would “be paired with those of another student taking the study either before or after you”. The one with a higher score would ostensibly be selected for advancement into a lottery pool for a chance to win €35.

To instantiate a thwarted goal, participants were either primed with an achievement goal or not with a scrambled sentence task and then they completed the extremely difficult anagram task from the previous studies.

Next, we manipulated whether it was action or idleness that

represented aggression. We used an aggression measure inspired by Fast and Chen (2009), wherein participants could harm the other person's chances of winning the aforementioned monetary prize. Participants read that there was no significant difference between their score and that of the other participant, but only one of them could move on to the €35 lottery. It said the computer randomly picked the other person to move on, but they “can have the final say on this”. Approximately half the participants were then instructed that, on the next screen, they could press the spacebar to ALLOW the other person to move on (i.e., perform a clearly helpful act), or let a 15 second timer run out and thus not allow them (i.e., remain idle and be aggressive). The rest were told they could press the spacebar to STOP the other person from moving on (i.e., perform a clearly aggressive act), or let the 15-second timer run out and not stop them (i.e., remain idle and be helpful). Participants could not get back into the lottery if they disallowed the other person, so their choice had no downstream personal benefits. The next screen displayed a 15-second timer and the dependent measure was whether or not participants pressed the spacebar (coded 1 or 0). Participants then entered their demographics and reported any suspicions about the study before they were fully debriefed.

7.2. Results and discussion

We conducted a binary logistic regression that predicted whether or not participants pressed the spacebar from their goal condition ($1 =$ thwarted goal, $-1 =$ control), action condition ($1 =$ spacebar stops other person from moving on, $-1 =$ spacebar allows the other person to move on), and the interaction of these two variables. Given the small number of men in this study ($n = 25$), we simply controlled for gender instead of treating it as a factor.¹¹ Results indicated a positive direct effect of the thwarted goal, $B = 0.61$, $\text{Exp}(B) = 1.83$, $Wald = 6.22$, $p = 0.013$, a negative direct effect of the action condition (whether pressing the spacebar was aggressive versus helpful), $B = -1.00$, $\text{Exp}(B) = 0.37$, $Wald = 15.66$, $p < 0.001$, and no interaction, $B = 0.08$, $\text{Exp}(B) = 1.08$, $Wald = 0.11$, $p = 0.740$. There was also a direct effect of gender, $B = 0.66$, $\text{Exp}(B) = 1.93$, $Wald = 4.96$, $p = 0.026$.

As illustrated in Fig. 3, the key result was the direct effect of the thwarted goal – that goal-thwarted participants pressed the spacebar more, regardless of whether it was helpful or harmful. This result supports our model prediction that goal-thwarted participants' superordinate goal is to experience efficacy and not to cause harm per se. Goal-thwarted participants preferred to take any effective action rather than to remain idle, regardless of whether it was helpful or harmful. The other direct effects simply suggest participants were more likely to press the spacebar to help than harm, and men were more likely to press the spacebar than women.

In sum, Study 4 suggests goal-thwarted individuals prioritized taking effective action to help someone over remaining idle to see them harmed. This helps to suggest the superordinate goal is to experience efficacy and not to be aggressive per se.

8. Study 5

The final study sought to provide convergent validity that the superordinate goal is to experience efficacy and not to be aggressive per se. We specifically test whether displaced aggression is substitutable with getting to pursue the originally thwarted goal – and could thus be attenuated if participants believe they will have a second performance

¹¹ When excluding gender from the analysis, results still indicated a positive direct effect of the thwarted goal, $B = 0.61$, $\text{Exp}(B) = 1.84$, $Wald = 6.34$, $p = 0.010$, a negative direct effect of the action condition (whether pressing the spacebar was aggressive versus helpful), $B = -0.89$, $\text{Exp}(B) = 0.41$, $Wald = 14.07$, $p < 0.001$, and no interaction, $B = 0.07$, $\text{Exp}(B) = 1.07$, $Wald = 0.09$, $p = 0.768$.

