SELF-COMPASSION AND FUNCTIONAL COUNTERFACTUAL THINKING

A Dissertation

by

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ABSTRACT

After negative events, an individual may think about how a situation could have turned out differently. These counterfactual thoughts can improve similar future outcomes. While some research has explored the role individual differences play in counterfactual thinking, no research has studied the link between counterfactual thought and self-compassion. Self-compassion is the concept of being mindful of one's own experience, caring towards one's self, and understanding that imperfections are part of the human condition (Neff, 2003). To examine the relationship between these two variables, I conducted a series of four studies exploring the link between self-compassion and counterfactual thinking. In Study 1a, I found evidence that self-compassion and counterfactual thinking both affect judgements of self- and other-focused blame, responsibility and forgiveness. In Study 1b, counterfactual thinking was positively correlated with motivation, but I found no evidence of a link between self-compassion and motivation. Study 2 confirmed Study 1a's findings regarding self- and other-focused judgements, and also found that a self-compassionate (vs. control) writing task led to marginally fewer functional counterfactual characteristics. Finally, in Study 3, individuals who completed a self-compassion manipulation reported marginally worse grades on a follow-up exam than those who completed a control writing task; however there were no differences between conditions regarding exam score satisfaction. I discuss these findings in regards to both the larger bodies of work regarding self-compassion and counterfactual thinking.

DEDICATION

       This document stands as a testament of my love and devotion to my family. I would like to dedicate this work to my wife, Erin, and my daughter Claire. Erin, your love and support have helped me to become the person I am today. I would never have achieved my full potential without my other (better) half supporting me. Claire, knowing you were on the way gave me the motivation to complete this document. I want you to know that you are, have been, and will always be loved.

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1. INTRODUCTION

After negative events, individuals often think about what might have been, imagining how the situation could have been different from the actual outcome (Byrne, 2016; Roese 1997). Known as counterfactual thoughts, these thoughts are mental representations of the past in which some facet of the situation is modified. Counterfactual thinking is a common aspect of our mental landscape (Summerville & Roese, 2008) and has consequences for individuals' emotions, judgements, motivations, and behaviors (for a review, see Roese & Epstude, 2017). For example, after failing an exam, an individual might imagine how the situation could have been different (e.g., "If only I went to class, I would have gotten an A on the test"). In this scenario, generating the counterfactual should exacerbate negative affect (by contrasting actual reality with a better alternative) as well as increase feelings of responsibility and intentions towards enacting this and other study behaviors, which in turn should increase future exam performance (Roese, 1994). Additionally, previous research has also examined the influence of individual differences on counterfactual thinking, such as perfectionism and procrastination (Sirois, 2004; Sirois, Monforton, & Simpson 2010). Relatedly, an individual's personal beliefs about how to interpret failure influences counterfactual thoughts (Dickey, Smallman, Dowd, & Arthur, in prep). The current research extends this line of work by investigating how an individual's feelings of self-compassion may influence counterfactual generation and content, as well as downstream counterfactual consequences.

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Self-compassion is the belief of treating one's self with kindness and common humanity, while taking a mindful approach to negative emotions (Neff, 2003). Prior research has found that self-compassion is linked to lower ratings of depression (Krieger, Berger, & Holtforth, 2016), rumination (MacBeth & Gumley, 2012), and fewer negative self-judgements (Neff, 2003). Conversely, counterfactual thinking is linked to increased feelings of depression (Broomhall, Phillips, Hine, & Loi, 2017), increased rumination (Davis, Lehman, Wortman, Silver, & Thompson, 1995), and harsher judgements of the self and others (Dunkley, Zuroff, & Blankstein, 2003; Miller & McFarland, 1986). Given that both counterfactual thinking and self-compassion affect these outcomes, it is surprising that no research has looked at these two variables in concert. Drawing from literature regarding both counterfactual thinking and self-compassion, I hypothesize individuals high in self-compassion will not only generate fewer counterfactuals, but will also generate different types of counterfactual thoughts (Study 1a, 1b, and 2). Additionally, I hypothesize that both self-compassion and counterfactual thinking will increase motivation, but in different ways (Study 2). Self-compassion should not require negative affect to increase motivation, while counterfactual thinking should (Study 2; Epstude & Roese, 2008; Neff, 2003; Roese, 1997). Additionally, completing a self-compassion writing task (compared to those who complete a control writing task) before generating counterfactuals about a recent exam should cause an increase in behaviors related to a future exam (Study 3).

