The Relationship Between Self-Affirmation Beliefs Accuracy and Real-World Outcomes

THESIS

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Abstract

The experience of self-threat – or threat to the view of oneself as a capable and deserving person - can often derail the pursuit of one's most important goals. Through decades of research, selfaffirmation has proven to be an effective strategy for combatting self-threat. However, little is known about the natural occurrence of self-affirmation for combatting self-threats in the realworld, outside of laboratory and intervention settings. The current line of work takes a selfregulatory approach to studying self-affirmation: seeking to understand the impact of the beliefs that people have about the benefits of self-affirmation in combatting self-threat. Across three field studies, we examined (1) the accuracy of the beliefs that people have about the benefits of self-affirmation, and (2) whether beliefs accuracy was related to real-world outcomes. Replicating prior work (Reeves et al., under review), we found that on average people have accurate situation differentiation beliefs (i.e. they know in which types of situations selfaffirmation in beneficial), but struggle when it comes to comparative efficacy beliefs (i.e. they do not see self-affirmation as more beneficial that a control strategy, in situations of self-threat). When examining the effect of the individual differences in beliefs accuracy on real-world outcomes, results revealed that accurate comparative efficacy beliefs attenuated the threat experienced by single individuals who were seeking a committed relationship on Valentine's Day (Study 1) and reduced the amount of prejudice expressed by avid English soccer fans toward Black players following England's loss of the Euro 2020 tournament (Study 3). Despite these promising findings, accurate beliefs about the benefits of self-affirmation failed to predict the majority the outcomes of interest. In sum, these studies provide initial evidence for the relationship between self-affirmation beliefs and real-world outcomes, but also signal the need for future work to more effectively study this relationship.

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Introduction

Throughout our daily lives, we constantly encounter self-threatening situations: situations in which our sense of self-worth, or view of ourselves as capable and deserving people, is challenged. These self-threats may occur in any domain that is important to one's sense of selfworth: an academic may experience a self-threat if their paper is rejected, a devoted liberal may experience a self-threat if a conservative candidate is elected, a person who highly values their physical health may experience a self-threat if their doctor informs them that their diet is negatively affecting their health. Having both potential short-term and long-term consequences, self-threats not only make the threatened person feel bad about themselves in the moment, but may also lead to defensiveness that can close one off from others and limit future opportunities for growth. In the above examples, the academic may blame reviewers rather than accept that their studies contain flaws, the liberal may write-off the electoral process as rigged and refrain from further participation, and the person who values their health may question their doctor's competency and ignore their advice. The widespread negative consequences of self-threat have inspired researchers to investigate potential coping strategies, one of the most widely studied being self-affirmation.

Self-affirmation has proven to be an effective coping strategy for managing self-threating situations. Past work suggests that when people self-affirm, whether after being prompted to do so or spontaneously, they show improved outcomes in a variety of self-important domains (see Brady et al., 2016; Cohen & Sherman, 2014; Sherman & Cohen, 2006). Taking a self-regulatory approach to studying self-affirmation, the current line of work examines whether people are able to strategically choose to self-affirm when their sense of self-worth is threatened, thereby preventing self-threats from derailing the pursuit of their goals. In this line of work, we examine

the metamotivational beliefs – or beliefs people have about the nature of motivation – people have about the benefits of self-affirmation in coping with self-threat. Through investigating whether these beliefs predict important outcomes, we hope to better understand the necessary requirements for effective self-affirmation in the real world.

Self-Affirmation Theory

One of the self's primary motives is to maintain a sense of self-worth, or the idea that one is a capable and worthy person (e.g. Sedikides & Stroebe, 1997; Steele, 1988; Tesser, 2000). If threatened, an individual will seek to protect their sense of self-worth, which can be done via direct or indirect means. One of the most common direct responses to self-threat is often defensiveness: blaming others for one's current situation or closing oneself off to information that may further threaten the self. In the short term, defensiveness may successfully reduce the negative feelings that come with self-threat, essentially shifting the blame from the self to another source. However, in the long term this may lead people to close themselves off to others and to important opportunities for self-improvement.

Originating from work on cognitive dissonance, self-affirmation theory proposes a more effective, indirect strategy for coping with self-threat. Drawing from psychological resources that are unrelated to the threatened domain – such as one's strengths, close personal relationships, or most important values – people are able to reaffirm a global sense of self-worth without directly addressing the threat itself (see Cohen & Sherman, 2014). The most common instantiation of self-affirmation in laboratory and intervention studies has been the values affirmation, which is accomplished through reflecting on one's most important values. It has been theorized that reflecting on one's most important values broadens the perceived sources of self-worth, making any one threat to a particular source less disruptive (Sherman et al., 2013). Decades of research on self-affirmation suggest that when people reflect on their most important values, they are

better able to cope with self-threat in various self-important domains including health (e.g. Harris et al., 2007; Taber et al., 2016), education (e.g. Sherman & Cohen, 2006; Sherman et al., 2013), and intergroup conflict (e.g. Binning et al., 2010; Fein & Spencer, 1997). As a whole, this work suggests that when one's sense of self-worth is restored through self-affirmation, the individual no longer needs to engage in other self-protective strategies (e.g. defensiveness). This may allow the individual to be more willing to accept information that may reflect negatively on the self, potentially opening the doors to opportunities for self-improvement and acceptance of alternative points of view.

Strategic Self-Affirmation

Despite the amount of evidence supporting the effectiveness of self-affirmation as a coping strategy, little is known about whether people recognize the benefits of self-affirmation and are able to use it strategically in the face of self-threat. Recent work on spontaneous self-affirmation and trait self-affirmation tendencies began to address this question (Brady et al., 2016; Harris et al., 2019). Work on spontaneous self-affirmation, or self-affirmation that occurs without prompting, suggests a partial explanation for the long-term effectiveness of some self-affirmation interventions. Brady et. al (2016) examined the effectiveness of a self-affirmation intervention for Latino college students, who were found to perform worse academically than their White counterparts, presumably due to higher levels of self-threat. In this study, students were asked to free write after being reminded of the amount of coursework they needed to complete before the end of the semester, and their responses were coded for the extent to which they contained self-affirmative language. The authors found that Latino students who were given a self-affirmation intervention (vs. control exercise) felt more confident in coping with self-threats and improved their grade point averages over the following two years. Importantly, the

effects on GPA were sequentially mediated through spontaneous self-affirmation, which led to a greater confidence in coping with end-of-semester academic stressors.

With the development of the Spontaneous Self-Affirmation Measure (SSAM), a measure of trait-level self-affirmation, Harris et al. (2019) examined the extent to which people self-report that they self-affirm in the face of self-threat. Importantly, the authors found that there were individual differences in trait-level self-affirmation, which predicted a preference to self-affirm – versus engage in alternative strategies – under self-threat, as measured by the Self-Enhancement and Self-Protection Strategies Scale (Hepper et al., 2010). As a whole, this work on strategic self-affirmation suggests that people are able to self-affirm spontaneously following an intervention, and that there are important individual differences in the extent to which people believe they self-affirm when threatened. However, this work does not address the necessary requirements for effective self-affirmation. It is still unclear as to why some are able to effectively self-affirm while others are not, or whether self-affirmation is a strategy that people know to use in the face of self-threat (vs. a general negative situation), in order to keep themselves focused on their goals.

Self-Affirmation Beliefs

More recent work has taken a metamotivational approach to studying self-affirmation. Research on metamotivation suggests that in order to effectively regulate one's motivation, one must have (1) accurate knowledge about the motivational demands of a given task and (2) accurate knowledge about which strategies are most effective in inducing the optimal motivational state (Miele & Scholer, 2018; Scholer & Miele, 2016). As discussed earlier, in selfthreatening situations, one's primary motivation is often to feel better and restore a sense of selfworth. To do so properly, it is important that one is able to select an effective strategy that allows one to move beyond self-protection concerns and continue goal pursuit. It is thought that this selection process may often be an implicit, rather than explicit process (see Wagner & Sternberg, 1985). In other words, people may react with a strategy that feels right, rather than engage in a process of deliberately selecting the most effective strategy. Therefore, it is possible that people may not be able to accurately report the specific strategy they used in a given situation. For this reason, metamotivational beliefs are often studied by presenting participants with various scenarios in which they are asked to *select* the strategy that feels right for accomplishing their self-regulatory goal, rather than generate a response on their own (e.g. Nguyen et al., 2019; Scholer & Miele, 2016).

Reeves et al. (under review) used this approach to examine whether people have accurate beliefs about the benefits of self-affirmation as a strategy for coping with self-threat. The authors classified these beliefs in two ways: comparative efficacy and situation differentiation. Comparative efficacy beliefs refer to the beliefs that people have about the benefits of selfaffirmation in comparison to potentially maladaptive, alternative strategies (e.g. recounting the details of the situation) in self-threatening situations. These beliefs indicate whether a person may choose to self-affirm, versus engage in an alternative strategy, in self-threatening situations. Situation differentiation beliefs refer to the beliefs that people have about the benefits of selfaffirmation in self-threatening situations that do not involve self-threat. These beliefs indicate when, or in which types of situations, people may choose to self-affirm.

The authors found that, on average, people had accurate situation differentiation beliefs (i.e. they knew when to use self-affirmation), but inaccurate comparative efficacy beliefs (i.e. they did not see the benefits of self-affirmation over potentially maladaptive strategies in self-threatening situations). Additionally, the authors found that when given the choice to either recount or self-affirm following a self-threat, those with accurate comparative efficacy beliefs

chose to self-affirm. As a whole, this research suggests that people, on average, have somewhat accurate beliefs about the usefulness of self-affirmation, and that those with accurate comparative efficacy beliefs may choose to self-affirm (vs. recount) when prompted to choose between the two strategies.

Although there is evidence that these beliefs predict the choice to affirm when given the opportunity, the question remains as to whether these beliefs predict real-world outcomes. Examining the link between these beliefs and outcomes will allow us to determine whether accurate beliefs about the benefits of self-affirmation are an essential requirement for the effective implementation of self-affirmation in the real world. With this knowledge, we may be able to design more effective interventions that help individuals cope with self-threats that may impede the pursuit of their goals.

The Present Research

Across three studies, we examined whether accurate beliefs about the benefits of selfaffirmation predicted real-world outcomes in various self-threatening situations: being single on Valentine's Day (Study 1 & 3) and having one's favorite team lose a major soccer match (Study 2). In each of these studies, we had two main objectives. First, we aimed to further demonstrate that people have both accurate and inaccurate beliefs about the benefits of self-affirmation and that there are individual differences in this accuracy. Second, we aimed to demonstrate that accurate beliefs about the benefits of self-affirmation can lead to adaptive outcomes for those who experience self-threat. We expected that accurate comparative efficacy and situation differentiation beliefs would improve positive outcomes, and decrease negative outcomes, for those who experienced high levels of self-threat.

Study 1

Method

Overview

The purpose of Study 1 was to determine whether accurate beliefs about the benefits of self-affirmation help single individuals to cope with the self-threat of being alone on Valentine's Day. In this study, we contacted single individuals in February 2021, before and after Valentine's Day. It was expected that single individuals, especially those who were seeking a romantic relationship, would feel the most psychologically threatened on Valentine's Day, but that this threat would be attenuated for those who believe self-affirmation is a beneficial strategy to use under self-threat. Additionally, beliefs about the benefits of self-affirmation under threat should be most consequential when participants (1) believe it is more helpful than self-affirming in non-threatening situations (situation differentiation) and (2) see self-affirmation as a more beneficial strategy than recounting under self-threat (comparative efficacy).

Participants

At baseline, Prolific workers based in the United States with an approval rate > 90%, not currently in a romantic relationship, and between the ages of 18-35 years participated in exchange for \$1.70 (N = 201, $M_{age} = 24.29$, $SD_{age} = 5.05$, 95 females, 94 males, 7 transgender or non-binary, 5 not reported). One hundred and fifty-nine completed the follow-up survey in exchange for \$0.65. In this and all subsequent studies, an attention check was contained within the self-affirmation beliefs measure. At a randomized point throughout the assessment, participants were asked to select "somewhat unhelpful" if they were paying attention. A number of participants were removed for failing this attention check (N = 7), leaving one-hundred and fifty-two ($M_{age} = 24.13$, $SD_{age} = 5.09$, 68 females, 73 males, 6 transgender or non-binary)

participants eligible for analysis. A sensitivity power analysis revealed that given this sample size, we had the ability to detect an effect size of $f^2 = 0.05$, at 80% power, and $f^2 = 0.07$ at 90% power¹.

Materials

Beliefs assessment & attention check (baseline only). Materials created by Reeves et al. (under review) were used to measure metamotivational beliefs about the benefits of self-affirmation. Participants read about two coping strategies that people may use in order to help themselves to deal with difficult situations (in counterbalanced order): values reflection and recounting. The values reflection strategy was described to participants as "reflecting on the values that matter most to you," while the recounting strategy was described as "reflecting on the details of the specific situation" (see Appendix A for full descriptions). Participants were then presented with a randomized series of eight self-threat and eight control scenarios. The self-threat scenarios described situations that were meant to threaten ones' sense of self-integrity, similar to those used in previous self-affirmation laboratory and intervention research in which self-affirmation has shown positive effects (e.g Cohen & Sherman, 2014). For example, one self-threat scenario read:

Imagine you are a heavy coffee drinker. You have just learned that caffeine consumption can increase the risk of developing certain types of cancer. You think of yourself as a healthy person and you find this information distressing. You are tempted to ignore the information and downplay the risk.

¹ Some of the analyses contained additional predictors. For belonging, positive affect, negative affect, and selfevaluation: $f^2 = 0.14$ at 80% power

 $f^2 = 0.18$ at 90% power

Imagine that your goal is to accept this threatening health information even though it makes you feel bad about yourself.

Research on Terror Management Theory uses scenarios involving pain as comparison conditions that are as negative and intense as mortality salience (a type of self-threat), but without any elements of self-threat (e.g. Greenberg et al., 1997). Accordingly, to control for valence and intensity, in this measure eight situations that involved managing physical pain were selected to serve as control scenarios. For example, one control scenario read:

Imagine that you woke up this morning with your back really sore and stiff. It hurts badly enough that it's a little hard to move. Just turning over to your side is difficult and painful. You've managed to make an appointment with your doctors and you now have to get to their office.

Imagine that your goal is to figure out how to deal with this.

After reading each scenario, participants rated the helpfulness of both the values affirmation strategy and the recounting strategy on a 7-point scale (1 = extremely unhelpful, 7 = extremely helpful) in accomplishing the stated goal. Both strategy helpfulness ratings were averaged within each type of scenario, resulting in four composite scores: endorsement of self-affirmation in self-threat scenarios (affirmation-threat), endorsement of recounting in self-threat scenarios (affirmation-control), and endorsement of recounting in control scenarios (recounting-torol).

Relationship-seeking status (baseline and follow-up). At baseline, to determine whether participants were currently seeking a romantic relationship, they were asked to rate their level of agreement with a statement related to their relationship-seeking-status on a 5-point scale (1 = strongly disagree, 5 = strongly agree): "I am actively seeking a committed relationship." For exploratory reasons, this measure was also included at follow-up to assess potential defensiveness. However, we do not include these analyses, as little change was observed between baseline and follow-up scores (r = 0.82).

Feelings about Valentine's Day plans (baseline only). Participants were reminded that Valentine's Day was coming up in a few days and were asked to list, in an open-ended response, the plans they had for Valentine's Day. After describing their plans, participants were asked to rate how they felt about those plans on a 7-point scale (1 = dreadful, 7 = excited).

Psychological vulnerability (baseline and follow-up). Participants' psychological vulnerability was measured using three subscales from a measure developed by Muenks and colleagues (2020): belonging, positive affect, and negative affect. Participants rated their level of belonging across 5 items (e.g. "How alienated do you feel today?"; baseline $\alpha = 0.90$, follow-up $\alpha = 0.88$ on a 6-point scale (1= not at all, 6 = extremely). Positive affect was measured using 3 items (e.g. "Today, I feel enthusiastic;" baseline $\alpha = 0.89$, follow-up $\alpha = 0.91$), rated on a 6-point scale (1= not at all, 6 = a huge amount). Lastly, negative affect was measured using 3 items (e.g., "Today, I feel distressed;" baseline $\alpha = 0.87$, follow-up $\alpha = 0.87$), rated on a 6-point scale (1= not at all, 6 = a huge amount). Lastly were analyzed separately.

Self-evaluation (baseline and follow-up). To measure state self-evaluation, participants were asked to complete an adapted version of the State Self-Evaluation measure (McFarland & Ross, 1982; Walton et al., 2015). Across 9 items on a semantic differential scale, participants

were asked to rate how they felt about themselves in the moment (e.g. bad vs. good, stupid vs. smart, rejected vs. accepted; baseline $\alpha = 0.96$, follow-up $\alpha = 0.96$), on a 7-point scale (-3 = most negative option [e.g. bad], 3 = most positive option [e.g. good]).

Valentine's Day satisfaction (follow-up only). Participants were reminded that Valentine's Day had recently passed, and were asked to use the provided open-end response box to reflect on what they did. On the following screen, participants were asked to rate how they felt about their Valentine's Day on a 6-point scale (1= disappointed, 6 = satisfied).

Additional Measures

Demographics (baseline only). Participants were asked to report demographic information (i.e. gender, age, English as primary language, ethnicity, mother's level of education, father's level of education, social class, political ideology [social dimension], and political ideology [economic dimension]).

Additional relationship-seeking status (baseline and follow-up). Three additional items were included at baseline for participants' relationship-seeking status: "I don't want a relationship, I prefer to stay unattached," "I am not actively looking, but I am open to dating if the right person comes along," and "I am looking to date casually but not settle down." Given the high face validity of the relationship variable that we chose above, we decided to include it over the relationship-seeking variables listed in this section (see Table 2 in Appendix B for relationship-seeking variable correlations).

Loneliness (baseline and follow-up). The extent to which participants felt lonely was measured using an adapted version of the UCLA Loneliness Scale (Russell et al., 1978). Participants rated how often they felt lonely across 21 items (e.g. "I feel isolated from others"; α = 0.85) on a 4-point scale (0 = never, 3 = often). Due to a programming error, only 8 of these

items were shown at baseline, while the full 21 item scale was shown during the follow-up. This variable was not included in our analyses, as we did not observe a correlation between loneliness and relationship-seeking status at baseline, r = -.007 or follow-up, r = -.05. It was determined that the loneliness participants were experiencing did not seem to be related to their relationships, and is therefore not an adequate measure of self-threat.

Relationship anxiety and avoidance (baseline and follow-up). An adapted version of the Experiences in Close Relationships Inventory (Brennan et al., 1998) was included. Participants rated their relationship anxiety across 8 items (e.g. "I worry that romantic partners won't care about me as much as I care about them."; baseline $\alpha = 0.91$, follow-up $\alpha = 0.91$) on a 7-point scale (1= strongly disagree, 7 = strongly agree). Participants rated their relationship avoidance across 8 items (e.g. "I don't feel comfortable opening up to romantic partners."; baseline $\alpha = 0.92$, follow-up $\alpha = 0.93$) on a 7-point scale (1= strongly disagree, 7 = strongly agree). Although originally included to serve as measures of relationship defensiveness, high correlations between and follow-up (avoidance: r = .91; anxiety: r = .88) values suggest that these may be insensitive to threat.