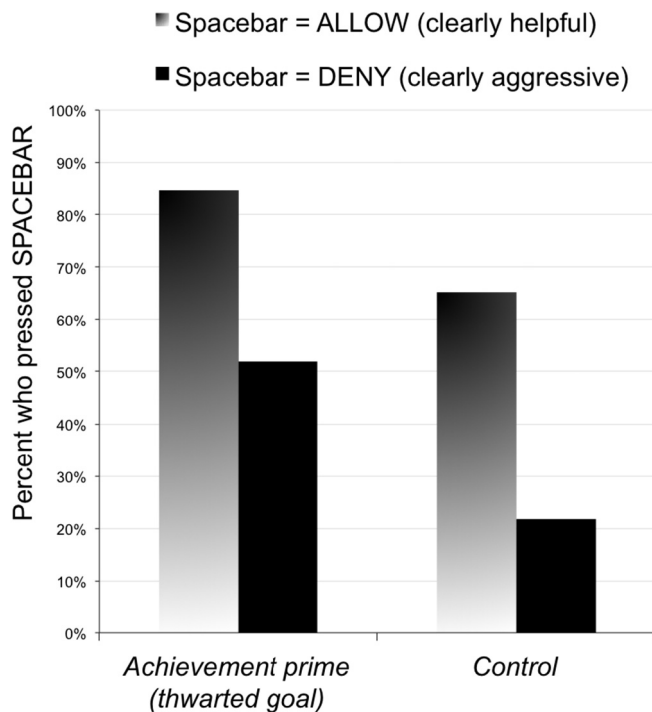


Fig. 3. Study 4: percentage of participants who took effective action (pressed the spacebar) as a function of whether or not they had a goal thwarted and whether the afforded action was aggressive or helpful.

opportunity in the thwarted goal domain. Indeed, from a Goal Systems perspective (Kruglanski et al., 2002), if any single means to address the competence need is thwarted (i.e., by the difficult anagram task), one could compensate by shifting to another means (i.e., displaced aggression). However, such a means-shift is unnecessary if one can expect to continue pursuing the focal goal at a later point in time. The logic of our study follows a long history of delay-of-gratification research (Mischel, Shoda, & Rodriguez, 1989), which argues that self-regulation often involves passing up on an immediate, but less valued, means of satisfaction, in favor of a more valued means to come later. We accordingly predict goal-thwarted individuals will pass up on an opportunity for displaced aggression when led to expect a second chance at pursuing the originally thwarted goal.

8.1. Method

8.1.1. Participants

Three hundred seventy-seven participants were recruited from Amazon's Mechanical Turk (233 female, Age $M = 36.14$). We recruited only US-based participants and paid \$0.75. An additional twenty-two participants were excluded for providing blatantly low-quality responses and six were excluded for having duplicate IP addresses.

8.1.2. Procedure

This study was presented as three separate parts. In Part 1, all participants completed the achievement prime and initial (failure) task involving the 6-letter anagrams and 15-second time limit per problem. Participants were then led to either expect a second performance opportunity in the thwarted goal domain or not. Participants in the control condition (no expectancy) were prompted with, "You have finished Part 1", but they did not receive any additional instructions. Participants in the expectation condition instead read, "You have finished Part 1. Later in this study, you will get different word problems with four (4) letters to rearrange instead of six (6). They are more solvable in the time given. This means your efforts are likely to be more effective, and your performance on them will provide a better indication of your academic

skills." They were given one example ("I C O N"; answer: *coin*) and were told they would get to work on the problems after completing the next task. To further shape participants' performance expectations, on the next screen these participants were asked, "How well do you expect to perform on the four (4) letter word problems?" The answer options were biased towards better performance (rated 1 = *about the same*, 2 = *slightly better*, 3 = *moderately better*, 4 = *much better*). Participants tended to believe they would perform slightly-to-moderately better ($M = 2.51$, $SD = 0.91$), suggesting this was indeed a means to experience efficacy. All participants then moved on to Part 2, which started with our measure of displaced aggression. We used the same puzzle assignment task from Study 2, in which participants selected puzzles to send to an ostensible on-campus participant who would receive \$1 for each correctly solved puzzle. The dependent measure was the number of hard puzzles sent.

Participants subsequently completed a series of self-reports. Participants first reported their anxious affect (*tense, anxious, nervous*, $M = 2.91$, $SD = 1.64$, $\alpha = 0.88$), hostile affect (*angry, irritated, frustrated*, $M = 2.74$, $SD = 1.69$, $\alpha = 0.88$), and quiescent affect (*calm, relaxed, serene*, $M = 3.70$, $SD = 1.62$, $\alpha = 0.89$).

Participants then prospectively appraised the last part of the study: "How difficult do you expect Part 3 to be?" (rated 1 = *Not at all* to 7 = *Extremely difficult*, $M = 4.71$, $SD = 1.32$), "How important is it to do well on Part 3?" (rated 1 = *Not at all* to 7 = *Extremely important*, $M = 5.16$, $SD = 1.52$), and "How much effort do you intend to put towards Part 3?" (rated 1 = *Minimal effort* to 7 = *Maximum effort*, $M = 6.31$, $SD = 1.03$). Participants were then presented with Part 3 of the study and informed that they would not complete additional word problems, but rather just a few questions about their personal tendencies and background. Participants were fully debriefed at the end of the study.

8.2. Results and discussion

8.2.1. Hard puzzles sent to target

The expectation of a future performance opportunity attenuated displaced aggression, at least among women: A 2 (expectation of second opportunity vs. control) \times 2 (gender) ANOVA, on the number of hard puzzles sent to the other person, resulted in no main effects of either expectancy condition, $F(1, 373) = 1.64$, $p = 0.202$, $\eta_p^2 = 0.004$, or gender, $F(1, 373) = 2.02$, $p = 0.156$, $\eta_p^2 = 0.005$, but rather a two-way interaction of expectancy and gender, $F(1, 373) = 5.98$, $p = 0.015$, $\eta_p^2 = 0.016$. As illustrated in Fig. 4, simple effects tests indicated that women who expected a second performance opportunity sent fewer hard problems ($M_{expectancy} = 0.69$, $SE = 0.09$, vs. $M_{control} = 1.12$, $SE = 0.11$, $p = 0.003$). These women also sent fewer hard problems than men who expected a second performance opportunity (vs. $M = 1.14$, $p = 0.006$). There was no effect of expectancy among men ($M_{expectancy} = 1.14$, $SE = 0.13$, vs. $M_{control} = 1.00$, $SE = 0.13$, $p = 0.459$).^{12,13}

8.2.2. Self-Report measures

Little additional insight was gained from the self-report measures. None of the affect measures (anxious, hostile, or quiescent affect) correlated with displaced aggression ($r_s < \pm 0.04$, $p_s > 0.48$). Similar to Study 2, the observed effects for displaced aggression were

¹² Similar to Study 2, $n = 49$ participants selected a number of puzzles other than five to send to the other participant. This tendency was not predicted by the manipulation ($Wald < 1.7$). When excluding these participants, the two way interaction on the number of hard puzzles sent was marginally significant, $F(1, 324) = 3.44$, $p = 0.065$, $\eta_p^2 = 0.01$, but the simple effect of expectancy remained significant among women ($M_{expectancy} = 0.73$ vs. $M_{control} = 1.12$, $p = 0.015$) and not men ($M_{expectancy} = 1.16$ vs. $M_{control} = 1.08$, $p = 0.685$).

¹³ When excluding gender from the analysis, a one-way ANOVA on the number of hard puzzles sent indicated a marginal main effect of condition, $F(1, 375) = 3.49$, $p = 0.063$, $\eta_p^2 = 0.009$.