Valentine's Day importance (baseline and follow-up). Participants were asked to rate how important Valentine's Day was to them on a 6-point scale (0 = not at all important, 5 = very important). We were not sure how serious single adults would take Valentine's Day, so this measure was initially intended to serve are a potential moderator. It was expected that those who placed high importance on Valentine's Day, would be the most threatened. However, visual inspection suggested that this measure was highly skewed at both baseline and follow-up, with the majority of participants reporting that Valentine's Day was not important to them. For this

reason, it is not included in our analyses. We explored the possibility of using this variable as an outcome, but this did not reveal interesting findings, potentially due to the floor effect. *Procedure*

On February 12th, 2021, the Friday before Valentine's Day, participants were sent a link to the baseline survey via Prolific. After consenting to participate and confirming that they were not currently in a romantic relationship, participants completed the self-affirmation beliefs measure, measures of loneliness, psychological vulnerability, relationship anxiety and avoidance, relationship-seeking status, self-evaluation, Valentine's Day importance, Valentine's Day plans & feelings about plans, and demographics. Lastly, at the end of the baseline survey, participants were thanked and compensated for their time.

On Monday February 15th, 2021, the day after Valentine's Day, participants were recontacted and asked to complete a short follow-up survey. During this follow-up survey, participants were first asked to report their level of loneliness, psychological vulnerability, relationship insecurity, relationship-seeking status, and self-evaluation. Participants were then reminded that the previous day was Valentine's Day. In an open-end response, participants recounted what they did on Valentine's Day. On the following screen, their response was piped in, and participants were asked to rate how satisfied they were with these plans and how important Valentine's Day was to them.

Results

Self-affirmation beliefs accuracy

To assess the accuracy of participants' beliefs about the benefits of self-affirmation, we conducted a 2 (scenario: self-threat vs. control) x 2 (strategy: self-affirmation vs. recounting) repeated measures ANOVA (Figure 1). Results revealed significant main effects of both scenario and strategy. Participants generally rated both strategies as more helpful in the self-threat

scenarios (M = 5.05, SD = .95) than in control scenarios (M = 4.36, SD = 1.23), F(1, 151) = 157.93, p < .001. Additionally, participants generally rated recounting (M = 5.17, SD = 1.06) as more helpful than self-affirmation (M = 4.24, SD = 1.12) across scenarios, F(1, 151) = 83.07, p < .001. However, these main effects were qualified by a significant scenario x strategy interaction, F(2, 151) = 147.18, p < .001.

To interpret this interaction, we examined ratings of self-affirmation and recounting across scenario types. Results revealed that, on average, participants rated self-affirmation as more helpful in self-threat scenarios (M = 5.07, SD = .94) when compared to control scenarios (M = 3.42, SD = 1.29), t(151) = 15.630, p < .001. This suggests that participants understand when it is most beneficial to use self-affirmation (situation differentiation). On the other hand, participants rated recounting as slightly more helpful in control scenarios (M = 5.30, SD = .96) when compared to self-threat scenarios (M = 5.03, SD = 1.16), t(151) = 3.095, p = .002.

We next examined the ratings of helpfulness of self-affirmation when compared to recounting within self-threat scenarios. Results revealed that, on average, there were no significant differences between self-affirmation (M = 5.07, SD = .94) and recounting (M = 5.03, SD = 1.16) within self-threat scenarios, t(151) = .322, p = .748. This suggests that participants do not understand that self-affirmation should be more useful than recounting in the face of self-threat (comparative efficacy). Similar to Reeves et al. (under review), we find evidence of both accuracy and inaccuracy when it comes to beliefs about the benefits of self-affirmation.



Strategy Helpfulness in Threat and Control Scenarios

Figure 1. Average helpfulness ratings of self-affirmation and recounting within self-threat and control scenarios (Study 1).

Self-affirmation beliefs predicting outcomes

Of the four average scores that result from the self-affirmation beliefs measure, only three scores have theoretical relevance (affirmation-threat, recounting-threat, and affirmation-control). Therefore, recounting-control was dropped from the following analyses. Visual examination of the distribution of the relationship-seeking variable suggested positive skew. We therefore normalized this variable by imposing a natural log transformation (Fazio, 1990). Each of these variables was then standardized in order to facilitate comparison.

Analyses were conducted using a linear regression, with affirmation-threat, recountingthreat, affirmation-control, and relationship-seeking, the two-way interactions between each of these variables, and the theoretically relevant three-way interactions (affirmation-threat x recounting-threat x relationship-seeking & affirmation-threat x affirmation-control x relationship-seeking) used as predictor variables². Correlations between comparative efficacy, situation differentiation, and all relevant outcomes are provided in Table 5 (Appendix B).

² If an analysis included additional predictor variables, this inclusion is noted in each specific section.

Statistical main effects and interactions for each individual outcome are presented in order in Tables 8 – 13 (Appendix B).

Valentine's Day plan feeling. To determine whether those who were seeking a romantic relationship were threatened, we first examined the main effect of relationship-seeking on Valentine's Day plan feeling. It was expected that those who were seeking a relationship would feel worse about their Valentine's Day Plans. As expected, results revealed a significant main effect of relationship-seeking, suggesting that those high in relationship-seeking reported less excitement about their upcoming Valentine's Day plans, $\beta = -.37$, t(146) = -3.077, p = .003. This suggests that those seeking a committed relationship, did in fact feel more threatened. A main effect of affirmation-threat emerged, suggesting that those who show higher endorsement of affirmation-threat, feel better about their upcoming Valentine's Day plans, $\beta = .40$, t(146) = 2.865, p = .005. Additionally, a recounting-threat x relationship-seeking interaction emerged, $\beta = -.23$, t(146) = -2.227, p = .028. Recounting-threat endorsement led to marginally more excitement about Valentine's Day plans when relationship-seeking was low vs. high: $\beta = .25$, t(146) = 1.928, p = .056 vs. $\beta = .23$, t(146) = -1.275, p = .205.

Critically, these effects were qualified by a significant affirmation-threat x recountingthreat x relationship-seeking interaction, $\beta = -.25$, t(139) = -2.93, p = .004. As expected, breaking down this three-way interaction (Figure 2), simple slopes analysis revealed that for those high in relationship-seeking (+1 *SD*), affirmation-threat endorsement led to more optimistic feelings about Valentine's Day plans when recounting was low vs. high: $\beta = .95$, t(139) = 3.05, p=.003 vs. $\beta = .25$, t(139) = 1.07, p = .289. For those who were low in relationship-seeking (-1 *SD*), affirmation-threat endorsement did not lead to more optimistic feelings about Valentine's Day plans whether recounting-threat endorsement was low or high: $\beta = .06$, t(139) = .308, p =.759 vs. β = .36, t(139) = 1.47, p =.143. These results suggest that single individuals who are seeking a committed relationship feel better about their upcoming Valentine's Day plans when they have accurate comparative efficacy beliefs.



Figure 2. The effect of affirmation-threat and recounting-threat on Valentine's Day plan feelings for those low and high in relationship-seeking (Study 1).

A significant affirmation-threat x affirmation-control x relationship-seeking interaction also emerged, $\beta = .28$, t(139) = 2.899, p = .004. Unexpectedly, breaking down this three-way interaction (Figure 3), simple slopes analysis revealed that for those high in relationship-seeking (+1 *SD*), affirmation-threat endorsement led to more optimistic feelings about Valentine's Day plans when affirmation-control was low, and this effect was even stronger when affirmation control was high: $\beta = .38$, t(139) = 2.004, p = .047 vs. $\beta = .82$, t(139) = 2.723, p = .007. Additionally, these results reveal that for those who were low in relationship-seeking (-1 *SD*), affirmation-threat endorsement led to more excitement about Valentine's Day plans only when affirmation-control was low vs. high: $\beta = .58$, t(139) = 2.455, p = .015 vs. $\beta = .21$, t(139) = 1.095, p = .276. Contrary to expectations, the predicted effects were strongest for those who were not threatened (low in relationship-seeking), suggesting that accurate situation differentiation knowledge was most beneficial for this group. As our predictions are related to those who are most threatened, these results are difficult to interpret.



Figure 3. The effect of affirmation-threat and affirmation-control on Valentine's Day plan feelings for those low and high in relationship-seeking (Study 1).

Belonging. In addition to the predictors listed above, the following analysis controlled for baseline ratings of belonging, in order to analyze change in feelings of belonging in response to Valentine's Day. To determine whether those who were seeking a romantic relationship were threatened, we first examined the main effect of relationship-seeking on feelings of belonging. It was expected that those who were seeking a relationship would have lower feelings of belonging following Valentine's Day. Unexpectedly, results revealed that the main effect of relationship-seeking that those high in

relationship-seeking report directionally greater levels of belonging following Valentine's Day, $\beta = .14$, t(134) = 1.969, p = .051. To test whether the change in feelings of belonging differed as a function of threat, we examined the belonging (baseline) x relationship-seeking interaction. Results revealed a non-significant interaction, suggesting that change in feelings of belonging does not differ as a function of relationship-seeking, $\beta = -.04$, t(134) = -.600, p = .550. Additionally, the affirmation-threat x recounting-threat x relationship-seeking interaction was found to be non-significant, $\beta = .06$, t(134) = 1.331, p = .186.



Figure 4. The effect of affirmation-threat and recounting-threat on belonging for those low and high in relationship-seeking (Study 1).

However, a marginally significant interaction of affirmation-threat x affirmation-control x relationship-seeking emerged, β =.-.10, t(134) = -1.676, p = .096. Breaking down this three-way interaction (Figure 5), simple slopes analysis revealed that for those low in relationship-seeking (-1 *SD*), affirmation-threat endorsement led to less feelings of belonging when

affirmation-control was low vs. high: $\beta = -.29$, t(134) = -2.052, p = .042 vs. $\beta = -.04$, t(134) = -0.272, p = .786. This would suggest that for those who were not seeking a relationship, accurate situation differentiation beliefs led to lower feelings of belonging following Valentine's Day. Unexpectedly, these results reveal that for those who were high in relationship-seeking (+1 *SD*), affirmation-threat endorsement did not lead to more feelings of belonging whether affirmation-control was low or high: $\beta = .02$, t(134) = 0.208, p = .836 vs. $\beta = -.12$, t(134) = -0.727, p = .469. Contrary to expectations, the effects were strongest for those who are not threatened (low in relationship-seeking). As our predictions are related to those who are most threatened, these results are difficult to interpret.



Figure 5. The effect of affirmation-threat and affirmation-control on belonging for those low and high in relationship-seeking (Study 1).

Positive affect. In addition to the predictors listed above, the following analysis controlled for baseline positive affect, in order to analyze change in feelings of positive affect in

response to Valentine's Day. To determine whether those who were seeking a romantic relationship were threatened, we first examined the main effect of relationship-seeking on positive affect. It was expected that those who were seeking a relationship would show less positive affect following Valentine's Day. Unexpectedly, results revealed that the main effect of relationship-seeking was non-significant, suggesting that those high in relationship-seeking did not experience less positive affect following Valentine's Day, $\beta = .15$, t(134) = 1.590, p = .114. To test whether the change in positive affect differed as a function of threat, we examined the positive affect (baseline) x relationship-seeking interaction. Results revealed a non-significant interaction, suggesting that change in positive affect does not differ as a function of relationshipseeking, $\beta = ..11$, t(134) = .1.229, p = .221.

As there was no evidence of threat, it is unsurprising that neither the affirmation-threat x recounting-threat x relationship-seeking interaction, nor the affirmation-threat x affirmation-control x relationship-seeking interaction were significant: $\beta = .03$, t(134) = 0.463, p = .644 vs. $\beta = .09$, t(134) = -1.196, p = .234. This would suggest that when no threat occurs, accurate comparative efficacy and situation differentiation beliefs do not lead to greater positive affect.



Figure 6. The effect of affirmation-threat and recounting-threat on positive affect for those low and high in relationship-seeking (Study 1).



Figure 7. The effect of affirmation-threat and affirmation-control on positive affect for those low and high in relationship-seeking (Study 1).

Negative affect. In addition to the predictors listed above, the following analysis controlled for baseline negative affect, in order to analyze change in feelings of negative affect in response to Valentine's Day. To determine whether those who were seeking a romantic relationship were threatened, we first examined the main effect of relationship-seeking on negative affect. It was expected that those who were seeking a relationship would show more negative affect following Valentine's Day. Unexpectedly, results revealed that the main effect of relationship-seeking was non-significant, suggesting that those high in relationship-seeking did not experience more negative affect following Valentine's Day, $\beta = -.09$, t(134) = -1.007, p = .316. To test whether the change in negative affect differed as a function of threat, we examined the negative affect (baseline) x relationship-seeking interaction. Results revealed a non-significant interaction, suggesting that change in negative affect did not differ as a function of relationship-seeking, $\beta = -.10$, t(134) = -1.146, p = .254. As there was no evidence of threat, it is not surprising that the affirmation-threat x recounting-threat x relationship-seeking interaction was non-significant, $\beta = -.04$, t(134) = -0.632, p = .529.



Figure 8. The effect of affirmation-threat and recounting-threat on negative affect for those low and high in relationship-seeking (Study 1).

However, a significant affirmation-threat x affirmation-control x relationship-seeking interaction emerged, $\beta = .19$, t(134) = 2.483, p = .014. Opposite of what was predicted, breaking down this three-way interaction (Figure 9), simple slopes analysis revealed that for those high in relationship-seeking (+1 *SD*), affirmation-threat endorsement led to more negative affect when affirmation-control endorsement was high vs. low: $\beta = .48$, t(134) = 2.130, p = .035 vs. $\beta = -.11$, t(134) = -0.762, p = .448. As there was little evidence of threat, as evidenced by non-significant relationship between relationship-seeking and negative affect, drawing clear conclusions about this effect of situation differentiation beliefs is difficult. Additionally, these results reveal that for those who were low in relationship-seeking (-1 *SD*), affirmation-threat endorsement led to marginally less negative affect when affirmation-control was high vs. low $\beta = -.31$, t(134) = -1.675, p = .096 vs. $\beta = -.13$, t(134) = -0.738, p = .462. As our predictions are related to those who are most threatened, these marginally significant results are difficult to interpret.



Figure 9. The effect of affirmation-threat and affirmation-control on negative affect for those low and high in relationship-seeking (Study 1).

Self-evaluation. In addition to the predictors listed above, the following analysis controlled for baseline self-evaluation, in order to analyze change in feelings of self-evaluation in response to Valentine's Day. To determine whether those who were seeking a romantic relationship were threatened, we first examined the main effect of relationship-seeking on self-evaluation. It was expected that those who were seeking a relationship would evaluate themselves more negatively following Valentine's Day. Unexpectedly, results revealed that the main effect of relationship-seeking was non-significant, suggesting that those high in relationship-seeking did not show lower self-evaluation following Valentine's Day, $\beta = .02$, t(134) = 0.289, p = .773. To test whether the change in self-evaluation differed as a function of threat, we examined the self-evaluation (baseline) x relationship-seeking interaction. Results

revealed a non-significant interaction, suggesting that change in self-evaluation did not differ as a function of relationship-seeking, $\beta = -.08$, t(134) = -1.222, p = .224.

As there was no evidence of threat, it is unsurprising that neither the affirmation-threat x recounting-threat x relationship-seeking interaction, nor the affirmation-threat x affirmation-control x relationship-seeking interaction were significant: $\beta = -.05$, t(134) = -1.016, p = .312 vs. $\beta = .04$, t(134) = .564, p = .574. This would suggest that when no threat occurs, accurate comparative efficacy and situation differentiation beliefs do not lead to greater self-evaluation.



Figure 10. The effect of affirmation-threat and recounting-threat on self-evaluation for those low and high in relationship-seeking (Study 1).



Figure 11. The effect of affirmation-threat and affirmation-control on self-evaluation for those low and high in relationship-seeking (Study 1).

Valentine's Day satisfaction. To determine whether those who were seeking a romantic relationship were threatened, we first examined the main effect of relationship-seeking on Valentine's Day satisfaction. It was expected that those who were seeking a relationship would feel less satisfied with what happened on Valentine's Day. As expected, results revealed that the main effect of relationship-seeking was significant, suggesting that those high in relationship-seeking were less satisfied with their Valentine's Day, $\beta = -.35$, t(146) = -2.812, p = .006. However, neither the affirmation-threat x recounting-threat x relationship-seeking interaction, nor the affirmation-threat x affirmation-control x relationship-seeking interaction were significant: $\beta = -.10$, t(134) = -1.118, p = .266 vs. $\beta = .10$, t(134) = 0.941, p = .348. These results suggest that although there was evidence of threat –those who were seeking a committed relationship were less satisfied with Valentine's Day – accurate beliefs about the benefits of self-affirmation did not attenuate that threat.



Figure 12. The effect of affirmation-threat and recounting-threat on Valentine's Day satisfaction for those low and high in relationship-seeking (Study 1).



Figure 13. The effect of affirmation-threat and affirmation-control on Valentine's Day satisfaction for those low and high in relationship-seeking (Study 1).
Discussion

Regarding self-affirmation beliefs accuracy, Study 1 replicates the findings of Reeves et al. (under review), suggesting that people have both accurate and inaccurate beliefs about the benefits of self-affirmation. We find that people have accurate situation differentiation beliefs, understanding that self-affirmation is more beneficial in self-threatening situations compared to negative situations that do not contain self-threat. However, participants struggle when it comes to comparative efficacy, believing recounting to be similarly beneficial as self-affirmation within self-threatening situations.

In Study 1, we also found initial evidence that self-affirmation beliefs accuracy may predict real-world outcomes. As expected, this study found that among those seeking a committed relationship, accurate comparative efficacy beliefs predicted more optimistic feelings about upcoming Valentine's Day plans. However, the findings related to situation-differentiation beliefs were less clear. The most unexpected finding was that while we predicted that those who had accurate situation differentiation beliefs would have been the most optimistic about their upcoming Valentine's Day plans, results revealed that the endorsement of affirmation in nonself-situations may have benefited those who were most threatened. Due to the small sample size that was present in this study, one possibility is that this was a spurious finding. Therefore, it is necessary to attempt to replicate this findings in order to draw any clear conclusions.

An additional concern was that the majority of outcomes in this study (i.e. positive affect, self-evaluation, and Valentine's Day satisfaction) were not affected by self-affirmation beliefs accuracy. Additionally, several outcomes were affected by self-affirmation beliefs, but not in the predicted direction (i.e the effects of situation differentiation beliefs on Valentine's Day plan feeling, belonging, and negative affect). There are several potential reasons for these results. Upon further reflection, we considered that participants may have been answering direct, self-

report measures defensively, or may have been unwilling to admit their distress, as it may have seemed irrational to be upset about Valentine's Day. It is possible that an indirect measure, rather than a direct measure, would have been better suited for capturing defensiveness around Valentine's Day. Additionally, it is possible that our lack of significant findings was the result of low power. In this study, we had a relatively small sample (N = 152). As mentioned previously, with a sample of this size, we were only able to detect an effect size of $f^2 = 0.05$, at 80% power, and $f^2 = 0.07$ at 90% power³. It is possible that the effects of self-affirmation beliefs are lower than these effect sizes and were therefore not detectable in our analyses. Lastly, contrary to expectations, many of the outcomes did not reveal evidence of greater threat for those who were seeking a committed relationship (i.e. belonging, negative affect, positive affect, and selfevaluation). It is possible that this could have been due to most participants having dealt with the threat by the time we recontacted them for the follow-up study.

We attempted to address these potential reasons for null findings in Study 2. First, to more subtly capture potential defensiveness that participants may not have been willing to admit to, we decided to include an indirect measure of defensiveness. Next, as Study 1 suffered from a low sample size that may not have given us enough power to detect our predicted effects, we increased the number of participants recruited in Study 2, in order gain the ability to detect smaller effect sizes. Lastly, in an attempt to address the issue of outcome timing, in Study 2, rather than ask how participants were feeling in the moment, we asked participants to try to remember how they were feeling on Valentine's Day.

³ Some of the analyses contained additional predictors. For belonging, positive affect, negative affect, and selfevaluation: $f^2 = 0.14$ at 80% power

 $f^2 = 0.18$ at 90% power

Study 2

Method

Overview

The goals of Study 2 were to (1) address the possibility that participants may have been unwilling to admit to negative feelings related to Valentine's Day, by including an indirect measure aimed to capture the belittling of relationships/couples as a defensive response, (2) to include a larger sample, allowing us to detect smaller effect sizes, and (3) to investigate whether asking participants to retrospectively report how they were feeling on Valentine's Day, was better able to capture defensiveness. In February 2022, single individuals were contacted before and after Valentine's Day. As in Study 1, it was expected that single individuals, especially those who want to be in a romantic relationship, would feel the most psychologically threatened on Valentine's Day, but that this threat would be attenuated for those who believe self-affirmation is a beneficial strategy to use under self-threat. Additionally, the endorsement of self-affirmation in threat scenarios should be most consequential when participants (1) rate it as more helpful than self-affirmation in control scenarios (situation differentiation) and (2) when they rate selfaffirmation under self-threat as more helpful than recounting under self-threat (comparative efficacy).

Participants

At baseline, Prolific workers based in the United States with an approval rate > 90%, not currently in a romantic relationship, and between the ages of 18-35 years participated in exchange for \$1.70 (N = 428, $M_{age} = 24.81$, $SD_{age} = 4.61$, 252 females, 142 males, 29 transgender or non-binary, 7 not reported). Three hundred and fifty-seven completed the follow-up survey in exchange for \$1.00. A number of participants were removed for failing the attention check (N =

9), leaving three hundred and forty-eight ($M_{age} = 25.13$, $SD_{age} = 4.63$, 195 females, 122 males, 26 transgender or non-binary, and 5 not reported) participants eligible for analysis. A sensitivity power analysis revealed that given this sample size, we had the ability to detect an effect size of $f^2 = 0.02$, at 80% power, and $f^2 = 0.03$ at 90% power⁴.

Materials

Beliefs assessment (baseline only). To measure metamotivational beliefs about the benefits of self-affirmation in coping, participants read the same randomized set of eight self-threat and eight control scenarios outlined in the previous studies. After each scenario, participants rated how helpful each of the strategies (values affirmation and recounting⁵) would be in accomplishing the outlined goals on a 7-point scale (1 = extremely unhelpful, 7 = extremely helpful). Both strategy helpfulness ratings were averaged within each type of scenario, resulting in four composite scores: endorsement of self-affirmation in self-threat scenarios (affirmation-threat), endorsement of recounting in self-threat scenarios (recounting-threat), endorsement of scenarios (affirmation-control), and endorsement of recounting in control scenarios (affirmation-control).

Relationship-seeking status (baseline and follow-up). To determine whether participants were interested in being in a romantic relationship, they were asked to rate their level of agreement with a statement related to their relationship-seeking-status on a 5-point scale (1 = strongly disagree, 5 = strongly agree): "I am actively seeking a committed relationship." For exploratory reasons, this measure was also included at follow-up to assess potential

⁴ Some of the analyses contained additional predictors. For positive affect, negative affect, and self-evaluation: $f^2 = 0.06$ at 80% power

 $f^2 = 0.07$ at 90% power

⁵ In addition to the values reflection and recounting strategies described in the previous studies, a third strategy (positive reflection: "thinking positively and telling yourself to shake-it-off") was included in this study for exploratory purposes. Future analyses are planned with the inclusion of this strategy.

defensiveness. However, we do not include these analyses, as little change was observed between baseline and follow-up scores (r = 0.82).

Feelings about Valentine's Day plans (baseline only). Participants were reminded that Valentine's Day was coming up in a few days and were asked to list, in an open-ended response, the plans they had for Valentine's Day. After describing their plans, participants were asked to rate how they felt about those plans on a 7-point scale (1 = dreadful, 7 = excited).

Psychological vulnerability (baseline and follow-up). Participants' psychological vulnerability was measured using two subscales from the original measure: positive affect and negative affect (Muenks et al., 2020)⁶. Positive affect was measured using 3 items (e.g. Today, I feel enthusiastic; baseline $\alpha = 0.87$, follow-up $\alpha = 0.89$), rated on a 6-point scale (1= not at all, 6 = A huge amount). Lastly, negative affect was measured using 3 items (e.g. Today, I feel distressed; baseline $\alpha = 0.82$, follow-up $\alpha = 0.82$), rated on a 6-point scale (1= not at all, 6 = A huge amount). These two subscales were analyzed separately.

Self-evaluation (baseline and follow-up). To measure state self-evaluation, participants were asked to complete an adapted version of the State Self-Evaluation measure (McFarland & Ross, 1982; Walton et al., 2015). Across 9 items on a semantic differential scale, participants were asked to rate how they felt about themselves in the moment (e.g. bad vs. good, stupid vs. smart, rejected vs. accepted; baseline $\alpha = 0.95$, follow-up $\alpha = 0.96$), on a 7-point scale (-3 = most negative option [e.g. bad], 3 = most positive option [e.g. good]).

Valentine's Day satisfaction (follow-up only). Participants were reminded that Sunday was Valentine's Day, and were asked to use the provided open-end response box to reflect on

⁶ Upon further reflection, we decided that belonging – one's social connection to others – may have been too broad of a construct to expect meaningful changes in response to a Valentine's Day threat. For this reason, belonging was not assessed in this study.

what they did. On the following screen, their response was piped in, and participants were asked to rate how they felt about their Valentine's Day on a 6-point scale (1= disappointed, 6 = satisfied).

Couple ratings (follow-up only). As an indirect measure of defensiveness, we included a series of Instagram-like posts that participants were asked to interact with on their mobile device. Participants were presented with seven posts from seven different profiles. Three of these posts included pictures of couples with a positive romantic caption. The remaining four posts were of landscapes and included a positive caption related to the scenery; these four posts were included in order to reduce potential demand characteristics. Prior to scrolling through these posts, participants were told:

We are first interested in getting your reactions to various Instagram posts. On the next page, we would like you to act as if you were scrolling through Instagram. If you want to like a post, please click on the center of the picture until you see a green box. Afterwards, we will quickly ask you to rate 5 of the images along various dimensions.

After scrolling through the posts, participants were asked to rate the 3 couple images and 2 of the scenery images. Participants were asked to rate each couple on cuteness (e.g. "this couple is cute"), happiness (e.g. "this couple is genuinely happy"), and level of trust (e.g. "this couple trusts each other). Lastly, participants rated overall how positive the image was on a 6-point scale (1 = negative, 6 = positive). These four items were combined, as they were found to have high reliability within couple (couple 1: $\alpha = 0.89$, couple 2: $\alpha = 0.87$, couple 3: $\alpha = 0.87$). As there were high correlations between these resulting couple ratings (couple 1 and couple 2: r =

.77, couple 1 and couple 3: r = .80, couple 2 and couple 3: r = .75), separate couple ratings were combined to create an overall couple rating. It was expected that self-threatened individuals would defensively belittle relationships and would therefore rate couples more negatively. *Additional Measures*

Demographics (baseline only). Participants were asked to report demographic information (i.e. gender, age, English as primary language, ethnicity, mother's level of education, father's level of education, social class, political ideology [social dimension], and political ideology [economic dimension]).

Additional relationship-seeking status (baseline and follow-up). Three additional items were included at baseline and follow-up for participants' relationship-seeking status: "I don't want a relationship, I prefer to stay unattached," "I am not actively looking, but I am open to dating if the right person comes along," and "I am looking to date casually but not settle down." Given the high face validity of the relationship variable that we chose above, we decided to include it over the relationship-seeking variables listed in this section.

Coping strategies on Valentine's Day (follow-up only). Participants were asked if they had used any of the self-threat coping strategies that were introduced at the beginning of the baseline survey: values affirmation ("Monday, I found myself using the values reflection strategy [i.e. thought about my most important values]"), recounting ("Monday, I found myself using the recounting strategy [i.e. analyzed and reflected on the details of the situation]"), and positive reflection ("Monday, I found myself using the positive reflection strategy [i.e., told myself to be positive, or to just 'shake it off.']"). Level of agreement was rated on a 7-point scale (1 = strongly disagree, 7 = strongly agree). These measures were initially included as potential

mediators. However, due to the lack of threat found in this study (explained below), mediational analyses were not conducted.

Procedure

The weekend before Valentine's Day 2022 (February 12th and February 13th), participants were sent a link to the baseline survey via Prolific. After consenting to participate and confirming that they were not currently in a romantic relationship, participants completed the self-affirmation beliefs measure, psychological vulnerability, relationship-seeking status, self-evaluation, Valentine's Day plans & feelings about plans, and demographics. Lastly, at the end of the baseline survey, participants were thanked and compensated for their time.

After Valentine's Day (February 15th), participants were recontacted and asked to complete a short follow-up survey on their mobile device⁷. During this follow-up survey, participants first competed the couple ratings measure, followed by psychological vulnerability, relationship-seeking, and self-evaluation. Lastly, participants were reminded that Monday was Valentine's Day. In an open-end response, participants recounted what they did on Valentine's Day. On the following screen, their response was piped in, and participants were asked to rate how satisfied they were with these plans.

Results

Self-affirmation beliefs accuracy

To assess the accuracy of participants' beliefs about the benefits of self-affirmation, we ran a 2 (scenario: self-threat vs. control) x 2 (strategy: self-affirmation vs. recounting) repeated measures ANOVA (Figure 14). Results revealed significant main effects of both scenario and

⁷ Due to a slow response rate, the survey was left open for several days. Analyses reveal that results do not differ between those who completed the follow-up survey the day after Valentine's Day vs. those who completed the survey later

strategy. Participants rated strategies as more helpful in the self-threat scenarios (M = 5.16, SD = .80) than in control scenarios (M = 4.09, SD = 1.19), F(1, 347) = 487.93, p < .001. Additionally, participants rated recounting (M = 5.07, SD = 0.98) as more helpful than self-affirmation (M = 4.18, SD = 1.01), F(1, 347) = 243.53, p < .001. However these main effects were qualified by a significant scenario x strategy interaction, F(2, 347) = 385.78, p < .001.

To interpret this interaction, we first examined ratings of self-affirmation and recounting across scenario types. Results revealed that participants rated self-affirmation as more helpful in self-threat scenarios (M = 5.09, SD = .76) when compared to control scenarios (M = 3.27, SD = 1.25), t(347) = 27.558, p < .001. This suggests that participants understand when it is most beneficial to use self-affirmation (situation differentiation). Participants also rated recounting as more helpful in self-threat scenarios (M = 5.22, SD = .83) when compared to control scenarios (M = 4.91, SD = 1.13), t(347) = 5.365, p < .001.

We next examined the helpfulness ratings of self-affirmation when compared to recounting within self-threat scenarios. Results revealed that participants found recounting (M = 5.22, SD = .83) to be slightly more helpful than self-affirmation (M = 5.09, SD = .76) within self-threat scenarios, t(347) = 2.370, p = .018. This suggests that participants do not understand that self-affirmation should be more useful than recounting in the face of self-threat (comparative efficacy). Similar to Reeves et al. (under review), we find evidence of both accuracy and inaccuracy when it comes to beliefs about the benefits of self-affirmation.



Strategy Helpfulness in Threat and Control Scenarios

Figure 14. Average helpfulness ratings of self-affirmation and recounting within self-threat and control scenarios (Study 2).

Self-affirmation beliefs predicting outcomes

Of the four average scores that result from the self-affirmation beliefs measure, only three scores have theoretical relevance (affirmation-threat, recounting-threat, and affirmation-control). Therefore, recounting-control was dropped from the following analyses. The visual examination of relationship-seeking once again suggested a positive skew. We therefore normalized this variable by imposing a natural log transformation (Fazio, 1990). Each of these variables was then standardized in order to facilitate comparison.

Analyses were conducted using a linear regression, with affirmation-threat, recountingthreat, affirmation-control, and relationship-seeking, the two-way interactions between each of these variables, and the theoretically relevant three-way interactions (affirmation-threat x recounting-threat x relationship-seeking & affirmation-threat x affirmation-control x relationship-seeking), used as predictor variables⁸. Correlations between comparative efficacy, situation differentiation, and all relevant outcomes are provided in Table 6 (Appendix B).

⁸ If an analysis included additional predictor variables, this inclusion is noted in each specific section.

Statistical main effects and interactions for each individual outcome are presented in Tables 14 – 19 (Appendix B).

Valentine's Day plan feeling. To determine whether those who were seeking a romantic relationship were threatened, we first examined the main effect of relationship-seeking on Valentine's Day plan feeling. It was expected that those who were seeking a relationship would feel worse about their upcoming Valentine's Day plans. Unexpectedly, and unlike Study 1, results revealed that the main effect of relationship-seeking was non-significant, suggesting that those high in relationship-seeking were not less excited about their upcoming Valentine's Day plans, $\beta = -.08$, t(334) = -0.877, p = .381. As there was no evidence of threat, it is unsurprising that neither the affirmation-threat x recounting-threat x relationship-seeking interaction, nor the affirmation-threat x affirmation-control x relationship-seeking interaction were significant: $\beta = .03$, t(334) = 0.403, p = .687 vs. $\beta = .03$, t(334) = 0.419, p = .675. This would suggest that when no threat occurs, accurate comparative efficacy and situation differentiation beliefs do not lead to more excitement about upcoming Valentine's Day plans.



Figure 15. The effect of affirmation-threat and recounting-threat on Valentine's Day plan feelings for those low and high in relationship-seeking (Study 2).



Figure 16. The effect of affirmation-threat and affirmation-control on Valentine's Day plan feelings for those low and high in relationship-seeking (Study 2).

Positive affect. In addition to the predictors listed above, the following analysis controlled for baseline positive affect, in order to analyze change in feelings of positive affect in response to Valentine's Day. To determine whether those who were seeking a romantic relationship were threatened, we first examined the main effect of relationship-seeking on positive affect. It was expected that those who were seeking a relationship would experience less positive affect on Valentine's Day. Unexpectedly, results revealed that the main effect of relationship-seeking did not experience less positive affect following Valentine's Day, $\beta = .07$, t(329) = 1.033, p = .302. To test whether the change in positive affect differed as a function of threat, we examined the negative affect (baseline) x relationship-seeking interaction. Results revealed a non-significant interaction, suggesting that change in positive affect did not differ as a function of relationship-seeking. $\beta = .05$, t(134) = .912, p = .362.

As there was no evidence of threat, it is not surprising that neither the affirmation-threat x recounting-threat x relationship-seeking interaction, nor the affirmation-threat x affirmation-control x relationship-seeking interaction were significant: $\beta = .04$, t(329) = 0.674, p = .501 vs. $\beta = .02$, t(329) = -0.365, p = .715. This would suggest that when no threat occurs, accurate comparative efficacy and situation differentiation beliefs do not lead to greater positive affect.



Figure 17. The effect of affirmation-threat and recounting-threat on positive affect for those low and high in relationship-seeking (Study 2).



Figure 18. The effect of affirmation-threat and affirmation-control on positive affect for those low and high in relationship-seeking (Study 2).

Negative affect. In addition to the predictors listed above, the following analysis controlled for baseline negative affect, in order to analyze change in feelings of negative affect in response to Valentine's Day. To determine whether those who were seeking a romantic relationship were threatened, we first examined the main effect of relationship-seeking on negative affect. It was expected that those who were seeking a relationship would experience more negative affect on Valentine's Day. Unexpectedly, results revealed that the main effect of relationship-seeking was non-significant, suggesting that those high in relationship-seeking did not experience more negative affect following Valentine's Day, $\beta = .03$, t(329) = .420, p = .675. To test whether the change in negative affect differed as a function of threat, we examined the negative affect (baseline) x relationship-seeking interaction. Results revealed a non-significant interaction, suggesting that change in negative affect did not differ as a function of relationship-seeking, $\beta = .06$, t(134) = -1.137, p = .256. As there was no evidence of threat, it is not surprising that the affirmation-threat x recounting-threat x relationship-seeking interaction was not significant, $\beta = .01$, t(329) = .138, p = .891.



Figure 19. The effect of affirmation-threat and recounting-threat on negative affect for those low and high in relationship-seeking (Study 2).

However, the affirmation-threat x affirmation-control x relationship-seeking interaction approached significance, $\beta = .087$, t(329) = 1.621, p = .106. As expected, breaking down this three-way interaction (Figure 20), simple slopes analysis revealed that for those high in relationship-seeking (+1 *SD*), affirmation-threat endorsement led to marginally less negative affect only when affirmation-control endorsement was low vs. high: $\beta = .21$, t(329) = .1.854, p=.065 vs. $\beta = .11$, t(329) = .825, p = .410. Additionally, these results reveal that for those who were low in relationship-seeking (-1 *SD*), affirmation-threat endorsement did not lead to less negative affect whether affirmation-control was low or high: $\beta = .03$, t(329) = .0.341, p = .733vs. $\beta = ..06$, t(329) = .0.481, p = .631. As there was little evidence of threat, as evidenced by non-significant relationship between relationship-seeking and negative affect, drawing clear conclusions about this effect of situation differentiation beliefs is difficult. Although not statistically significant, these results suggest that accurate situation differentiation beliefs may attenuate the negative affect experienced by those who are seeking a relationship, after Valentine's Day.



Figure 20. The effect of affirmation-threat and affirmation-control on negative affect for those low and high in relationship-seeking (Study 2).

Self-evaluation. In addition to the predictors listed above, the following analysis controlled for baseline self-evaluation, in order to analyze change in feelings of self-evaluation in response to Valentine's Day. To determine whether those who were seeking a romantic relationship were threatened, we first examined the main effect of relationship-seeking on selfevaluation. It was expected that those who were seeking a relationship would evaluate themselves more negatively on Valentine's Day. Unexpectedly, results revealed that the main effect of relationship-seeking was non-significant, suggesting that those high in relationshipseeking did not experience less positive affect following Valentine's Day, $\beta = .04$, t(329) =0.532, p = .595. To test whether the change in self-evaluation differed as a function of threat, we examined the self-evaluation (baseline) x relationship-seeking interaction. Results revealed a non-significant interaction, suggesting that change in self-evaluation did not differ as a function of relationship-seeking, $\beta = .03$, t(134) = .504, p = .615.

An affirmation-threat x relationship-seeking interaction emerged, $\beta = -0.14$, t(329) = -2.035, p = .043. Unexpectedly, endorsement of affirmation-threat led to greater self-evaluation when relationship-seeking was low vs. high: $\beta = .25$, t(329) = 2.559, p = .011 vs. $\beta = -0.05$, t(329) = -0.459, p = .646. As there was no evidence of threat, and we are interested in those individuals who are most threatened, these results are difficult to interpret.

Additionally, neither the affirmation-threat x recounting-threat x relationship-seeking interaction), nor the affirmation-threat x affirmation-control x relationship-seeking interaction were significant: $\beta = -.0001$, t(329) = -.002, p = .998 vs. $\beta = -.004$, t(329) = -0.058, p = .954. This would suggest that when no threat occurs, accurate comparative efficacy and situation differentiation beliefs do not lead to greater self-evaluation.



Figure 21. The effect of affirmation-threat and recounting-threat on self-evaluation for those low and high in relationship-seeking (Study 2).



Figure 22. The effect of affirmation-threat and affirmation-control on self-evaluation for those low and high in relationship-seeking (Study 2).