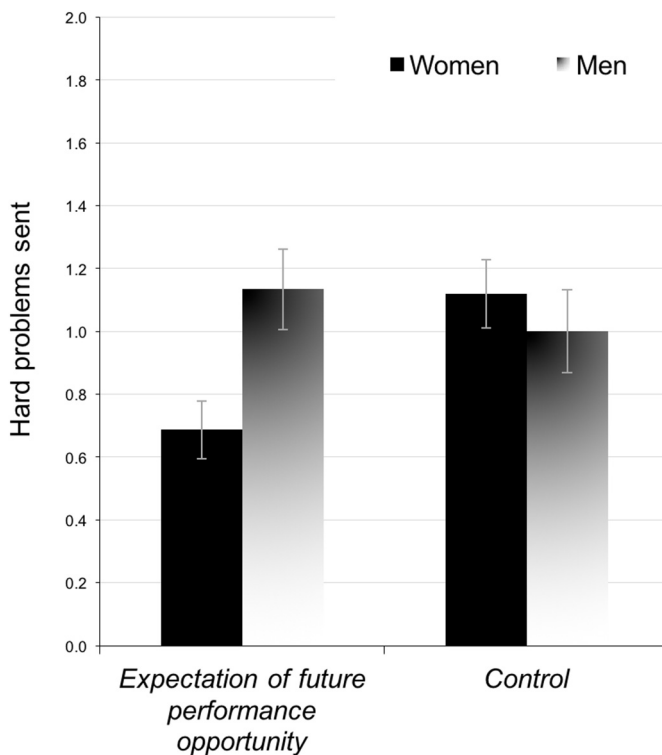


Fig. 4. Study 5: displaced aggression as a function of whether or not goal-thwarted men and women were led to expect a second opportunity for goal pursuit.

apparently not driven by changes in experienced negative affect. There was also no indication that the expectancy manipulation improved participants' affective states: separate 2×2 ANOVAs on the affect measures indicated no significant effects on either anxious or hostile affect; the only significant result was a main effect of expectancy on quiescent affect, $F(1, 373) = 5.13, p = 0.024, \eta_p^2 = 0.014$.¹⁴ The expectation of a second performance opportunity led participants to report less quiescent affect ($M_{\text{expectancy}} = 3.53, SE = 0.12$ vs. $M_{\text{control}} = 3.92, SE = 0.12$); put differently, it made them feel uneasy. The expectancy manipulation did not appear to provide emotional relief.

Participants' prospective appraisals of the last part of the study (i.e., ratings of importance, difficulty, effort intentions) were also uncorrelated with displaced aggression ($r_s < \pm 0.02, p_s > 0.76$). Separate 2×2 ANOVAs indicated no single or interactive effects of the expectancy manipulation on these items; the only significant results were main effects of gender on perceived importance, $F(1, 373) = 4.60, p = 0.033, \eta_p^2 = 0.012$, and effort intentions, $F(1, 373) = 13.89, p < 0.001, \eta_p^2 = 0.036$.¹⁵ As compared to men, women rated the third part of the study more important ($M_{\text{women}} = 5.29, SE = 0.10$ vs. $M_{\text{men}} = 4.95, SE = 0.13$) and intended to put more effort into it

¹⁴ There were no main effects of expectancy on the other two affect measures ($F_{\text{anxious}}(1, 373) = 1.92, p = 0.167, \eta_p^2 = 0.005; F_{\text{hostile}}(1, 373) = 1.60, p = 0.207, \eta_p^2 = 0.004$). There were no main effects of gender on any of the affect measures ($F_{\text{anxious}}(1, 373) = 0.01, p = 0.921, \eta_p^2 = 0.000; F_{\text{hostile}}(1, 373) = 0.09, p = 0.761, \eta_p^2 = 0.000; F_{\text{quiescent}}(1, 373) = 1.11, p = 0.293, \eta_p^2 = 0.003$), and only two marginal interactions of gender and expectancy ($F_{\text{anxious}}(1, 373) = 0.91, p = 0.342, \eta_p^2 = 0.002; F_{\text{hostile}}(1, 373) = 2.91, p = 0.089, \eta_p^2 = 0.008; F_{\text{quiescent}}(1, 373) = 3.71, p = 0.055, \eta_p^2 = 0.010$).

¹⁵ There was no main effect of gender on anticipated difficulty, $F(1, 373) = 0.03, p = 0.859, \eta_p^2 = 0.000$. There were also no main effects of expectancy on any of these measures ($F_{\text{difficulty}}(1, 373) = 2.66, p = 0.104, \eta_p^2 = 0.007; F_{\text{importance}}(1, 373) = 1.24, p = 0.226, \eta_p^2 = 0.003; F_{\text{effort intention}}(1, 373) = 1.03, p = 0.311, \eta_p^2 = 0.003$). Nor were there any two-way interactions of expectancy and gender ($F_{\text{difficulty}}(1, 373) = 0.07, p = 0.792, \eta_p^2 = 0.000; F_{\text{importance}}(1, 373) = 0.20, p = 0.659, \eta_p^2 = 0.001; F_{\text{effort intention}}(1, 373) = 0.32, p = 0.572, \eta_p^2 = 0.001$). Further exploratory analyses gave no indication that these secondary measures moderated the experimental effects on displaced aggression.

($M_{\text{women}} = 6.46, SE = 0.07$ vs. $M_{\text{men}} = 6.06, SE = 0.09$). Thus, the women were generally more motivated towards the third part of the study, irrespective of their experimental condition.

In sum, the expectation of a future performance opportunity attenuated the aggressive response, at least among women. This supports our idea that aggression is not the superordinate goal; individuals resort to it when they lack other means to interact effectively with the environment.

The results also suggest a possible gender role difference in how men and women seek to restore a sense of competence. Perhaps the men were more likely to perceive the aggression task to be a normatively appropriate means of interacting with the environment. The use of aggression interferes with traditional gender roles prescribed to women (Prentice & Carranza, 2002), so women may have preferred another strategy – which might explain why they generally rated the third part of the study more important and intended to put more effort towards it. An alternative explanation is that women are often stereotyped to be better on verbal tasks (Kray, Galinsky, & Thompson, 2002), so perhaps the women were more likely than the men to perceive the verbal task as a means to regain a sense of competence.

9. General discussion

Psychologists have studied hostility and aggression since the field's inception (Freud, 1914/1960; James, 1890). A longstanding question is whether the displaced response to thwarted goals is ever psychologically functional. The present research suggests it may indeed be functional and operate as a means to address a threatened sense of competence. We first observed that thwarted goals threaten perceived efficacy and increase displaced aggression. We then observed that having a clear means to engage in displaced aggression could attenuate the threat to perceived efficacy. We ultimately observed that the superordinate goal is to experience outcome efficacy and not to be aggressive per se. To summarize, when a goal is thwarted, displaced aggression may sometimes operate much like any other means to an end.

9.1. Implications for displaced aggression

9.1.1. Theoretical contributions

The findings may help to integrate theories of aggression, compensatory control, and social cognitive theories of goal pursuit. We built upon Bushman and Anderson's (2001) idea that the proximal goal to cause harm could be motivated by a superordinate goal, and extended their logic to the pursuit of psychological needs. In doing so, the results advance Dollard et al.'s (1939) Frustration-Aggression hypothesis by suggesting that displaced aggression in response to thwarted goals can be functional and purposive. Motivation for such aggression may signal the person has experienced a threat to a psychological need – a need that appears primarily concerned with reestablishing perceived efficacy.

We also positioned displaced aggression within Goal Systems Theory and found that it operated in some empirically predictable ways—namely, as a compensatory and substitutable means to experience efficacy. Displaced aggression operated much like any other goal-directed behavior, rising and falling in accordance with one's motivation to experience efficacy and one's available means to do so. Kruglanski et al. (2013, 2014) previously applied Goal Systems Theory to explain the motivation for terrorism and our model uses the same general architecture but simply differs in its specifications: Whereas Kruglanski and colleagues propose a superordinate “Quest for Significance” (QFS) and regards terrorism as a means to compensate for a major loss of personal significance, our model focuses on everyday threats to competence and does not specify any one response. QFS focuses on motivation for significance, which is linked to self-esteem; our model focuses on competence motivation, which is linked to self-

efficacy. Although these constructs correlate, Bandura (2006) noted, “Perceived efficacy is a judgment of capability; self-esteem is a judgment of self-worth. They are entirely different phenomena” (p. 309). QFS also focuses on terrorism, which involves a confluence of ideology, social influence, and motivation. And whereas acts of terrorism may involve conscious commitment, delay of gratification, and the targeting of specific groups, displaced aggression may be more sensitive to one’s immediately available means and targets. Yet despite such differences in specification, both models draw from Goal Systems Theory and importantly, both suggest that addressing the superordinate need can be attenuate or even redirect the motivation that drives aggressive responding.