Valentine's Day satisfaction. To determine whether those who were seeking a romantic relationship were threatened, we first examined the main effect of relationship-seeking on Valentine's Day plan satisfaction. It was expected that those who were seeking a relationship would be less satisfied with what happened on Valentine's Day. Results revealed a significant main effect of relationship-seeking, suggesting that those high in relationship-seeking reported less satisfaction with their Valentine's Day, $\beta = -.22$, t(334) = -2.476, p = .014. However, neither the affirmation-threat x recounting-threat x relationship-seeking interaction, nor the affirmation-threat x affirmation-control x relationship-seeking interaction were significant: $\beta = -.05$, t(334) = -0.633, p = .527 vs. $\beta = -.11$, t(334) = -1.394, p = .164. These results suggest that although there was evidence of threat – those who were seeking a committed relationship were less satisfied with Valentine's Day – accurate beliefs about the benefits of self-affirmation did not attenuate that threat.



Figure 23. The effect of affirmation-threat and recounting-threat on Valentine's Day satisfaction for those low and high in relationship-seeking (Study 2).



Figure 24. The effect of affirmation-threat and recounting-threat on Valentine's Day satisfaction for those low and high in relationship-seeking (Study 2).

Couple ratings. To determine whether those who were seeking a romantic relationship were threatened, we first examined the main effect of relationship-seeking on couple ratings. It was expected that those who were seeking a relationship would derogate couples as a defensive response. Unexpectedly, results revealed that the main effect of relationship-seeking was non-significant, suggesting that those high in relationship-seeking did not rate the couples more negatively, $\beta = .07$, t(334) = 1.429, p = .157. Additionally, neither the affirmation-threat x recounting-threat x relationship-seeking interaction, nor the affirmation-threat x affirmation-control x relationship-seeking interaction were significant: $\beta = .04$, t(334) = 1.019, p = .309 vs. $\beta = .03$, t(334) = 0.691, p = .490. This would suggest that when no threat occurs, accurate comparative efficacy and situation differentiation beliefs do not lead less derogation of couples

on Valentine's Day. Additionally, it could be the case that this measure was not an effective indirect measure of defensiveness.



Figure 25. The effect of affirmation-threat and recounting-threat on couple ratings for those low and high in relationship-seeking (Study 2).



Figure 26. The effect of affirmation-threat and recounting-threat on couple ratings for those low and high in relationship-seeking (Study 2).

Self-affirmation beliefs and self-reported affirmation

As mentioned earlier, it was originally expected that participants' self-reported use of self-affirmation would serve as a potential mediator between accurate self-affirmation beliefs and important outcomes. As there was less evidence of threat in this study, these mediational analyses are not reported. However, correlational analyses were conducted to determine whether accurate comparative efficacy and situational differentiation beliefs were related to self-reported use of self-affirmation.

To examine the relationship between comparative efficacy beliefs and self-reported selfaffirmation, an index of comparative efficacy was created by subtracting recounting-threat scores from affirmation-threat scores. It was found that comparative efficacy was significantly correlated with reported self-affirmation use, suggesting that accurate comparative efficacy beliefs were related to greater reported use of self-affirmation on Valentine's Day: r = .165, p =.002. To examine the relationship between situation differentiation beliefs and self-reported selfaffirmation, an index of situation differentiation was created by subtracting affirmation-control scores from affirmation-threat scores. It was found that situation differentiation was not significantly correlated with reported self-affirmation use, suggesting no evidence of a relationship between accurate situation differentiation beliefs and reported use of self-affirmation on Valentine's Day: r = -.053, p = .332. These results suggest that comparative efficacy was related to whether participants believed that they used self-affirmation on Valentine's Day, while situation differentiation beliefs were not related to reported self-affirmation use. Interestingly, self-reported affirmation was related to a number of outcomes in the predicted direction (i.e. more excitement about upcoming Valentine's Day plans, greater positive affect, and more

positive self-evaluation). These results highlight the potential usefulness of a measure of selfreported affirmation as a possible mediator for a future study. The correlations between reported affirmation use, belief indices, and outcomes can be found in Table 6 (Appendix B).

Discussion

Regarding self-affirmation beliefs accuracy, Study 2 replicates the findings of Reeves et al. (under review) and Study 1, suggesting that people have both accurate and inaccurate beliefs about the benefits of self-affirmation. In this study, we again find that people have accurate situation differentiation beliefs, understanding that self-affirmation is more beneficial in selfthreatening situations compared to negative situations that do not contain self-threat. However, as was the case in the previous study, participants struggle when it comes to comparative efficacy, believing recounting to be similarly beneficial as self-affirmation within selfthreatening situations.

Unexpectedly, in Study 2 we find lower levels of threat when compared to the previous study. Unlike Study 1, we found that those who were seeking a committed relationship (vs. those who were not) did not feel any worse about their upcoming Valentine's Day plans. One explanation may be the fact that Valentine's Day 2021 (Study 1) was on a Sunday, while Valentine's Day 2022 (Study 2) was on a Monday. In Study 1, when Valentine's Day was on a Sunday when most people have the day off, a participant's lack of Valentine's Day related plans may have been extremely salient. However, in Study 2, with Valentine's Day being on a Monday – during the workweek – there may have been less pressure to have Valentine's Day related plans, and the distractions of the workday may have reduced the amount of threat. The failure to replicate the Valentine's Day plan feeling findings from Study 1 may be attributed to this lower level of threat.

Surprisingly, despite the lack of threat in this study, we did find marginally significant effects on negative affect. Specifically, for those who were seeking a committed relationship, accurate situation differentiation beliefs predicted less negative affect following Valentine's Day. However, it is important to note that contrary to expectations, those seeking a committed relationship (vs. those not) did not report greater negative affect. Therefore, it is difficult to draw clear conclusions about this finding. For the remaining outcomes (i.e. positive affect, selfevaluation, couple rating, and Valentine's Day satisfaction), accurate beliefs about the benefits of self-affirmation had no noticeable effect. As participants who were seeking a committed relationship did not report higher levels of threat on the majority of outcomes (barring Valentine's Day satisfaction), these null findings are not surprising.

Our conclusions from Study 1 suggested that we may have needed to measure defensiveness more indirectly in order to pick up self-threat. Despite including an indirect measure in this study (i.e. couple ratings), we failed to see evidence of threat. It is possible that this indirect measure was not effective due to the lower level of threat on Valentine's Day 2022. Alternatively, it could have been the case that we were wrong in assuming that people seeking a committed relationship would act defensively, belittling relationships after being reminded that they were single on Valentine's Day.

Study 3 addresses potential reasons for this study's null findings. Firstly, Study 3 uses a different indirect measure of defensiveness. In Study 3, we drew inspiration from past literature that suggests that self-threat may result in intergroup conflict (e.g. Binning et al. 2010, Fein & Spencer, 1997), to create an indirect measure of prejudice. Additionally, in Study 3 used a different domain. As was evidenced by the difference in levels of threat between Studies 1 and 2, Valentine's Day may not have been the most reliable self-threat-inducing situation. In Study 3

we chose to focus on sports fandom, a domain in which we were more confident high levels of self-threat would occur.

Study 3

Method

Overview

In Study 3 we wanted to (1) use an indirect measure in a situation where there is in fact evidence of self-threat and (2) test the effectiveness of self-affirmation beliefs in a different domain where we may expect more reliable self-threat. Drawing inspiration from work on social identity theory, which suggests that people draw a sense of self-worth from the groups they belong to (e.g. Tajfel & Turner, 1986), in this study we surveyed English soccer fans during the 2020 UEFA European Football Championship, also known as the Euro 2020 tournament. England fans were chosen for several reasons: (1) we did not have to translate our questionnaires into different languages, (2) football originated in England and is passionately followed by many, (3) despite being the originators of the sport, England has yet to win the European championship in its nearly 62 year history, and (4) given the controversy around Brexit, England was given this chance to prove to the world and themselves that they were still leaders on the world stage, and would fare well outside of the European Union.

England was successful in the first stage of the tournament (round robin stage) and made it into the knockout round. Defeating Germany, Ukraine, and Denmark respectively, England secured a place for themselves in the final round of the tournament to face Italy on home ground at Wembley Stadium, London. On July 11th, as 67,000 spectators watched from the stands and 328 million watched from home, England lost to Italy 3-2 after going to penalty kicks. Three of the players who missed penalty kicks (Marcus Rashford, Bukayo Saka, and Jadon Sancho) were Black. This led to racist abuse of these players across the United Kingdom. This included, but was not limited to, the defacement of Marcus Rashford's mural in Manchester, calls for Bukayo Saka to "go back to Nigeria" and "get out of my country", and racial slurs and threats aimed at each of the three players across various social media platforms. Although we could not have predicted the explicit racist acts that occurred after the team's loss, past research on "hooliganism" has suggested that racism and prejudice are common reactions from football/soccer fans (e.g. Back et al., 1999). Additionally, research suggests that when threatened, people may attempt to restore their sense of self-worth by derogating others (e.g. Fein & Spencer, 1997). For these reasons, we decided to focus on prejudice as a defensive reaction to England's loss in this study.

The purpose of Study 3 was to determine whether accurate beliefs about the benefits of self-affirmation help sports fans to cope with the self-threat of their team suffering a loss. In this study, we contacted fans, before and after England's loss of the Euro 2020 tournament. It was expected that fans, especially those who have a sense of self-worth that is highly contingent on their team's success, would feel the most psychologically threatened following the loss, but that this threat would be attenuated for those who believe self-affirmation is a beneficial strategy to use under self-threat. Additionally, beliefs about the benefits of self-affirmation under threat should be most consequential when participants (1) believe it is more helpful than self-affirming in non-threatening situations (situation differentiation) and (2) see self-affirmation as a more beneficial strategy than recounting under self-threat (comparative efficacy).

Participants

At baseline, Prolific workers based in England with an approval rate > 90%, who indicated that they watch professional soccer (football), participated in exchange for \$2.00 (N = 697, M_{age} = 41.36, SD_{age} = 14.43, 223 females, 468 males, 6 not reported). Five hundred and seventy-three completed the follow-up survey in exchange for \$1.11. A number of participants were removed for failing the attention check (N = 28), mentioning that they were not following

the Euro 2020 tournament (N = 16), or declaring that they were not fans of England's team (N = 69), leaving four hundred and sixty ($M_{age} = 43.55$, $SD_{age} = 14.62$, 143 females, 313 males, 4 not reported) participants eligible for analysis. A sensitivity power analysis revealed that given this sample size, we had the ability to detect an effect size of $f^2 = 0.02$, at 80% power, and $f^2 = 0.02$ at 90% power⁹.

Materials

Beliefs assessment (baseline only). To measure metamotivational beliefs about the benefits of self-affirmation in coping with self-threat, participants read the same randomized set of eight self-threat and eight control scenarios outlined in Study 1. After each scenario, participants rated how helpful each of the strategies (values affirmation and recounting) would be in accomplishing the outlined goals on a 7-point scale (1 = extremely unhelpful, 7 = extremely helpful). Both strategy helpfulness ratings were averaged within each type of scenario, resulting in four composite scores: endorsement of self-affirmation in self-threat scenarios (affirmation-threat), endorsement of recounting in self-threat scenarios (recounting-threat), endorsement of scenarios (affirmation-control), and endorsement of recounting in control scenarios (affirmation-control).

Team contingency of self-worth (baseline only). A 5-item scale was adapted from the original Contingencies of Self-Worth Scale (Crocker et al., 2003). Participants were asked to rate their level of agreement with five statements related to the degree to which their sense of self-worth is dependent on their team's success (e.g. "My self-esteem suffers when my team loses;" α = .87) on a 7-point scale (1 = strongly disagree, 7 = strongly agree).

 $f^2 = 0.04$ at 80% power

⁹ As there were additional predictors in the models, for prejudice outcomes power analyses:

 $f^2 = 0.06$ at 90% power

Defensiveness (follow-up only). We created a 5-item measure of participant defensiveness. These items aimed to capture the extent to which participants blamed others for their team's loss, rather than accepting the defeat. It was expected that participants who experienced high levels of self-threat, would blame the officials, the other team for playing dirty, would distance themselves from fans of the other team, etc. Participants rated their level of agreement with 5 items that measured their level of defensiveness in relation to the match (e.g. "The other team played dirty yesterday;" $\alpha = .74$), on a 6-point scale (1=strongly disagree, 6 = strongly agree).

Prejudice (follow-up only). To assess prejudice against Black players on the England's Men's National Team, participants were shown a series of eight players (four White and four Black) in randomized order. Specific players were chosen in an attempt to control for average skill level and game performance. Two of the players chosen for the measure (Marcus Rashford and Bukayo Saka) were players who missed penalty kicks. Choosing two, rather than all three Black players who missed penalty kicks allowed us to compare kicking Black players against non-kicking Black players, to determine whether prejudice extended beyond those who missed penalty kicks. As no White players missed penalty kicks, we were unable to include a White kicking-player comparison.

The names and pictures of each player were presented to participants as they rated how familiar they were with the player on a 5-point scale (1 = not at all, 5 = a great deal), as well as how physically gifted, selfish, creative, smart, and dedicated each player was on a 5-point scale (1 = not at all, 5 = very). The selected traits were based on an analysis of the traits used to describe Black and White soccer players on television (McCarthy & Jones, 1997). The researchers find that Black players are praised for their physicality and natural ability, but less

hardworking and dedicated, while White players are praised for their intelligence, dedication, and creativity. Separate composite scores for the 4 Black players and 4 White players were created to include physical giftedness, selfishness, creativity, intelligence, and dedication (Black players: $\alpha = .88$, White players: $\alpha = .84$).

Rumination (follow-up only). Rumination was measured using an adapted version of a rumination scale created by White et al. (2015). Participants were asked to rate their level of agreement with 4 items (e.g. "Thinking about the game is making it hard for me to go about my day;" $\alpha = .76$), on a 7-point scale (1 = strongly disagree, 7 = strongly agree).

Self-assessment Manakin (follow-up only). To measure how they were feeling in the moment, participants were presented with two different sets of Manakin images (Bradley & Lang, 1994). Each of these sets contained five images varying in valence (Set 1) and arousal (Set 2). Participants were asked to select the image from each set that most closely identified how they felt about the game that happened the previous day.

Additional measures

Self-esteem (baseline only). Participants' trait self-esteem was measured using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Participants rated their level of agreement with 10 items (e.g. "On the whole, I am satisfied with myself;" $\alpha = .93$), on a 4-point scale (1 = strongly disagree, 4 = strongly agree). This measure was initially included as a potential moderator. It was expected that those with high self-esteem would experience less self-threat. Preliminary analyses suggested that self-esteem did not moderate our results. For this reason, it was not included as a predictor.

General life satisfaction (baseline only). Life satisfaction was measured using the Satisfaction With Life Scale (Pavot & Diener, 2008). Participants rated their level of agreement

with 5 items (e.g. "In most ways my life is close to my ideal;" $\alpha = .91$), on a 7-point scale (1=strongly disagree, 7 = strongly agree). This measure was initially included as a potential moderator. It was expected that those with high life satisfaction would experience less self-threat. However, given the current complexity of the data analyzed, we decided not to include life satisfaction as a predictor. Preliminary analyses suggested that self-esteem did not moderate our results. For this reason, it was not included as a predictor.

We-ness (baseline and follow-up). We-ness was measured using four statements and an adapted version of the Inclusion of Other in the Self scale (IOS; Aron et al., 1992). The 4-items (e.g "To what extent do you see the team as an important aspect of yourself?") were measured on a 7-point scale (1 = not at all, 7 = very much). The IOS contained a series of images with circles that overlapped to varying degrees. Participants were asked to select the image that best identified their degree of self-team overlap (i.e. 1 = no overlap, 7 = complete overlap). A composite of the four statements and the IOS had high reliability (baseline α = 0.88, follow-up α = 0.90). As we were primarily interested in the extent to which a participant's sense of self-worth variable as a moderator, over this we-ness measure. Additionally, correlational analyses revealed that we-ness operated differently than team contingencies of self-worth, and there is even some evidence that those who scored high in we-ness may have drawn closer to the team after England's loss (see Table 4 in Appendix B).

Additional team identification (baseline only). When developing the study, several exploratory team-identification measures were included: years of fandom (1-item, i.e. "For how long have you been supporting [England's] association football team?"; 1 = less than a year, 5 = 10+ years), importance of team's success (3-item, e.g. "It is important to me that my team wins

their next game"; $\alpha = .79$; 1 = strongly disagree, 6 = strongly agree), control over team's success (3-item, e.g. "The team could lose if they do not receive enough support from me;" $\alpha = .79$; 1 = strongly disagree, 6 = strongly agree), and national pride (1-item, i.e 'How proud are you to be [nationality]?"; 0 = not at all, 6 = very proud). Given that our team contingency of self-worth variable is most closely tied conceptually to the type of threat we were interested in (i.e. threats to self-worth), we decided to include it in our analyses over the variables in this section. Future analyses are planned to examine these variables as potential moderators. Correlations between team contingency, we-ness, these additional team identification measures, and outcomes can be found in Table 4 (Appendix B).

Demographics (baseline only). Participants were asked to report their gender, age, ethnicity, nationality, mother's level of education, father's level of education, social class, political ideology [social dimension], and political ideology [economic dimension]).

Reason for loss open-end (follow-up only). As an exploratory measure of rumination and defensiveness, in an open-end response box, participants were asked to explain why England lost the match to Italy. Open-end responses are currently in the process of being coded and are therefore not included in the analyses.

Alcohol consumption (follow-up only). Participant alcohol consumption was measured using two items. One item asked participants to state how many alcoholic beverages they consumed the day of the game; a second item asked participants to state how many alcoholic drinks they consumed the day after the game (1 = 0 drinks, 5 = 7+ drinks). For alcohol consumption during the game, upon further reflection, we realized that we had no way of distinguishing between those who were consuming alcohol socially vs. those consuming alcohol as a coping strategy, this measure was not analyzed. Furthermore, we did not find that those who

were most threatened, as determined by our moderator (high team contingency), consumed any more alcohol than those who were not threatened: r = 0.06, p = .183. For alcohol consumption the day following the game, virtually none of the participants reported that they consumed alcohol. Due to a lack of variance in this measure, this analysis is not provided.

Basking in reflective glory (follow-up only). A measure of basking in reflective glory (BIRGing) was included in case England were to win the tournament. Participants were asked whether they were currently wearing England's team's apparel and whether they shared anything on social media about the game. If participants indicated that they did share something on social media, they were asked what the post was about. As England did not win the tournament, this measure was not analyzed.

Sports-related aggression (follow-up only). Several items were used to measure sportsrelated aggression. We created two items, simply asking participants to rate on a 4-point scale (1 = never, 4 = many times), "How often have you wanted to fight someone because of Association Football?," and on a 7-point scale their level of agreement (1 = strongly disagree, 7 = strongly agree) with the statement, "I wanted to fight someone during/after England's game yesterday." Lastly, participants completed an Endorsement of Extreme Pro-group Behaviors Scale (Bortolini et al., 2018). Participants were asked to rate their level of agreement, on a 7-point scale (1 = strongly disagree, 7 = strongly agree), with 7 items (e.g. "I would help others get revenge on someone who insulted fans of my team;" α = .83). Although, originally included to serve as a measure of defensiveness, visual inspection suggested a significant floor effect with not enough relevant variance in the variables. For this reason, the analyses for these variables are not included.

Procedure

Participants completed a baseline survey after England's Men's National team was confirmed for the knockout round of the Euro 2020 Tournament (June 27th, 2021). After confirming that participants did in fact watch professional soccer, they were asked to indicate whether they were following the Euro 2020 tournament, and if so, indicate which country's team they were supporting and for how long they had been a fan of that country's team. Participants then read the descriptions of the two counterbalanced coping strategies outlined in Study 1: values reflection and recounting and were asked to complete the self-affirmation beliefs measure using the same 8 self-threat and 8 control scenarios from Study 1. Participants then reported their trait-level self-esteem, general life satisfaction, team contingency of self-worth, additional teamidentification measures, and demographics.

On July 12th, 2021, the day after England lost in the tournament, participants were recontacted to complete a follow-up survey. In the follow-up survey, after verifying that they were aware of the outcome of the tournament, participants' general level of defensiveness was measured, followed by their level of prejudice, explanation of why England lost, we-ness, rumination, self-assessment manakin, level of alcohol consumption, BIRGing, and sports-related aggression measures.

Results

Self-affirmation beliefs accuracy

To assess the accuracy of participants' beliefs about the benefits of self-affirmation, we ran a 2 (scenario: self-threat vs. control) x 2 (strategy: self-affirmation vs. recounting) repeated measures ANOVA (Figure 27). Results revealed significant main effects of both scenario and strategy. Participants rated strategies as more helpful in the self-threat scenarios (M = 5.20, SD = ...78) than in control scenarios (M = 4.47, SD = 1.10), F(1, 459) = 410.43, p < ...001. Additionally, participants found recounting (M = 5.22, SD = ...92) to be more helpful than self-affirmation (M = ...78) than in control scenarios (M = 5.22, SD = ...92) to be more helpful than self-affirmation (M = ...78) than in control scenarios (M = 5.22, SD = ...92) to be more helpful than self-affirmation (M = ...78) than in control scenarios (M = 5.22, SD = ...92) to be more helpful than self-affirmation (M = ...78) than self-affirmation (M = ...78) than in control scenarios (M = ...78) to be more helpful than self-affirmation (M = ...78) than in control scenarios (M = ...78) to be more helpful than self-affirmation (M = ...78) to be more helpful than self-affirmation (M = ...78) than in control scenarios (M = ...78) to be more helpful than self-affirmation (M = ...78) to be more helpful than self-affirmation (M = ...78) to be more helpful than self-affirmation (M = ...78) to be more helpful than self-affirmation (M = ...78) to be more helpful than self-affirmation (M = ...78) to the more helpful than self-affirmation (M = ...78) to be more helpful than self-affirmation (M = ...78) to be more helpful than self-affirmation (M = ...78) to be more helpful than self-affirmation (M = ...78) to be more helpful than self-affirmation (M = ...78).

4.45, SD = .96), F(1, 459) = 295.05, p < .001. However these main effects were qualified by a significant scenario x strategy interaction, F(2, 459) = 347.82, p < .001.

To interpret this interaction, we examined ratings of self-affirmation and recounting across scenario types. Results revealed that participants rated self-affirmation as more helpful in self-threat scenarios (M = 5.16, SD = .78) when compared to control scenarios (M = 3.73, SD = 1.14), t(459) = 26.199, p < .001. This suggests that participants understand when it is most beneficial to use self-affirmation (situation differentiation). Participants rated recounting just as helpful in self-threat scenarios (M = 5.23, SD = .78) when compared to control scenarios (M = 5.20, SD = 1.06), t(459) = .472, p = .637.

We next examined the helpfulness ratings of self-affirmation when compared to recounting within self-threat scenarios. Results revealed that participants found self-affirmation (M = 5.16, SD = .78) to be just as helpful as recounting (M = 5.23, SD = .78) within self-threat scenarios, t(459) = -1.344, p = .179. This suggests that participants do not understand that self-affirmation should be more useful than recounting in the face of self-threat (comparative efficacy). Similar to Reeves et al. (under review), we find evidence of both accuracy and inaccuracy when it comes to beliefs about the benefits of self-affirmation.


Strategy Helpfulness in Threat and Control Scenarios

Figure 27. Average helpfulness ratings of self-affirmation and recounting within self-threat and control scenarios (Study 3).

Self-affirmation beliefs predicting outcomes

Analyses were conducted using a linear regression, with affirmation-threat, recountingthreat, affirmation-control, and team-contingency, the two-way interactions between each of these variables, and the theoretically relevant three-way interactions (affirmation-threat x recounting-threat x team contingency & affirmation-threat x affirmation-control x team contingency) used as predictor variables¹⁰. Each of these variables was standardized in order to facilitate comparison. Correlations between comparative efficacy, situation differentiation, and all relevant outcomes are provided in Table 7 (Appendix B). Statistical main effects and interactions for each individual outcome are presented in Tables 20-25 (Appendix B).

Defensiveness. To determine whether those whose sense of self-worth was contingent on their team's success were threatened, we first examined the main effect of team-contingency on defensiveness. It was expected that those whose sense of self-worth was highly contingent on their team's success, would be more defensive following England's loss. As expected, results

¹⁰ If an analysis included additional predictor variables, this inclusion is noted in each specific section.

revealed a significant main effect of team-contingency, suggesting that those high in teamcontingency expressed more defensiveness following England's loss, $\beta = .27$, t(447) = 7.333, p<.001. However, neither the affirmation-threat x recounting-threat x team-contingency interaction, nor the affirmation-threat x affirmation-control x team-contingency interaction $\beta =$.01, t(447) = 0.347, p = .729 vs. $\beta = .01$, t(447) = 0.227, p = .821. These results suggest that although there was evidence of threat –those whose sense of self-worth was highly dependent on their team's success expressed more defensiveness – accurate beliefs about the benefits of selfaffirmation did not attenuate that threat.



Figure 28. The effect of affirmation-threat and recounting-threat on defensiveness for those low and high in team-contingency (Study 3).



Figure 29. The effect of affirmation-threat and affirmation-control on defensiveness for those low and high in team-contingency (Study 3).

Prejudice (Ratings of all Black players). In order to first determine whether there was evidence of prejudice in our data, we first compared overall ratings of Black and White players. An independent samples t-test revealed that participants rated Black players (M = 2.15, SD = .52) more negatively than White players (M = 2.07, SD = .45), t(459) = 5.337, p < .001.

To account for negativity directed toward Black players in particular (prejudice), the following analysis controlled for ratings of White players. To determine whether those whose sense of self-worth was contingent on their team's success were threatened, we first examined the main effect of team-contingency ratings of all Black players. It was expected that those whose sense of self-worth was highly contingent on their team's success, would show more prejudice towards Black players following England's loss. As expected, results revealed a significant main effect of team-contingency, suggesting that those high in team-contingency rated Black players more negatively, $\beta = .04$, t(442) = 2.772, p = .006.

Critically, results revealed an affirmation-threat x recounting-threat x team-contingency interaction, $\beta = .04$, t(442) = 2.989, p = .003. As expected, breaking down this three-way interaction (Figure 30), simple slopes analysis revealed that for those high in team contingency (+1 *SD*), affirmation-threat endorsement led to less prejudice only when recounting was low vs. high: $\beta = -.06$, t(442) = -2.180, p = .030 vs. $\beta = .04$, t(442) = 1.053, p = .293. Additionally, these results reveal that for those who were low in team-contingency (-1 *SD*), affirmation-threat endorsement did not lead to less prejudice whether recounting-threat endorsement was low or high: $\beta = .04$, t(442) = 1.237, p = .217 vs. $\beta = -.02$, t(442) = -.596, p = .551. These results suggest that those whose sense of self-worth was highly contingent on their team's success were more prejudiced toward Black players, but that this prejudice was attenuated for those who had accurate comparative efficacy beliefs.



Figure 30. The effect of affirmation-threat and recounting-threat on prejudice against all four Black players for those low and high in team-contingency (Study 3).

The affirmation-threat x affirmation-control x team-contingency interaction was not significant, $\beta = -.007$, t(442) = -.465, p = .642. These results suggest that although there was evidence of threat –those whose sense of self-worth was highly contingent on their team's success – accurate situation differentiation beliefs did not attenuate that threat.



Figure 31. The effect of affirmation-threat and affirmation-control on prejudice against all four Black players for those low and high in team-contingency (Study 3).

Prejudice (Black players without Saka and Rashford). The previous analysis suggest that Black players were rated more negatively than White players. However, it is possible that this effect was driven by the inclusion of the two Black players who missed the critical penalty kicks. To rule this out and determine whether the prejudice toward Black players extended beyond the two players who missed penalty kicks, Bukayo Saka and Marcus Rashford were removed from the Black player ratings in the following analysis. In order to first determine whether there was still evidence of prejudice after removing the penalty-kicking players, we first

compared ratings of the remaining two Black players and the four White players. An independent samples t-test revealed that participants rated the two remaining Black players (M = 2.13, SD = .52) more negatively than White players (M = 2.07, SD = .45), t(459) = 3.659, p < .001.

To again account for negativity directed toward Black players in particular (prejudice), the following analysis controlled for ratings of White players. To determine whether those whose sense of self-worth was contingent on their team's success were threatened, we examined the main effect of team-contingency on Black player ratings (excluding Saka and Rashford). Unexpectedly, results did not reveal a main effect of team-contingency, suggesting that those high in team-contingency did not express more prejudice toward the non-kicking Black players, $\beta = .01$, t(442) = 0.899, p = .369.

Critically, however, results revealed a significant affirmation-threat x recounting-threat x team-contingency interaction, $\beta = .03$, t(442) = 2.261, p = .024. As expected, breaking down this three-way interaction (Figure 32), simple slopes analysis revealed that for those high in team contingency (+1 *SD*), affirmation-threat endorsement led to directionally less prejudice when recounting was low vs. high: $\beta = -.04$, t(442) = -1.329, p = .185 vs. $\beta = .04$, t(442) = 1.031, p = .303. Additionally, these results reveal that for those who were low in team-contingency (-1 *SD*), affirmation-threat endorsement was low or high: $\beta = .03$, t(442) = 0.867, p = .386 vs. $\beta = -.02$, t(442) = -.554, p = .580. These results suggest that those whose sense of self-worth was highly contingent on their team's success were more prejudiced toward the non-kicking players, but that this prejudice was attenuated for those who had accurate comparative efficacy beliefs. However, given the lack of threat, as evidenced by non-significant relationship between

team contingency and prejudice against non-kicking players, drawing clear conclusions about this effect cannot be drawn.



Figure 32. The effect of affirmation-threat and recounting-threat on prejudice against Black players excluding Rashford and Saka for those low and high in team-contingency (Study 3).

As in the previous analysis, the affirmation-threat x affirmation-control x teamcontingency interaction was found to be non-significant, $\beta = -.01$, t(442) = -.597, p = .551. These results suggest that although there was evidence of threat –those whose sense of self-worth was highly contingent on their team's success – accurate situation differentiation beliefs did not attenuate that threat.



Figure 33. The effect of affirmation-threat and affirmation-control on prejudice against Black players excluding Rashford and Saka for those low and high in team-contingency (Study 3).

Rumination. To determine whether those whose sense of self-worth was contingent on their team's success were threatened, we first examined the main effect of team-contingency on rumination. It was expected that those whose sense of self-worth was highly contingent on their team's success, would ruminate more following England's loss. As expected, results revealed a significant main effect of team-contingency, suggesting that those high in team-contingency expressed more rumination following England's loss, $\beta = .57$, t(447) = 9.92, p < .001. However, neither the affirmation-threat x recounting-threat x team-contingency interaction, nor the affirmation-threat x affirmation-control x team-contingency interaction were significant: $\beta = .08$, t(447) = -1.565, p = .118 vs. $\beta = -.06$, t(447) = -1.138, p = .256. These results suggest that although there was evidence of threat –those whose sense of self-worth was highly dependent on their team's success reported more rumination– accurate beliefs about the benefits of self-affirmation did not attenuate that threat.



Figure 34. The effect of affirmation-threat and recounting-threat rumination for those low and high in team-contingency (Study 3).



Figure 35. The effect of affirmation-threat and affirmation-control rumination for those low and high in team-contingency (Study 3).

Self-assessment manakin (arousal). To determine whether those whose sense of self-

worth was contingent on their team's success were threatened, we first examined the main effect

of team-contingency on arousal. It was expected that those whose sense of self-worth was highly contingent on their team's success, would be more highly aroused following England's loss. As expected, results revealed a significant main effect of team-contingency, suggesting that those high in team-contingency experienced more arousal following England's loss, $\beta = .25$, t(442) = 4.872, p < .001. However, neither the affirmation-threat x recounting-threat x team-contingency interaction, nor the affirmation-threat x affirmation-control x team-contingency interaction were significant: $\beta = .04$, t(447) = 1.101, p = .271 vs. $\beta = .01$, t(447) = -0.215, p = .830. These results suggest that although there was evidence of threat –those whose sense of self-worth was highly dependent on their team's success reported more arousal – accurate beliefs about the benefits of self-affirmation did not attenuate that threat.



Figure 36. The effect of affirmation-threat and recounting-threat on self-assessment manakin arousal for those low and high in team-contingency (Study 3).



Figure 37. The effect of affirmation-threat and affirmation-control on self-assessment manakin arousal for those low and high in team-contingency (Study 3).

Self-assessment manakin (pleasure). To determine whether those whose sense of selfworth was contingent on their team's success were threatened, we first examined the main effect of team-contingency on pleasure. It was expected that those whose sense of self-worth was highly contingent on their team's success, would be less pleased following England's loss. As expected, results revealed a significant main effect of team-contingency, suggesting that those high in team-contingency experienced less pleasure following England's loss, $\beta = -.18$, t(442) = -4.381, p < .001. However, neither the affirmation-threat x recounting-threat x team-contingency interaction, nor the affirmation-threat x affirmation-control x team-contingency interaction were significant: $\beta = -.01$, t(447) = -0.448, p = .654 vs. $\beta = .03$, t(447) = 0.873, p = .383. These results suggest that although there was evidence of threat –those whose sense of self-worth was highly dependent on their team's success expressed less pleasure– accurate beliefs about the benefits of self-affirmation did not attenuate that threat.



Figure 38. The effect of affirmation-threat and recounting-threat on self-assessment manakin pleasure for those low and high in team-contingency (Study 3).



Figure 39. The effect of affirmation-threat and affirmation-control on self-assessment manakin pleasure for those low and high in team-contingency (Study 3).

Discussion

Regarding self-affirmation beliefs accuracy, Study 3 replicates the findings of Reeves et al. (under review) and Studies 1 & 2, suggesting that people have both accurate and inaccurate beliefs about the benefits of self-affirmation. In this study, we again find that people have accurate situation differentiation beliefs, understanding that self-affirmation is more beneficial in self-threatening situations compared to negative situations that do not contain self-threat. However, participants struggle when it comes to comparative efficacy, believing recounting to be similarly beneficial as self-affirmation within self-threatening situations.

This study offered us the opportunity to test both questions of the effects of self-affirmation belief accuracy in a different domain, as well as the direct vs. indirect measure distinction. It was our hope that a favorite team's loss would serve as a more reliable self-threat than Valentine's Day. On this front, our predictions seem to have been justified. Across the majority of our outcome measures, we found evidence of threat, as evidenced by a significant relationship between team contingency and outcome measures (i.e. defensiveness, prejudice [all Black players], rumination, self-assessment pleasure, and self-assessment arousal). However, unexpectedly, for the direct measures, neither accurate comparative efficacy beliefs, nor situation differentiation beliefs attenuated this threat. This is potentially a cause for concern, as previous studies have suggested that two of these outcomes (defensiveness & rumination) are affected by self-affirmation (e.g. Sherman et al., 2000; Koole et al., 1999).

However, it is important to note that rather than using obvious, direct measures of defensiveness or rumination, these previous studies used more subtle measures. For example, in a self-affirmation intervention study, Sherman et al. (2000) presented participants with an article that suggested their current behaviors were unhealthy. To measure defensiveness, the researchers

asked participants how credible they found an article that contained the health information, as well as how likely they were to change their behavior. In Koole et al. (1999), rather than ask participants if they had been ruminating about a self-threatening event, the researchers used a measure of threatrelated-thought accessibility to measure rumination. These two measures differ from our measure, as their true nature is more disguised, and they are unlikely to reactivate feelings of self-threat.

Although our direct measures seemed to capture threat, it is possible that these measures may have reactivated the threat that participants had already finished coping with. If this were the case, we would not expect to see noticeable differences between those who had initially affirmed before reactivation and those who did not. This idea is explored further below in the General Discussion section.

Despite the disappointing findings from our direct measures, indirect measures showed more promise. In line with our predictions, in Study 3 we found that those who had a sense of selfworth that was highly contingent on their team's success, expressed higher levels of prejudice following England's loss in the tournament. However, this prejudice was attenuated for those who had accurate comparative efficacy beliefs. After removing Black players who missed penalty kicks, we once again observed that the most threatened individuals showed less prejudice when they had accurate comparative efficacy beliefs. However, it is important to note that we cannot draw clear conclusions from this later finding, as there was no evidence of greater threat for those with higher team contingency.

General Discussion

In the current work, we conducted three studies that examined both the accuracy and consequences of the beliefs that people have about the benefits of self-affirmation as a single individual seeking a relationship on Valentine's Day (Study 1 and Study 2) and as a sports team fan whose team lost an important match (Study 3). The first aim of our studies was to examine the accuracy of self-affirmation beliefs and replicate findings by Reeves et al. (under review). As expected, across these three studies, we found evidence of both accuracy and inaccuracy in these beliefs. A consistent pattern across these studies suggests that on average, people seem to have accurate situation differentiation beliefs (i.e. they understand in which situations to use self-affirmation), but struggle when it comes to comparative efficacy beliefs (they don't view self-affirmation as more beneficial than recounting in self-threat situations). Additionally, like Reeves et al. (under review), we find that there are individual differences in this beliefs accuracy.

The second, more novel purpose of these studies was to determine whether individual differences in beliefs accuracy predicted consequential real-world outcomes. It was expected that for those who were most threatened, more accurate comparative efficacy and situation differentiation beliefs would lead to more adaptive outcomes. On this front, we did find some evidence to suggest that this was the case. In Study 1, we found that for those who were most threatened, more accurate comparative efficacy beliefs predicted more optimistic feelings about upcoming Valentine's Day plans. Additionally, in Study 3 we found that more accurate comparative efficacy beliefs predicted less prejudice toward Black players, among those most threatened, after England lost the Euro 2020 tournament.

Despite these promising findings, overall, the data yielded null results, resulted in effects that were not in the predicted direction, or showed evidence of threat, but no attenuation of that

threat by self-affirmation belief accuracy. For example, in Study 1, although we found a significant effects of situation differentiation beliefs on feelings about upcoming Valentine's Day plans, belonging, and negative affect, the directions of these effects were not in line with our predictions. The remaining outcomes from Study 1 (i.e. positive affect, self-evaluation, and Valentine's Day satisfaction) yielded null results. For Study 2, other than a marginally significant effect of situation differentiation – for those most threatened – on negative affect, null effects were observed on all outcomes (i.e. feelings about upcoming Valentine's Day plans, positive affect, self-evaluation, couple ratings, and Valentine's Day satisfaction). Most concerningly, in Study 3, despite the promising effects on prejudice, all other variables (i.e. defensiveness, rumination, and self-assessment manakin pleasure & arousal), showed evidence of threat, but this threat was not attenuated by accurate self-affirmation beliefs.

Limitations and future directions

Based on the overall results of these three studies, one may be tempted to conclude that the beliefs about the benefits of self-affirmation do not matter when it comes to effective selfaffirmation implementation in the real world. We do not believe that this is the case for several reasons. Firstly, some of the outcome measures that we included may not have been appropriate for the current studies. It is possible that we will need to think more carefully about the types of outcomes we can expect self-affirmation to be useful for. For example, some previous unpublished work suggests that although self-affirmation can help to alleviate the impact of selfthreat on one's sense of self-worth, it may not make someone immediately feel better (S. Spencer, personal communication, 2022). Therefore, it may have been unwise for us to expect self-affirmation to impact changes in positive or negative affect following a self-threatening event. Future studies may benefit from focusing on outcomes more closely related to classic work on self-affirmation (e.g. dissonance reduction, defensiveness, and openness to negative self-relevant information).