The results also illustrate how a top-down motivational influence can guide displaced aggression (Kruglanski et al., 2002; Shah & Kruglanski, 2000); this advances the idea that seemingly hostile acts of aggression can be predicted by top-down processes (goals) as well as bottom-up processes (spreading activation). Adopting such a hierarchical framework could help to identify and organize different mechanisms of displaced aggression. From a bottom-up perspective, seemingly hostile acts of aggression can be triggered associatively in response to an aversive event or negative affective state. Yet from a top-down perspective, the aggression is purposive – it serves to address a threatened sense of competence or control (e.g., Warburton, Williams, & Cairns, 2006), or helps one exact revenge by retaliating against a provocateur’s close affiliates (Ein-Dor & Hirschberger, 2012; Sjöström & Gollwitzer, 2015). Whatever the motivation, the mechanism is qualitatively distinct from a bottom-up process. There might even be dynamic interplay between bottom-up and top-down processes: a negative affective state may not always trigger aggression through spreading activation; it could sometimes instead trigger the activation of an emotion regulation goal that only employs aggression if the individual perceives emotional utility in catharsis or exacting revenge (e.g., Bushman, Baumeister, & Phillips, 2001; Carlsmith, Wilson, & Gilbert, 2008). Altogether, these are just some examples of how a hierarchical framework could reveal differences in the antecedents, moderators, and mediators of seemingly hostile acts of aggression.

9.1.2. Alternative models

Our results suggest that a motivational pathway to displaced aggression does not necessarily correspond with the subjective experience of hostile or anxious affect. Our results instead align with Dollard et al.’s (1939) original theorizing, which mainly used the term “frustration” to refer to *frustrated goals*. If anything, our results may be seen as inconsistent with the classic idea that aversive events increase aggression to the extent such experiences elicit negative affect (Berkowitz, 1989). One explanation, for this discrepancy, is that our work specifically focused on the thwarting of goals rather than the vast range of aversive experiences that could trigger aggression via negative affect. The displaced aggression we observed may have been relatively cold in the sense it was a motivated behavior.

Our analysis focused on the concept of competence because of its direct connection to self-efficacy, but displaced aggression in response to thwarted goals could also be construed in terms of control motivation. Compensatory control theorists explicitly connect control to matters of effectance and personal agency (Kay et al., 2015; Landau et al., 2015). In fact, a recent theoretical framework fully incorporates ideas about the bolstering of personal agency for the specific purpose of increasing perceived capability to pursue one’s goals (Landau et al., 2015). If displaced aggression in response to thwarted goals is indeed motivated by control, one could speculate that having disconnected means of restoring control is key to attenuating aggressive behavior. With regards to restoring personal control, Warburton et al. (2006) showed that displaced aggression can be attenuated when ostracized participants – who would otherwise show increased aggression – are subsequently afforded some degree of personal control in an unrelated

part of the experiment. Then there is the possibility of substituting personal control with secondary control: people can compensate for a lack of personal control by establishing control via external agents and systems; or they might just try to establish control psychologically, such as by seeking clear, simple and coherent interpretations of the world.

Another possible alternative explanation is that there is no superordinate goal at all, and that thwarted goals simply increase a person’s tendencies towards action in general. Although participants did indeed show a tendency to act on whatever means were afforded to them, we argue that this is because it is better to at least try to produce an effect than to remain idle and not try to produce any effect at all. Idleness implies accepting a state of helplessness, which is an entirely different reaction to failure that involves giving up on trying to interact with the environment (Mikulincer, 1988). It is also important to note that goal-thwarted participants were sensitive to qualitative differences in the behaviors afforded to them: With regards to the puzzle assignment task in Studies 2 and 5, they preferred to assign more hard puzzles than easy puzzles, suggesting a preference for aggressive action when lacking any further opportunity to pursue the thwarted goal. With regards to the hot (vs. barbecue) sauce task in Study 3, perceived efficacy was only reestablished from the qualitative difference between the two types of sauces. Altogether, the present data fit our compensatory competence model better than a model of generalized action tendencies.

9.2. Implications for self-regulation

The notion that displaced aggression can provide a sense of efficacy offers a nuanced look at the role of compensation behaviors in the regulation of basic psychological needs. For example, Self-Determination Theory (SDT) suggests psychological need frustration could increase a range of compensatory behaviors aimed at alleviating negative affect or restoring esteem (Vansteenkiste & Ryan, 2013). Our model suggests the compensation behavior can itself satiate the psychological need. Thus, different compensation behaviors may serve different ends: some may be means to alleviate negative affect, whereas others may be substitute means of psychological need satisfaction.