Relatedly, we still do not know the best way to measure self-threat. The majority of the measures used in this set of studies were direct, rather than indirect measures. As some of these measures contained statements related to negative views of the self, it is possible that participants may not have been willing to express their true feelings following a self-threat. For example, in Studies 1 and 2, it is possible that some participants thought that feeling worse about themselves because of Valentine's Day seemed irrational. If this were the case, admitting this irrationality may have further affected their sense of self-integrity. Indirect measures, like the prejudice measure used in Study 3, may be better at capturing negative self or other views that participants are not willing to admit. Additionally, indirect measures may be better equipped for measuring self-threat without reactivating the self-threat, a possibility that will be discussed in more detail below. As a whole, we believe that future studies may benefit from more carefully considering both the types of outcomes self-affirmation may affect following a self-threat, as well as the way in which these outcomes are measured.

Secondly, unlike with other metamotivational beliefs measures for regulatory focus (Scholer & Miele, 2016) or construal level (Nguyen et al., 2019), there is no opposite of self-affirmation. When searching for effective strategies for coping with self-threat, there are an endless number of strategies that one may use as an alternative to self-affirmation. Self-affirmation may exist as a strategy in one's motivation regulation "toolbox," but its actual implementation may depend on how likely it is to be implemented over alternative coping strategies. For example, if self-affirmation is the fifth choice for a given individual, four coping strategies would need to fail before an individual would choose to self-affirm. Someone who

views self-affirmation as the most effective coping strategy should be much more likely to selfaffirm when faced with self-threat as compared to a person who sees four alternative strategies as more beneficial. Although it is not feasible to keep track of all potential self-threat coping strategies, future studies may benefit from assessing multiple, commonly reported strategies. People who believe that self-affirmation is more effective than multiple alternative strategies may be more likely to self-affirm in the face of self-threat. As our measure only pits selfaffirmation against one strategy, we potentially miss out on these alternative strategies that participants may be engaging in. Therefore, an improved measure that assesses beliefs about self-affirmation compared to multiple strategies may be more predictive than the current measure.

Alternatively, in order to avoid the issue of keeping track of a potentially infinite number of coping strategies, future studies may explore the use of a more open-ended measure, which more closely aligns with that used by Brady and colleagues (2016). Importantly however, rather than present participants with *only* self-threatening scenarios, this measure may present participants with both self-threat and control scenarios, after which they would be asked to free write. Resulting responses could be coded for the extent to which they contain self-affirmational language. The resulting data would allow us to determine whether participants are self-affirming or engaging in alternative strategies within self-threat scenarios (comparative efficacy), as well as whether participants are self-affirming in self-threat scenarios more than they are selfaffirming in control scenarios (situation differentiation). This type of measure avoids the issue of keeping track of alternative strategies, but it may potentially conflate self-affirmation beliefs with self-affirmation implementation.

Thirdly, we cannot be sure when the implementation of these strategies occurs in the coping process. Each of our studies followed the same format: (1) we contacted participants and measured self-affirmation beliefs before a naturally-occurring, self-threatening event, (2) the self-threatening event occurred, and (3) we recontacted participants a day after the threatening event and measured outcomes. Previous research suggests that if prompted, participants will selfaffirm at a similar rate, regardless of beliefs accuracy (Reeves et al., under review). One of the major strengths of our current design is that it allows us to study self-affirmation beliefs in an ecologically-valid, unconstrained manner where participants are left to self-affirm without prompting. However, the lack of constraints also makes it difficult to determine when the use of a coping strategy starts and stops. For example, it may be the case that contacting participants 24 hours after the self-threatening event did not give them enough time to implement selfaffirmation. If this were the case, it would be unwise to expect that the accuracy of selfaffirmation beliefs would have any impact on outcomes measured so soon after a self-threat occurred. Alternatively, it's possible that contacting participants 24 hours after the selfthreatening event gave participants too much time. Over a 24-hour period, participants may have had the opportunity to engage in multiple coping strategies, making it difficult to isolate the effects of self-affirmation. In order to better understand the self-affirmation implementation timeline, future studies may consider contacting participants at varying timepoints after selfthreatening events.

Relatedly, it is possible that our study interfered in the natural coping process, and reactivated self-threats. During the follow-up surveys, our design required that we remind participants of the threatening event in order to measure several of our outcomes of interest. For example, to ask participants how they felt about their Valentine's Day in Studies 1 and 2, we

needed to remind them that the previous day had been Valentine's Day. In Study 3, before any of the outcomes were measured, England's loss of the Euro 2020 tournament was made salient. It is possible that reminding participants of the threatening events, reactivated self-threats that participants had already finished coping with. Additionally, as briefly mentioned earlier in this section, it is possible that direct measures of our outcomes of interest were enough to reactive self-threat. Our most concerning findings were on outcomes that evidenced threat, but no attenuation by self-affirmation beliefs. Moreover, studies have shown that several of these outcomes (i.e. rumination, defensiveness, and self-evaluation) can be affected by self-affirmation interventions (e.g. Koole et al., 1999; Sherman et al., 2000; Walton et al., 2015). However, the measures included in our studies were direct measures of these constructs, while previous studies have measured these indirectly (e.g. Koole et al., 1999; Sherman et al., 2000), or without reminding participants of the self-threatening event (e.g. Walton et al., 2015). The inconsistency of results may have emerged due to our studies' reactivation of self-threat, while these previous studies were able to measure outcomes without reactivation. Future studies may want to include additional indirect measures as a way of examining outcomes of interest without reactivating self-threats.

To address some of the above concerns, in future work we would like to (1) work on refining the current self-affirmation beliefs measure, (2) conduct additional field studies, and (3) incorporate controlled laboratory studies into this line of work. As mentioned above, our current measure of self-affirmation beliefs may suffer from an inability to keep track of alternative strategies individuals may be using in order to deal with self-threatening situations. We have begun preliminary work to determine some of the strategies that people may be using as an alternative to self-affirmation in the self-threat scenarios participants are presented with in the

measure. We are hopeful that this work will allow us to refine out measure, making it more predictive of important outcomes.

In future field studies, we plan to focus more on the inclusion of outcomes that more closely align with classic work on self-affirmation, as well a more optimal measurement of these outcomes. For example, as much of the classic work on self-affirmation has focused on negative the acceptance of negative self-related health information (e.g. Harris et al., 2007; Taber et al., 2016), a future field study may reach participants before and after a doctor's appointment and measure their acceptance of the negative feedback provided by the physician. To measure this acceptance of negative self-relevant information in different ways, we may both explicitly ask whether or not they accept the physician's feedback, as well as indirectly measure their acceptance by looking at the change in health behavior that occurs as a result of this feedback. This indirect measure may allow us to examine defensiveness without reactivating the self-threat. Additionally, in these field studies we can address the question outcome measurement timing by varying the timing of follow-up surveys and/or measuring outcomes at multiple points during the coping process.

Although field studies may more closely mirror the real world, the lack of constraints makes it difficult to isolate the effects of self-affirmation beliefs. The inclusion of laboratory studies into this line of work will allow us to more easily explore questions of the self-affirmation use timeline. Additionally, a laboratory study may give us the opportunity to link self-affirmation beliefs to spontaneous self-affirmation. It would be expected that those with more accurate beliefs would spontaneously self-affirm in the face of self-threat, and this would lead to improved outcomes. Therefore, a potential laboratory study may measure self-affirmation beliefs before presenting participants with a self-threat induction (e.g. an academic stressor task),

participants would then be given to spontaneously self-affirm, and lastly outcomes of interest would be measured. The timing of the opportunity to spontaneously self-affirm could be manipulated in the lab in order to determine whether its occurrence differs as a function of time after a self-threating situation.

Conclusions and Implications

The current research was a first attempt to examine whether accurate metamotivational beliefs about the benefits of self-affirmation predict real-world outcomes. Although much of the data provide null results, and several variables show evidence of threat, but no attenuation by belief accuracy, we believe that these studies are promising. Despite the severity of the limitations discussed above, we found that accurate beliefs about the benefits of self-affirmation predicted several real-world outcomes. Additionally, these studies have highlighted important new avenues for this line of work. With a more predictive measure of self-affirmation beliefs, additional field studies that more closely align with classic work on self-affirmation and measure outcomes in a more subtle manner, and laboratory studies that allow us to study self-affirmation beliefs with additional constraints, we are confident that we will be better able to capture the true relationship between self-affirmation beliefs and consequential real-world outcomes.

Taking a regulatory approach to studying self-affirmation is an important step to understanding the necessary requirements for effective self-affirmation in the real world. This line of work proposes that accurate beliefs about self-affirmation are a n essential prerequisite to effective self-affirmation implementation. Understanding these beliefs may provide insight into why some people are better able to cope in the face of self-threat, as well as why some selfaffirmation interventions are more effective than others. We believe that a clearer understanding of the role that these beliefs play will assist in the development of more effective self-affirmation interventions. Future interventions may benefit from tackling misbeliefs and fostering accurate

situation differentiation and comparative efficacy beliefs about self-affirmation. It is our hope that future research on this topic will lead to more effective interventions that are better able to reduce the variety of self-threats that people face in their daily lives.

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Appendix A: Self-Affirmation Beliefs Scenarios & Strategies

Self-Threat Scenario 1

Imagine you are a heavy coffee drinker. You have just learned that caffeine consumption can increase the risk of developing certain types of cancer. You think of yourself as a healthy person and you find this information distressing. You are tempted to ignore the information and downplay the risk.

Imagine that your goal is to prepare yourself to accept this threatening health information even though it makes you feel bad about yourself.

Self-Threat Scenario 2

Imagine you have had your blood sugar checked by your doctor. Your test results indicate that your blood sugar is slightly above the normal range, which puts you at risk of developing diabetes. Your health is important to you, and you find the results of this test upsetting because it makes you feel like you are an unhealthy person.

Imagine that your goal is to prepare yourself to accept the results of the test even though it makes you feel like an unhealthy person.

Self-Threat Scenario 3

Imagine you are about to take a challenging exam in a class that is very important to you. You are worried that people might think you are unintelligent if you don't do well and your anxiety makes it difficult for you to focus on the test.

Imagine that your goal is to do your best on the test despite your anxiety.

Self-Threat Scenario 4

Imagine you are about to give a presentation at work. Your supervisors are evaluating you on this presentation and it is very important that you do well. You don't like public speaking, and you are very nervous. You worry that your supervisors will think you are unintelligent or bad at your job if you don't do well.

Imagine that your goal is to do your best on the presentation despite your anxiety.

Self-Threat Scenario 5

Imagine you are reading a scientific article about capital punishment. You want to be as objective as possible in evaluating the claims of the article, but some of the arguments presented conflict with your current views about capital punishment.

Imagine that your goal is to objectively evaluate the article.

Self-Threat Scenario 6

Imagine that you are at a family gathering. You are discussing gun control with one of your relatives. This relative's views on gun control happen to conflict with your own. You want to be open-minded toward your relative's viewpoints, but you are finding it difficult given your own views.

Imagine that your goal is to be open-minded about your relative's views on gun control.

Self-Threat Scenario 7

Imagine you are about to be evaluated by your boss. Your boss has written two letters, one describing your strengths and one describing your weaknesses, and then asks you to choose which letter you will read. You believe that hearing about your strengths will make you feel good, but you know that hearing about your weaknesses will help you improve and get better at your job. Imagine you really want to choose the information about your weaknesses to get better at your job, but you know that hearing about your strengths will make you feel good.

Imagine that your goal is to choose the letter about your weaknesses even though it makes you feel bad about yourself.

Self-Threat Scenario 8

Imagine you have written a short story for a creative writing class. Your instructor has offered to read an early draft and provide critical feedback. You know that your instructor's feedback would help you improve your story, but his feedback tends to be very harsh and critical. Getting feedback from him will probably make you feel bad about your writing.

Imagine that your goal is to choose to get your instructor's feedback on your writing even though it will make you feel bad.

Control Scenario 1

Imagine that you woke up this morning with your back really sore and stiff. It hurts badly enough that it's a little hard to move. Just turning over to your side is difficult and painful. You've managed to make an appointment with your doctors and you now have to get to their office.

Imagine that your goal is to figure out how to deal with this.

Control Scenario 2

Imagine that you've developed plantar fasciitis, which is a relatively common, but painful condition that causes foot pain. You've been to the doctor and have been prescribed a treatment plan, including rest, orthotics, and anti-inflammatory medications. After lounging on the couch watching TV, you try to get up and nearly fall down with pain shooting through your foot. Now, you are trying to figure out what to do next.

Imagine that your goal is to manage this situation.

Control Scenario 3

Imagine that you've been working at your computer all day and have suddenly developed severe pain in your wrist. You've tried taking over-the-counter medications and have iced it for several minutes, but it's still pretty painful. You realize that you will need to take the rest of the day off from work. You start to email your supervisor, but even just writing a short email is painful.

Imagine that your goal is to figure out what to do next.

Control Scenario 4

Imagine that you're on your way to meet up with friends. It has recently snowed and the sidewalk is a bit icy. Suddenly you slip and fall, hitting your head on the pavement. You think you're probably okay, but you are in a lot of pain and you are worried you have a concussion. You decide it would be a good idea to make an appointment with your doctor, so you call and make an appointment. Now, you need to find a way to get to the doctor's office in spite of the pain you're experiencing.

Imagine your goal is to manage this situation.

Control Scenario 5

Imagine that you are playing intramural soccer with your friends. Just as you are going for the ball, you twist your ankle pretty badly and are in too much pain to continue the game. You have no choice but to limp off the field, but even that is painful. You call to make an appointment with your doctor, but it turns out you won't be able to get in for a few days. Now, you have to figure out how to manage your injury in the meantime.

Imagine your goal is to deal with the situation.

Control Scenario 6

Imagine that you went to a new workout class. The next day, you are so sore that you are having trouble walking and getting around. You suspect that you might have pulled a muscle. You decide to rest and take anti-inflammatory medications, but you're still in a considerable amount of pain.

Imagine your goal is to figure out what to do next.

Control Scenario 7

Imagine that you've developed a severe tooth ache. It's so painful that the side of your face has started to swell – even just talking is painful. You've scheduled a dentist appointment, but the appointment isn't for a few days and you've got a lot to do in the meantime.

Imagine your goal is to deal with this situation.

Control Scenario 8

Imagine that you slept in an awkward position and as a result, you wake up with a pinched nerve in your neck. You are barely able to turn your head in either direction.

Imagine your goal is to manage this situation.

Values-Affirmation Strategy

The [first/second] strategy that people might use when faced with difficult situations is

called values reflection. This strategy consists of reflecting on the values that matter most to

you - like your relationships with your friends and family, art or music, or your religion.

Recounting Strategy

The [first/second] strategy that people might use is called the **recounting strategy**. This strategy

consists of analyzing and reflecting on the details of the difficult situation

Appendix B: All Tables

Table 1. Results of the 2 (scenario: self-threat vs. control) x 2 (strategy: affirmation vs. control) repeated measures ANOVA on helpfulness ratings for Studies 1-3

a) Main effe	ct of scenario	Descriptive statistics				
Study	F	df	р	Self-threat	Control	
Study 1	157.93	(1, 151)	<.001	5.05 (0.95)a	4.36 (1.23)b	
Study 2	487.93	(1, 347)	<.001	5.16 (0.80)a	4.09 (1.19)b	
Study 3	410.43	(1, 459)	<.001	5.20 (0.78)a	4.47 (1.10)b	

b) Main effe	ct of strategy			Descriptive statistics			
Study	F	df	р	Affirmation	Recounting		
Study 1	83.07	(1, 151)	<.001	4.24 (1.12)a	5.17 (1.06)b		
Study 2	243.53	(1, 347)	<.001	4.18 (1.01)a	5.07 (0.98)b		
Study 3	295.05	(1, 459)	<.001	4.45 (0.96)a	5.22 (0.92)b		

Note: Different superscript letters denote significant differences within rows at p < .05

c) Interaction effect of scenario x strategy										
Study	F	df	р							
Study 1	147.18	(2, 151)	<.001							
Study 2	385.78	(2, 347)	<.001							
Study 3	347.82	(2, 459)	<.001							

Correlation Tables

Table 2. Study 1 relationship-seeking descriptive statistics and correlations (baseline & follow-up)

a) Baseline

T 7 ' 11	3.7	14	an a		2	2	
Variable	N	M	SD	l	2	3	4
1. Seeking Committed (baseline)	152	2.93	1.450	-			
2. Stay Unattached (baseline)	152	3.19	1.432	508**	-		
3. Right Person (baseline)	152	4.59	1.299	0.109	193*	-	
4. Casual Dating(baseline)**. Correlation is significant at	152 the 0.01 level (2-	2.84 tailed).	1.382	-0.058	.159*	.193*	-

*. Correlation is significant at the 0.05 level (2-tailed).

b) Follow-up

Variable	N	М	SD	1	2	3	4
1. Seeking Committed (follow-up)	152	3.01	1.546	-			
2. Stay Unattached (follow-up)	152	3.21	1.468	590**	-		
3. Right Person (follow-up)	152	4.71	1.254	0.049	258**	-	
4. Casual Dating (follow-up)	152	2.81	1.418	-0.060	.249**	0.028	-

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 3. Study 2 relationship-seeking descriptive statistics and correlations (baseline & follow-up)

a) Baseline

Variable	N	M	SD	1	2	3	4			
1. Seeking Committed (baseline)	347	2.99	1.541	-						
2. Stay Unattached (baseline)	347	3.37	1.487	552**	-					
3. Right Person (baseline)	347	4.70	1.262	0.098	205**	-				
4. Casual Dating (baseline)	347	2.74	1.382	-0.003	.137*	.182**	-			
**. Correlation is significant at the 0.01 level (2-tailed).										

*. Correlation is significant at the 0.05 level (2-tailed).

b) Follow-up

Variable	Ν	М	SD	1	2	3	4
1. Seeking Committed (follow-up)	347	2.91	1.534	-			
2. Stay Unattached (follow-up)	347	3.40	1.483	524**	-		
3. Right Person (follow-up)	347	4.60	1.334	0.044	127*	-	
4. Casual Dating (follow-up)	347	2.74	1.372	-0.002	0.013	.182**	-

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Variable	N	М	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Team Contingency	460	3.12	1.25	-											
2. We-ness	460	4.25	1.43	.582**	-										
3. Length of Support	460	4.78	0.74	0.016	.102*	-									
4. Team Success Importance	460	3.68	1.13	.571**	.674**	.094*	-								
5. Control Over Outcome	460	2.01	0.97	.458**	.508**	- 0.059	.357**	-							
6. National Pride	460	4.13	1.57	.233**	.314**	- 0.010	.207**	.205**	-						
7.Defensiveness	460	2.65	0.77	.358**	.244**	- 0.089	.286**	.233**	.126**	-					
8. Prejudice (All Black Players)	460	2.11	0.51	.115*	- 0.087	098*	0.008	0.002	0.053	.092*	-				
9. Prejudice (Non-kicking Black Players)	460	2.09	0.52	0.050	.121**	111*	0.046	0.021	114*	0.056	.919**	-			
10. Rumination	460	3.24	1.20	.426**	.467**	0.071	.571**	.229**	.207**	.440**	0.055	0.008	-		
11. Self- assessment Arousal	459	2.66	1.06	.232**	.333**	0.007	.323**	.167**	.156**	.266**	0.015	0.007	.437**	-	
12. Self- assessment Pleasure	459	2.31	0.85	- .193**	- .247**	118*	- .366**	0.057	103*	.238**	0.070	.096*	.520**	- .296**	-

Table 4. Study 3 team affiliation and outcome descriptive statistics and correlations

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).
Variable	Ν	М	SD	1	2	3	4	5	6	7	8
1. Comparative Efficacy	152	0.03	1.293	-							
2. Situation Differentiation	152	1.65	1.303	.304**	-						
3. Vday Plan Feeling (baseline)	152	4.21	1.403	0.098	0.120	-					
4. Belonging (follow-up)	152	4.08	1.040	-0.019	.231**	.295**	-				
5. Positive Affect (follow-up)	152	3.24	1.303	0.060	.256**	.229**	.681**	-			
6. Negative Affect (follow-up)	152	2.32	1.175	0.076	-0.013	.304**	- .401**	- .248**	-		
7. Self-evaluation (follow-up)	152	4.55	1.534	0.030	-0.075	.344**	.687**	.567**	369**	-	
8. Vday Satisfaction (follow-up)	152	3.96	1.437	0.085	-0.036	.533**	.452**	.344**	327**	.425**	-

Table 5. Study 1 self-affirmation beliefs and outcome descriptive statistics and correlations

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Note: Comparative efficacy is calculated as affirmation-threat minus recounting-threat. Situation differentiation is calculated as affirmation-threat minus affirmation-control.

Variable	N	M	SD	1	2	3	4	5	6	7	8	9
1. Comparative Efficacy	347	-0.13	1.004	-								
2. Situation Differentiation	347	1.82	1.234	0.100	-							
3. Vday Plan Feeling (baseline)	347	4.37	1.456	0.031	0.004	-						
4. Positive Affect (follow-up)	347	3.03	1.285	0.040	-0.063	.369**	-					
5. Negative Affect (follow-up)	347	2.28	1.182	-0.041	-0.018	296**	284**	-				
6. Self-evaluation (follow-up)	347	4.54	1.450	0.091	-0.039	.365**	.631**	465**	-			
7. Vday Satisfaction (follow-up)	347	4.07	1.506	0.036	-0.055	0.041	.183**	-0.103	.133*	-		
8. Couple rating (follow-up)	347	4.60	0.786	-0.002	0.037	.424**	.404**	325**	.402**	-0.045	-	
9. Self-reported affirmation (follow-up)	347	4.40	1.689	.162**	-0.053	.112*	.304**	0.065	.182**	0.087	0.037	-

Table 6. Study 2 self-affirmation beliefs and outcome descriptive statistics and correlations

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Note: Comparative efficacy is calculated as affirmation-threat minus recounting-threat. Situation differentiation is calculated as affirmation-threat minus affirmation-control.

Variable	Ν	М	SD	1	2	3	4	5	6	7	8
1. Comparative Efficacy	460	-0.06	0.997	-							
2. Situation Differentiation	460	1.43	1.174	.312**	-						
3. Defensiveness	460	2.65	0.774	-0.014	139**	-					
4. Prejudice (All Black players)	460	2.11	0.508	-0.053	116*	.092*	-				
5. Prejudice (Non- kicking players)	460	2.09	0.515	-0.050	-0.086	0.056	.919**	-			
6. Rumination	460	3.24	1.197	0.009	-0.068	.440**	0.055	0.008	-		
7. Self-assessment (arousal)	460	2.66	1.056	-0.037	-0.073	.266**	0.015	-0.007	.437**	-	
8. Self-assessment (pleasure)	460	2.31	0.855	-0.049	-0.053	238**	0.070	.096*	520**	296**	-

Table 7. Study 3 self-affirmation beliefs and outcome descriptive statistics and correlations

(pleasure) **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Note: Comparative efficacy is calculated as affirmation-threat minus recounting-threat. Situation differentiation is calculated as affirmation-threat minus affirmation-control.

Study 1 Regression Tables

		β		sr^2	
Predictor	β	95% CI	Sr^2	95% CI	Fit
		[LL, UL]		[LL, UL]	
(Intercept)	4.22**	[3.99, 4.45]			
aff-threat	0.40**	[0.12, 0.68]	.05	[01, .11]	
rec-threat	0.01	[-0.22, 0.25]	.00	[00, .00]	
aff-cont	-0.04	[-0.27, 0.19]	.00	[01, .01]	
relationship-seek	-0.37**	[-0.60, -0.13]	.05	[01, .12]	
aff-threat:rec-threat	-0.11	[-0.37, 0.15]	.00	[01, .02]	
aff-threat:aff-cont	-0.07	[-0.31, 0.17]	.00	[01, .01]	
rec-threat:aff-cont	0.09	[-0.13, 0.31]	.00	[01, .02]	
aff-		-			
threat:relationship-	0.22	[-0.05, 0.48]	.02	[02, .05]	
seek					
rec-					
threat:relationship-	-0.23*	[-0.43, -0.03]	.03	[02, .08]	
seek		L / J			
aff-					
cont:relationship-	-0.10	[-0.33, 0.14]	.00	[01, .02]	
seek		L / J			
aff-threat:aff-					
cont:relationship-	0.29**	[0.09, 0.50]	.05	[01, .11]	
seek					
aff-threat:rec-					
threat:relationship-	-0.25**	[-0.41, -0.08]	.05	[01, .11]	
seek		[•••••]		[,]	
Seek					$R^2 = .199 * *$
					95% CI[.0325]

Table 8. Regression results of affirmation-threat x recounting-threat x affirmation-control x relationship-seeking, using Valentine's Day plan feeling as the criterion

Predictor	β	β 95% CI [LL, UL]	sr ²	<i>sr</i> ² 95% CI [LL, UL]	Fit
(Intercept)	4.08**	[3.95, 4.21]			
aff-threat rec-threat	-0.10 -0.07	[-0.26, 0.05] [-0.21, 0.07]	.01 .00	[01, .02] [01, .02]	
aff-cont	0.15*	[0.02, 0.28]	.02	[01, .04]	
relationship- seek	0.14	[-0.00, 0.27]	.01	[01, .04]	
belonging(bas eline)	0.73**	[0.60, 0.86]	.39	[.28, .51]	
aff-threat:rec- threat	-0.00	[-0.15, 0.15]	.00	[00, .00]	
aff-threat:aff- cont	0.02	[-0.11, 0.16]	.00	[00, .00]	
rec-threat:aff- cont aff-	0.03	[-0.10, 0.16]	.00	[00, .01]	
threat:relation ship-seek	0.05	[-0.11, 0.21]	.00	[01, .01]	
threat:relation ship-seek	-0.05	[-0.17, 0.08]	.00	[01, .01]	
cont:relations hip-seek aff-	-0.02	[-0.16, 0.13]	.00	[00, .00]	
threat:belongi ng(baseline) rec-	0.10	[-0.05, 0.25]	.01	[01, .02]	
threat:belongi ng(baseline) aff-	0.05	[-0.09, 0.19]	.00	[01, .01]	
cont:belongin g(baseline) relationship-	0.11	[-0.02, 0.24]	.01	[01, .03]	
seek:belongin g(baseline) aff-threat:aff-	-0.04	[-0.16, 0.09]	.00	[01, .01]	
cont:relations hip-seek aff-threat:rec-	-0.10	[-0.21, 0.02]	.01	[01, .03]	
threat:relation ship-seek	0.06	[-0.03, 0.16]	.01	[01, .02]	$P^2 = 555**$
					95% CI[.38,.59]

Table 9. Regression results of affirmation-threat x recounting-threat x affirmation-control x relationship-seeking x belonging(baseline), using belonging follow-up as the criterion

		β		sr^2	
Predictor	β	95% CI	sr^2	95% CI	Fit
	-	[LL, UL]		[LL, UL]	
(Intercept)	3.29**	[3.11, 3.46]			
aff-threat	-0.08	[-0.29, 0.13]	.00	[01, .01]	
rec-threat	-0.03	[-0.21, 0.16]	.00	[00, .00]	
aff-cont	0.23*	[0.05, 0.41]	.02	[01, .06]	
relationship-	0.15	[004 033]	01	[01 03]	
seek	0.15	[-0.04, 0.33]	.01	[01, .05]	
posaffect(baseli	0 70**	[0.61.0.98]	28	[17 30]	
ne)	0.75	[0.01, 0.90]	.20	[.17, .57]	
aff-threat:rec-	-0.06	[-0.26, 0.14]	00	[-01 01]	
threat	0.00	[0.20, 0.11]	.00	[.01,.01]	
aff-threat:aff-	-0.10	[-0.29, 0.09]	00	[-01 02]	
cont	0.10	[0.29, 0.09]		[.01, .02]	
rec-threat:aff-	0.13	[-0.04, 0.31]	.01	[01, .03]	
cont					
aff-	0.04		0.0	F 00 011	
threat:relationsh	-0.04	[-0.25, 0.17]	.00	[00, .01]	
1p-seek					
rec-	0.02	[014 0 19]	00	F 00 001	
	0.02	[-0.14, 0.18]	.00	[00, .00]	
ip-seek					
all-	0.02	[021 019]	00	[00 00]	
cont.relationshi	-0.02	[-0.21, 0.18]	.00	[00, .00]	
p-seek aff-					
threat:posaffect(0.07	[-0.14, 0.27]	00	[-01 01]	
haseline)	0.07	[0.14, 0.27]	.00	[.01,.01]	
rec-					
threat:posaffect(0.07	[-0.12, 0.25]	.00	[0101]	
baseline)	0107	[0.12, 0.20]		[]	
aff-					
cont:posaffect(b	-0.08	[-0.27, 0.11]	.00	[01, .01]	
aseline)					
relationship-					
seek:posaffect(b	-0.11	[-0.28, 0.06]	.01	[01, .02]	
aseline)					
aff-threat:aff-					
cont:relationshi	-0.09	[-0.25, 0.06]	.01	[01, .02]	
p-seek					
aff-threat:rec-					
threat:relationsh	0.03	[-0.10, 0.16]	.00	[01, .01]	
ip-seek					
					$R^2 = .499^{**}$
					95% CI[.31,.54]

Table 10. Regression results of affirmation-threat x recounting-threat x affirmation-control x relationship-seeking x positive affect(baseline), using positive affect follow-up as the criterion

		β		sr^2	
Predictor	β	95% CI	sr^2	95% CI	Fit
	-	[LL, UL]		[LL, UL]	
(Intercept)	2.34**	[2.17, 2.52]			
aff-threat	-0.00	[-0.21, 0.20]	.00	[00, .00]	
rec-threat	-0.13	[-0.30, 0.05]	.01	[01, .03]	
aff-cont	0.01	[-0.17, 0.18]	.00	[00, .00]	
relationship-	0.00		00		
seek	-0.09	[-0.28, 0.09]	.00	[01, .02]	
negaffect(basel			22	5.00 4.43	
ine)	0.79**	[0.61, 0.97]	.32	[.20, .44]	
aff-threat:rec-					
threat	-0.12	[-0.31, 0.07]	.01	[01, .03]	
aff-threat aff-					
cont	0.11	[-0.07, 0.28]	.01	[01, .02]	
rec-threat aff-					
cont	0.05	[-0.11, 0.21]	.00	[01, .01]	
aff-					
threat relations	0.22*	[0.02 0.41]	02	[_01_06]	
hip-seek	0.22	[0.02, 0.41]	.02	[01, .00]	
nip-seek					
throat relations	0.07	[0 22 0 10]	00	[01 02]	
	-0.07	[-0.25, 0.10]	.00	[01, .02]	
nip-seek					
	0.10		00	F 01 021	
cont:relationsh	-0.10	[-0.29, 0.10]	.00	[01, .02]	
1p-seek					
aff-	a a a	5 0 40 0 001	.	5 01 051	
threat:negaffec	-0.20	[-0.40, 0.00]	.02	[01, .05]	
t(baseline)					
rec-					
threat:negaffec	0.16	[-0.02, 0.35]	.01	[01, .04]	
t(baseline)					
aff-					
cont:negaffect(-0.03	[-0.22, 0.15]	.00	[01, .01]	
baseline)					
relationship-					
seek:negaffect(-0.10	[-0.29, 0.08]	.01	[01, .02]	
baseline)					
aff-threat:aff-					
cont:relationsh	0.19*	[0.04, 0.34]	.03	[01, .07]	
ip-seek		-		_	
aff-threat:rec-					
threat:relations	-0.04	[-0.16, 0.08]	.00	[01, .01]	
hip-seek					
•					$R^2 = .419^{**}$
					95% CI[.22,.46]

Table 11. Regression results of affirmation-threat x recounting-threat x affirmation-control x relationship-seeking x negative affect(baseline), using negative affect follow-up as the criterion

		β		sr^2	
Predictor	β	95% CI	sr^2	95% CI	Fit
	-	[LL, UL]		[LL, UL]	
(Intercept)	4.53**	[4.39, 4.67]			
aff-threat	0.01	[-0.16, 0.18]	.00	[00, .00]	
rec-threat	0.03	[-0.12, 0.17]	.00	[00, .00]	
aff-cont	0.11	[-0.03, 0.25]	.00	[01, .01]	
relationship-seek	0.02	[-0.12, 0.17]	.00	[00, .00]	
self- eval(baseline)	1.32**	[1.19, 1.46]	.67	[.57, .76]	
aff-threat:rec- threat	0.04	[-0.12, 0.19]	.00	[00, .00]	
aff-threat:aff- cont	-0.11	[-0.26, 0.03]	.00	[01, .01]	
rec-threat:aff- cont	0.07	[-0.06, 0.21]	.00	[00, .01]	
aff- threat:relationshi p-seek	-0.04	[-0.21, 0.12]	.00	[00, .00]	
rec- threat:relationshi p-seek	-0.03	[-0.16, 0.10]	.00	[00, .00]	
aff- cont:relationship -seek	0.08	[-0.07, 0.22]	.00	[00, .01]	
aff-threat:self- eval(baseline)	-0.01	[-0.16, 0.15]	.00	[00, .00]	
rec-threat:self- eval(baseline)	-0.17*	[-0.33, -0.01]	.01	[01, .02]	
aff-cont:self- eval(baseline)	0.14*	[0.01, 0.27]	.01	[01, .02]	
relationship- seek:self- eval(baseline)	-0.08	[-0.20, 0.05]	.00	[01, .01]	
aff-threat:aff- cont:relationship -seek	0.04	[-0.09, 0.16]	.00	[00, .00]	
aff-threat:rec- threat:relationshi p-seek	-0.05	[-0.15, 0.05]	.00	[00, .01]	
P cook					$R^2 = .763^{**}$ 95% CI[.66,.79]

Table 12. Regression results of affirmation-threat x recounting-threat x affirmation-control x relationship-seeking x self-evaluation(baseline), using self-evaluation follow-up as the criterion

Predictor	β	β 95% CI [LL, UL]	sr ²	<i>sr</i> ² 95% CI [LL, UL]	Fit
(Intercept)	4.06**	[3.82, 4.30]			
aff-threat	-0.00	[-0.30, 0.29]	.00	[00, .00]	
rec-threat	-0.08	[-0.33, 0.17]	.00	[01, .02]	
aff-cont	0.12	[-0.12, 0.36]	.01	[02, .03]	
relationship- seek	-0.35**	[-0.60, -0.10]	.05	[01, .11]	
aff-threat:rec- threat	0.11	[-0.16, 0.38]	.00	[01, .02]	
aff-threat:aff- cont	-0.26*	[-0.51, -0.00]	.02	[02, .07]	
rec-threat:aff- cont	0.03	[-0.20, 0.27]	.00	[01, .01]	
aff- threat:relation ship-seek	0.08	[-0.19, 0.36]	.00	[01, .02]	
rec- threat:relation ship-seek	-0.13	[-0.35, 0.08]	.01	[02, .04]	
cont:relations hip-seek	0.07	[-0.17, 0.32]	.00	[01, .02]	
cont:relations hip-seek	0.10	[-0.11, 0.31]	.01	[02, .03]	
threat:relation ship-seek	-0.10	[-0.27, 0.08]	.01	[02, .03]	
•					$R^2 = .157^*$ 95% CI[.00,.20]

Table 13. Regression results of affirmation-threat x recounting-threat x affirmation-control x relationship-seeking, using Valentine's Day satisfaction as the criterion

Study 2 Regression Tables

Predictor	β	β 95% CI	sr ²	<i>sr</i> ² 95% CI	Fit
		[LL, UL]		[LL, UL]	
(Intercept)	4.42**	[4.26, 4.59]			
aff-threat	0.09	[-0.09, 0.26]	.00	[01, .01]	
rec-threat	0.08	[-0.09, 0.24]	.00	[01, .01]	
aff-cont	0.07	[-0.10, 0.24]	.00	[01, .01]	
relationship- seek	-0.08	[-0.25, 0.09]	.00	[01, .01]	
aff-threat:rec- threat	-0.04	[-0.21, 0.12]	.00	[01, .01]	
aff-threat:aff- cont	-0.10	[-0.25, 0.05]	.00	[01, .02]	
rec-threat:aff- cont	0.00	[-0.18, 0.19]	.00	[00, .00]	
aff- threat:relation ship-seek	0.03	[-0.14, 0.21]	.00	[00, .00]	
rec- threat:relation ship-seek	0.11	[-0.06, 0.27]	.00	[01, .02]	
aff- cont:relations hip-seek	-0.04	[-0.21, 0.12]	.00	[00, .01]	
aff-threat:aff- cont:relations hip-seek	0.03	[-0.12, 0.18]	.00	[00, .01]	
threat:relation ship-seek	0.03	[-0.13, 0.19]	.00	[00, .00]	
<u>r</u> 24					$R^2 = .027$ 95% CI[.00,.03]

Table 14. Regression results of affirmation-threat x recounting-threat x affirmation-control x relationship-seeking, using Valentine's Day plan feeling as the criterion

		в		sr^2	
Predictor	в	95% CI	sr ²	95% CI	Fit
Treateror	P		51		1.10
(Intercent)	3 03**	[2 01 3 16]			
(intercept)	0.11	[2.91, 5.10]	01	[01 0 2]	
an-threat	0.11	[-0.02, 0.23]	.01	[01, .02]	
rec-threat	0.12	[-0.00, 0.24]	.01	[01, .02]	
aff-cont	0.11	[-0.01, 0.24]	.01	[01, .02]	
relationship- seek	0.07	[-0.06, 0.20]	.00	[01, .01]	
posaffect(basel	0 50**	[0 47 0 71]	10	[12 27]	
ine)	0.59**	[0.4/, 0./1]	.19	[.12, .26]	
aff-threat rec-					
threat	0.00	[-0.13, 0.13]	.00	[00, .00]	
off threat off					
	-0.05	[-0.16, 0.07]	.00	[01, .01]	
cont					
rec-threat:aff-	-0.02	[-0.17, 0.12]	.00	[00, .00]	
cont				[,]	
aff-					
threat:relations	-0.08	[-0.21, 0.05]	.00	[01, .01]	
hip-seek					
rec-					
threat:relations	0.10	[-0.03, 0.22]	.00	[01, .02]	
hip-seek					
aff-					
cont:relationsh	0.02	[-0 11 0 14]	00	[- 00 00]	
in-seek	0.02	[0.11, 0.11]	.00	[.00, .00]	
ip-seek					
threatur agoffag	0.00	[012012]	00	L 00 001	
threat.posafiec	-0.00	[-0.15, 0.15]	.00	[00, .00]	
t(baseline)					
rec-		5 0 0 0 0 1 13		5 00 003	
threat:posaffec	0.03	[-0.08, 0.14]	.00	[00, .00]	
t(baseline)					
aff-					
cont:posaffect(0.14*	[0.02, 0.26]	.01	[01, .03]	
baseline)					
relationship-					
seek:posaffect(-0.06	[-0.17, 0.06]	.00	[0101]	
baseline					
aff-threat aff-					
cont relationsh	-0.02	[_0 13 0 09]	00	[_ 00 00]	
in saal	-0.02	[0.15, 0.07]	.00	[.00, .00]	
off threatures					
an-uneat.rec-	0.04		00	F 00 011	
inreal:relations	0.04	[-0.08, 0.16]	.00	[00, .01]	
hip-seek					D ² 010++
					$K^{*} = .319^{**}$
					95% CI[.21,.36]