This research also highlights the potential importance of having a deep reservoir of alternatives to keep one from resorting to aggression. If future opportunities for goal pursuit are lacking, then perhaps one could switch to other goals wherein outcome efficacy is more certain, such as engaging in familiar sports or games wherein one has a history of expertise and mastery. Perhaps there are forms of self-affirmation that help to remind a person of the effect they have on their environment (e.g., reminders of past accomplishments). Moreover, from an associative network perspective, having a deep reservoir of alternatives could dilute an aggressive response: increasing the number of means associated with a goal attenuates the strength to which any given means is activated (Shah, Kruglanski, Friedman, Spencer, & Fein, 2003, for a review). If a goal is associated with a deep reservoir of compensatory strategies, it could attenuate one’s reliance on aggression.

Another key finding is the effects were driven by beliefs about harm and efficacy, which is intriguing not just because aggression-related beliefs may drive future behavior, but also because beliefs can be changed. Aggressive behavior covaries with beliefs that it can produce positive outcomes (Perry, Perry, & Rasmussen, 1986). Perhaps interventions should focus on disrupting beliefs that aggression is an effective way to interact with the environment.

Providing alternatives and changing beliefs may be especially important when considering that compensatory competence may not be a conscious self-regulatory strategy. If the need for competence is fundamental, people may not always consciously realize when it is thwarted – or even realize they are being aggressive (e.g., Bargh, Raymond, Pryor, & Strack, 1995). Accordingly, it is conceivable that the conscious awareness and monitoring is an important step in preventing aggression (e.g., via reappraisal, Barlett & Anderson, 2011).

9.3. Limitations and conclusion

This research offers a motivational pathway to displaced aggression, but we do not assume that our model explains all instances of displaced aggression; we focused only on the thwarting of goals and matters of competence and self-efficacy. Some of our findings varied in the strength of their statistical reliability, with a few key results hovering in the $p = 0.05$ range, and we observed intermittent gender effects that suggest there are moderators we have not yet considered. What we can infer from these studies is that displaced aggression can sometimes be psychologically functional and operate much like any other means to an end.

Our experiments also deliberately constrained participants' behavioral choices and it is worth noting that in the field, the occurrence of displaced aggression is likely to differ not just by the presence of alternatives but also by the aggressive means and targets that are available. Differences in the strength of one's needs or cognitive associations also probably moderate the relation between thwarted goals and displaced aggression. For example, men may favor aggression as a compensation strategy because it additionally facilitates the pursuit of a masculine gender identity (Bosson & Vandello, 2011). From a Goal-Systems perspective, men might favor aggression because it is *multi-final* – it serves multiple needs simultaneously (Shah, Kruglanski, et al., 2003). Indeed, motivation for displaced aggression may vary by person, circumstance, and other active goals – not to mention by how competence is defined in that particular moment.

A final consideration is that competence regulation does not need to be the only psychological function of displaced aggression, nor does the presence of such a mechanism preclude potential evolutionary explanations for such behavior. Displaced aggression could, for instance, deter future exploitation by would-be harm-doers (McCullough, Kurzban, & Tabak, 2013); it could also serve as a social dominance strategy that advances one's hierarchical position in a group. In fact, our theorizing on the potential substitutability between goal achievement and displaced aggression fits research showing that prestige and dominance are distinct yet independently viable strategies to gain social rank in a hierarchy (Cheng, Tracy, Foulsham, Kingstone, & Henrich, 2013). Prestige involves showing superior skill or success in a domain valued by the group, whereas dominance involves bullying members of the group – and both strategies lead to higher social rank. In terms of our model, if one cannot gain prestige through achieving success in goal pursuit, one could alternatively gain dominance via displaced aggression. It is thus easy to imagine how displaced aggression can serve a psychological need and have evolutionary implications at the same time.

To conclude, the present research suggests that seemingly senseless acts of bullying and sabotage might often signal that the person is trying to address a threatened psychological need. The present model suggests the key to understanding such behaviors is to regard them as means to an end: From a compensatory competence perspective, displaced aggression is not about the target or the specific act; it feeds back to the question of whether one can interact effectively with the environment. It feeds back to competence.

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