Table 15. Regression results of affirmation-threat x recounting-threat x affirmation-control x relationship-seeking x positive affect(baseline), using positive affect follow-up as the criterion

· · · · ·	<u> </u>	0		?	•
Predictor	β	<i>в</i> 95% СІ	sr^2	<i>sr</i> ² 95% CI	Fit
		[LL, UL]		[LL, UL]	
(Intercent)	2 25**	[2 13 2 37]			
off threat	0.05	[2.13, 2.37]	00	F 01 011	
an-incai	-0.03	[-0.16, 0.06]	.00	[01, .01]	
rec-threat	-0.03	[-0.15, 0.09]	.00	[00, .00]	
aff-cont	-0.05	[-0.17, 0.07]	.00	[01, .01]	
relationship-	0.03	[-0.09, 0.15]	.00	[00, .00]	
SCCK					
negatieci(basei	0.58**	[0.46, 0.69]	.22	[.14, .29]	
ine)					
aff-threat:rec-	0.01	[-0.11.0.13]	00	[- 00 00]	
threat	0.01	[0.11, 0.15]	.00	[.00, .00]	
aff-threat:aff-	0.07	F 0 02 0 101	00	F 01 021	
cont	0.07	[-0.03, 0.18]	.00	[01, .02]	
rec-threat aff-					
cont	0.02	[-0.11, 0.15]	.00	[00, .00]	
off					
41	0.00	F 0 12 0 121	00	F 00 001	
threat:relations	-0.00	[-0.13, 0.12]	.00	[00, .00]	
h1p-seek					
rec-					
threat:relations	-0.03	[-0.15, 0.09]	.00	[00, .01]	
hip-seek					
aff-					
cont relationsh	0.03	[-0.08 0.15]	00	[-00 01]	
in sools	0.05	[-0.00, 0.15]	.00	[00, .01]	
IP-Seek					
a11-	0.04		00	F 00 013	
threat:negaffec	0.04	[-0.09, 0.16]	.00	[00, .01]	
t(baseline)					
rec-					
threat:negaffec	0.08	[-0.05, 0.20]	.00	[01, .01]	
t(baseline)					
aff-					
continegaffect(-0.04	[-0.17, 0.08]	00	[_ 00 01]	
basalina)	-0.04	[-0.17, 0.00]	.00	[00, .01]	
Dasenne)					
relationship-	0.07	F 0 10 0 051	00	F 01 013	
seek:negaffect(-0.06	[-0.18, 0.05]	.00	[01, .01]	
baseline)					
aff-threat:aff-					
cont:relationsh	0.09	[-0.02, 0.19]	.01	[01, .02]	
ip-seek					
aff-threat:rec-					
threat relations	0.01	[-0 11 0 12]	00	[- 00 00]	
hin_cool	0.01	[0.11, 0.12]	.00	[.00, .00]	
mp-seek					$P^2 - 270 * *$
					$\Lambda = .270^{-1}$
					93% CI[.10,.31]

Table 16. Regression results of affirmation-threat x recounting-threat x affirmation-control x relationship-seeking x negative affect(baseline), using negative affect follow-up as the criterion

		β		sr^2	
Predictor	β	95% CI	sr^2	95% CI	Fit
	-	[LL, UL]		[LL, UL]	
(Intercept)	4.53**	[4.40, 4.67]			
aff-threat	0.10	[-0.05, 0.24]	.00	[01, .01]	
rec-threat	0.04	[-0.09, 0.18]	.00	[00, .01]	
aff-cont	0.05	[-0.09, 0.18]	.00	[00, .01]	
relationship-seek	0.04	[-0.10, 0.18]	.00	[00, .00]	
self-	0.02**	 FO (O 0 051	20	F 20 251	
eval(baseline)	0.82**	[0.69, 0.95]	.28	[.20, .35]	
aff-threat:rec-	0.01	F 0 1 5 0 1 2 1	00	F 00 001	
threat	-0.01	[-0.15, 0.13]	.00	[00, .00]	
aff-threat:aff-	0.02	F 0 00 0 1 51	0.0	F 00 00]	
cont	0.03	[-0.09, 0.15]	.00	[00, .00]	
rec-threat:aff-	0.02	F 0 12 0 101	00	F 00 001	
cont	0.02	[-0.13, 0.18]	.00	[00, .00]	
aff-					
threat:relationshi	-0.15*	[-0.29, -0.00]	.01	[01, .02]	
p-seek					
rec-					
threat:relationshi	0.01	[-0.13, 0.15]	.00	[00, .00]	
p-seek					
aff-					
cont:relationship	0.07	[-0.06, 0.21]	.00	[01, .01]	
-seek		[•••••, ••=-]		[,]	
aff-threat:self-					
eval(baseline)	0.00	[-0.14, 0.15]	.00	[00, .00]	
rec-threat:self-				5 00 007	
eval(baseline)	0.04	[-0.10, 0.18]	.00	[00, .00]	
aff-cont:self-					
eval(baseline)	-0.04	[-0.19, 0.11]	.00	[00, .00]	
relationship-					
seek:self-	0.03	[-0.10, 0.16]	.00	[00, .00]	
eval(baseline)	0.02	[0.10, 0.10]		[,]	
aff-threat aff-					
cont:relationship	-0.00	[-0.12, 0.12]	.00	[00, .00]	
-seek	0.00	[0.12, 0.12]		[,]	
aff-threat rec-					
threat:relationshi	-0.00	[-0.13, 0.13]	00	[00, 00]	
n-seek	0.00	[0.15, 0.15]	.00	[.00, .00]	
PBOOK					$R^2 = .376^{**}$
					95% CI[.2742]
					, , , , , , , , , , , , , , , , , , ,

Table 17. Regression results of affirmation-threat x recounting-threat x affirmation-control x relationship-seeking x self-evaluation(baseline), using self-evaluation follow-up as the criterion

Predictor	β	β 95% CI [LL, UL]	SF ²	<i>sr</i> ² 95% CI [LL, UL]	Fit
(Intercept)	4.08**	[3.91, 4.25]			
aff-threat	0.12	[-0.06, 0.30]	.00	[01, .02]	
rec-threat	0.11	[-0.06, 0.27]	.00	[01, .02]	
aff-cont	0.02	[-0.15, 0.19]	.00	[00, .00]	
relationship- seek	-0.22*	[-0.39, -0.04]	.02	[01, .04]	
aff-threat:rec- threat	-0.08	[-0.24, 0.09]	.00	[01, .01]	
aff-threat:aff- cont	0.02	[-0.14, 0.17]	.00	[00, .00]	
rec-threat:aff- cont	0.06	[-0.13, 0.24]	.00	[01, .01]	
aff- threat:relation ship-seek	-0.08	[-0.25, 0.10]	.00	[01, .01]	
rec- threat:relation ship-seek	0.08	[-0.09, 0.26]	.00	[01, .01]	
all- cont:relations hip-seek	0.13	[-0.04, 0.30]	.01	[01, .02]	
aff-threat:aff- cont:relations hip-seek	-0.11	[-0.26, 0.04]	.01	[01, .02]	
aff-threat:rec- threat:relation ship-seek	-0.05	[-0.21, 0.11]	.00	[01, .01]	
1					$R^2 = .059$ 95% CI[.00,.08]

Table 18. Regression results of affirmation-threat x recounting-threat x affirmation-control x relationship-seeking, using Valentine's Day satisfaction as the criterion

Predictor	β	β 95% CI [LL, UL]	sr ²	<i>sr</i> ² 95% CI [LL, UL]	Fit
(Intercept)	4.63**	[4.54, 4.72]			
aff-threat	-0.01	[-0.10, 0.09]	.00	[00, .00]	
rec-threat	0.03	[-0.06, 0.12]	.00	[01, .01]	
aff-cont	0.06	[-0.02, 0.15]	.01	[01, .02]	
relationship- seek	0.07	[-0.03, 0.16]	.01	[01, .02]	
aff-threat:rec- threat	-0.01	[-0.10, 0.08]	.00	[00, .00]	
aff-threat:aff- cont	-0.07	[-0.16, 0.01]	.01	[01, .03]	
rec-threat:aff- cont	0.00	[-0.10, 0.10]	.00	[00, .00]	
aff- threat:relation ship-seek	-0.06	[-0.15, 0.03]	.00	[01, .02]	
rec- threat:relation ship-seek	0.04	[-0.05, 0.13]	.00	[01, .01]	
cont:relations hip-seek	-0.01	[-0.10, 0.08]	.00	[00, .00]	
aff-threat:aff- cont:relations hip-seek	0.03	[-0.05, 0.11]	.00	[01, .01]	
aff-threat:rec- threat:relation ship-seek	0.04	[-0.04, 0.13]	.00	[01, .01]	
					$R^2 = .044$ 95% CI[.00,.06]

Table 19. Regression results of affirmation-threat x recounting-threat x affirmation-control x relationship-seeking, using couple ratings as the criterion

1 1 1

		eta		sr^2	
Predictor	β	95% CI	sr^2	95% CI	Fit
		[LL, UL]		[LL, UL]	
(Intercept)	2.65**	[2.58, 2.72]			
aff-threat	-0.06	[-0.14, 0.01]	.01	[01, .02]	
rec-threat	0.03	[-0.04, 0.10]	.00	[00, .01]	
aff-cont	0.06	[-0.02, 0.13]	.00	[01, .02]	
teamcontingen cy	0.27**	[0.20, 0.34]	.10	[.05, .16]	
aff-threat:rec- threat	0.03	[-0.03, 0.09]	.00	[01, .01]	
aff-threat:aff- cont	-0.00	[-0.07, 0.06]	.00	[00, .00]	
rec-threat:aff- cont	0.01	[-0.06, 0.07]	.00	[00, .00]	
aff- threat:teamcon tingency	0.01	[-0.06, 0.08]	.00	[00, .00]	
threat:teamcon tingency	0.00	[-0.06, 0.07]	.00	[00, .00]	
aff- cont:teamconti ngency	-0.00	[-0.08, 0.07]	.00	[00, .00]	
aff-threat:aff- cont:teamconti ngency	0.01	[-0.06, 0.07]	.00	[00, .00]	
threat:teamcon tingency	0.01	[-0.05, 0.07]	.00	[00, .00]	
ingeney					$R^2 = .140^{**}$ 95% CI[.07,.18]

Table 20. Regression results of affirmation-threat x recounting-threat x affirmation-control x team contingency, using defensiveness as the criterion

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		β		sr^2	
Predictor	β	95% CI	sr^2	95% CI	Fit
		[LL, UL]		[LL, UL]	
(Intercept)	2.10**	[2.07, 2.13]			
aff-threat	-0.00	[-0.03, 0.03]	.00	[00, .00]	
rec-threat	0.01	[-0.03, 0.04]	.00	[00, .00]	
aff-cont	0.03	[-0.00, 0.06]	.00	[00, .01]	
teamcontingenc y	0.04**	[0.01, 0.08]	.01	[00, .02]	
Whiteplayer_rat ings	0.39**	[0.36, 0.42]	.55	[.49, .61]	
aff-threat:rec- threat	0.01	[-0.02, 0.04]	.00	[00, .00]	
aff-threat:aff- cont	0.00	[-0.03, 0.03]	.00	[00, .00]	
rec-threat:aff- cont	0.03	[-0.00, 0.06]	.00	[00, .01]	
att- threat:teamconti ngency	-0.01	[-0.04, 0.02]	.00	[00, .00]	
threat:teamconti	-0.01	[-0.04, 0.02]	.00	[00, .00]	
aff- cont:teamcontin	0.00	[-0.03, 0.03]	.00	[00, .00]	
gency aff-					
threat:Whitepla yer_ratings	-0.00	[-0.03, 0.03]	.00	[00, .00]	
threat:Whitepla yer_ratings	-0.02	[-0.05, 0.01]	.00	[00, .00]	
aff- cont:Whiteplay er_ratings	0.00	[-0.03, 0.04]	.00	[00, .00]	
teamcontingenc y:Whiteplayer_r atings	0.01	[-0.02, 0.04]	.00	[00, .00]	
aff-threat:aff- cont:teamcontin gency	-0.01	[-0.03, 0.02]	.00	[00, .00]	
aff-threat:rec- threat:teamconti	0.04**	[0.01, 0.06]	.01	[00, .02]	
пденсу					$R^2 = .624^{**}$ 95% CI[.56,.65]

Table 21. Regression results of affirmation-threat x recounting-threat x affirmation-control x team contingency x White player ratings, using prejudice against all Black players as the criterion

Note. A significant β -weight indicates the semi-partial correlation is also significant. β represents unstandardized regression weights. sr^2 represents the semi-partial correlation squared. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. * indicates p < .05. ** indicates p < .01.

		β		sr^2	
Predictor	β	95% CI	sr^2	95% CI	Fit
		[LL, UL]		[LL, UL]	
(Intercept)	2.09**	[2.06, 2.12]			
aff-threat	0.00	[-0.03, 0.04]	.00	[00, .00]	
rec-threat	0.01	[-0.03, 0.04]	.00	[00, .00]	
aff-cont	0.02	[-0.01, 0.05]	.00	[00, .00]	
teamcontingenc	0.01	[-0.02, 0.05]	.00	[00, .00]	
Whiteplayer_rat	0.40**	[0.37, 0.43]	.57	[.51, .63]	
aff-threat:rec- threat	0.01	[-0.02, 0.04]	.00	[00, .00]	
aff-threat:aff- cont	-0.02	[-0.05, 0.01]	.00	[00, .01]	
rec-threat:aff- cont	0.03	[-0.01, 0.06]	.00	[00, .01]	
threat:teamconti ngency	-0.00	[-0.04, 0.03]	.00	[00, .00]	
threat:teamconti ngency	-0.01	[-0.04, 0.02]	.00	[00, .00]	
aff- cont:teamcontin gency	-0.02	[-0.05, 0.02]	.00	[00, .00]	
aff- threat:Whitepla yer_ratings	0.00	[-0.03, 0.04]	.00	[00, .00]	
threat:Whitepla yer_ratings	-0.01	[-0.04, 0.03]	.00	[00, .00]	
an- cont:Whiteplay er_ratings	0.01	[-0.02, 0.05]	.00	[00, .00]	
y:Whiteplayer_r atings	-0.01	[-0.04, 0.02]	.00	[00, .00]	
cont:teamcontin gency	-0.01	[-0.04, 0.02]	.00	[00, .00]	
threat:teamconti	0.03*	[0.00, 0.05]	.00	[00, .01]	
ngency					$R^2 = .614^{**}$ 95% CI[.55,.64]

Table 22. Regression results of affirmation-threat x recounting-threat x affirmation-control x team contingency x White player ratings, using prejudice against all non-kicking Black players as the criterion

Note. A significant β -weight indicates the semi-partial correlation is also significant. β represents unstandardized regression weights. sr^2 represents the semi-partial correlation squared. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. * indicates p < .05. ** indicates p < .01

Predictor	β	β 95% CI [LL, UL]	sr ²	<i>sr</i> ² 95% CI [LL, UL]	Fit
(Intercept)	2.42**	[2.30, 2.55]			
aff-threat	-0.07	[-0.20, 0.05]	.00	[01, .01]	
rec-threat	-0.02	[-0.14, 0.10]	.00	[00, .00]	
aff-cont	0.05	[-0.07, 0.18]	.00	[00, .01]	
teamcontingen cy	0.57**	[0.45, 0.69]	.15	[.09, .21]	
aff-threat:rec- threat	0.02	[-0.09, 0.13]	.00	[00, .00]	
aff-threat:aff- cont	-0.02	[-0.14, 0.09]	.00	[00, .00]	
rec-threat:aff- cont	-0.05	[-0.17, 0.06]	.00	[00, .01]	
aff- threat:teamcon tingency	0.09	[-0.03, 0.21]	.00	[01, .01]	
rec- threat:teamcon tingency	-0.00	[-0.12, 0.11]	.00	[00, .00]	
aff- cont:teamconti ngency	-0.05	[-0.18, 0.08]	.00	[00, .01]	
aff-threat:aff- cont:teamconti ngency	-0.06	[-0.17, 0.05]	.00	[01, .01]	
threat:teamcon	-0.08	[-0.17, 0.02]	.00	[01, .02]	
ungency					$R^2 = .181^{**}$ 95% CI[.10,.22]

Table 23. Regression results of affirmation-threat x recounting-threat x affirmation-control x team contingency, using rumination as the criterion

		β		sr^2	
Predictor	β	95% CI	sr^2	95% CI	Fit
		[LL, UL]		[LL, UL]	
(Intercept)	2.64**	[2.54, 2.74]			
aff-threat	-0.02	[-0.13, 0.08]	.00	[00, .00]	
rec-threat	0.09	[-0.01, 0.19]	.01	[01, .02]	
aff-cont	0.02	[-0.08, 0.13]	.00	[00, .00]	
teamcontingen cy	0.25**	[0.15, 0.35]	.05	[.01, .09]	
aff-threat:rec- threat	0.06	[-0.02, 0.15]	.00	[01, .02]	
aff-threat:aff- cont	0.03	[-0.07, 0.12]	.00	[00, .01]	
rec-threat:aff- cont	0.02	[-0.08, 0.12]	.00	[00, .00]	
atf- threat:teamcon tingency	-0.04	[-0.14, 0.06]	.00	[01, .01]	
rec- threat:teamcon tingency	-0.07	[-0.17, 0.03]	.00	[01, .02]	
aff- cont:teamconti ngency	-0.04	[-0.14, 0.07]	.00	[00, .01]	
aff-threat:aff- cont:teamconti ngency	-0.01	[-0.10, 0.08]	.00	[00, .00]	
threat:teamcon	0.04	[-0.03, 0.12]	.00	[01, .01]	
ungency					$R^2 = .081^{**}$ 95% CI[.02,.11]

Table 24. Regression results of affirmation-threat x recounting-threat x affirmation-control x team contingency, using self-assessment manakin arousal as the criterion

Dualistan	0	β 05% CI	2	Sr^2	E:4
Predictor	р	93% CI [LL, UL]	SF-	95% CI [LL, UL]	Fll
(Intercept)	2.31**	[2.23, 2.39]			
aff-threat	-0.05	[-0.13, 0.04]	.00	[01, .01]	
rec-threat	-0.00	[-0.08, 0.08]	.00	[00, .00]	
aff-cont	0.07	[-0.02, 0.16]	.01	[01, .02]	
teamcontingen cy	-0.18**	[-0.27, -0.10]	.04	[.01, .08]	
aff-threat:rec- threat	0.00	[-0.07, 0.07]	.00	[00, .00]	
aff-threat:aff- cont	0.03	[-0.05, 0.10]	.00	[00, .01]	
rec-threat:aff- cont	-0.04	[-0.12, 0.04]	.00	[01, .01]	
aff- threat:teamcon tingency	0.01	[-0.07, 0.09]	.00	[00, .00]	
rec- threat:teamcon tingency	0.06	[-0.01, 0.14]	.01	[01, .02]	
aff- cont:teamconti ngency	0.02	[-0.06, 0.11]	.00	[00, .01]	
aff-threat:aff- cont:teamconti ngency	0.03	[-0.04, 0.11]	.00	[01, .01]	
threat:teamcon	-0.01	[-0.08, 0.05]	.00	[00, .00]	
tingency					$R^2 = .055*$ 95% CI[.00,.07]

Table 25. Regression results of affirmation-threat x recounting-threat x affirmation-control x team contingency, using self-assessment manakin pleasure as the criterion