1.1. Counterfactual Thinking

Counterfactual thoughts are cognitions about "what might have been" if a past event had turned out differently (Kahneman & Miller, 1986). These thoughts frequently take an "if…then…" format in which the antecedent (the 'if' portion) describes an alternative action, feature, or state, whereas the consequent (the 'then' portion) describes an imagined alternative outcome (Roese & Epstude, 2017). Because of their evaluative nature, these thoughts allow individuals to make sense of past experiences (Markman & McMullen, 2003). Recall the previous example of the student who thought "If only I went to class, I would have gotten an A on the test." In this example, the student modifies his or her own actions in the antecedent (going to class) in order to produce a better alternative outcome in the consequent (receiving a better grade). Counterfactuals like this can be categorized on a variety of dimensions regarding their content (e.g., direction, focus, & control), each with differential impact on downstream consequences. For instance, certain types of counterfactuals can bias judgements (Miller & McFarland, 1986), exacerbate negative emotion (Markman, Gavanski, Sherman, & McMullen, 1993), enhance sense making (Galinsky, Liljenquist, Kray, & Roese, 2005), or increase intentions to perform future behaviors (Roese 1994; Smallman & Roese, 2009).

The classic way to categorize counterfactual thinking is in terms of direction. As mentioned above, counterfactuals can differ in their direction such that they imagine either better or worse alternatives to reality (Markman et al., 1993). When imagining how a situation could have been better, individuals generate upward counterfactuals (e.g., "If I had gone to class, I would have gotten an A on the test"). Upward

counterfactuals increase negative affect (Roese, 1994), motivation (Markman et al., 1993), behavioral intentions (Smallman & Roese, 2009), and situation-relevant behavior (Markman, McMullen, & Elizaga, 2008). However, other individuals may imagine how a situation could have been worse by generating downward counterfactuals (e.g., "If I hadn't gone to class at all, I would have failed"). These downward counterfactuals are self-protective in that they minimize negative affect (Roese, 1994), increase satisfaction and relief (Medvec, Madey, & Gilovich, 1995), and decrease motivation (McMullen & Markman, 2000).

Beyond counterfactual direction, the focus of the counterfactual (i.e., internal/self-focused or external/other-focused) may differ. This is similar to the literature on causal attribution, which specifies locus of causation and controllability (Weiner, 1985; 1986). Generally, self-focused counterfactual thoughts increase self-efficacy (Sanna, 1997) and self-blame (Davis et al., 1995). Conversely, other-focused counterfactual thoughts increase other-focused blame and decrease perceptions of self-responsibility (Branscombe, Owen, Garstka, & Coleman, 1996). For example, if a student thinks "If I would have studied more I would have done better on the exam," they should feel more self-blame, but also feel more capable of improving their grade. Comparably, if that student thinks "If my professor had asked easier questions, I would have done better on the exam," the student should feel less self-blame (and, conversely, more blame towards their professor) and feel less responsible for their subpar grade. However, the individual would also be without any actionable insight as to how to improve their next exam grade.

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Similar to focus, an individual's perceptions of counterfactual controllability (i.e., something within the actor's control or something outside the actor's control) helps an individual evaluate different causal links and make inferences about the role they played in the outcome. Counterfactual research has demonstrated that when reading vignettes, participants generated more counterfactuals focusing on controllable aspects of situations rather than uncontrollable aspects (Girotto, Legrenzi, & Rizzo, 1991; McCloy & Byrne, 2000). Similarly, when recalling personal negative events, participants spontaneously generate more counterfactuals about controllable, rather than uncontrollable outcomes (McEleney & Byrne, 2006). By their nature, controllable counterfactuals create clear causal links to things an individual could have done differently to change the situation. However, these causal links are not always accurate, such as when controllable counterfactuals are generated for uncontrollable outcomes. In one study focusing on parents who had lost a child due to Sudden Infant Death Syndrome, generating controllable counterfactuals (e.g., "If only I had checked on my child more") about the uncontrollable outcome led to more distress. (Davis et al., 1995). As such, controllable counterfactuals are only helpful when generated in situations with controllable outcomes.

Traditionally, research considered counterfactual thinking as a bias to sound judgement in terms of blame and responsibility (Goldinger, Kleider, Azuma, & Beike 2003). In terms of blame, mock juries awarded more compensation to victim's families when an upward counterfactual (i.e., a better alternative) was highly accessible (Miller & McFarland, 1986). This suggests that thinking counterfactually may increase an

individuals' perceived blame for an event. This relates to hindsight bias – or the belief one might have that they "knew it all along" (Fischhoff, 1975; Wood, 1978). Research has shown that counterfactual thinking can heighten hindsight bias. This effect is mediated by causal inferences drawn from counterfactual thoughts (Roese & Olson, 1996). Similar to blame, counterfactual thinking may influence an individual's perception of self-responsibility. In situations where an upward counterfactual was accessible, participants viewed actors as more responsible for the outcome (Wells & Gavanski, 1989). In another study, generating counterfactuals about a victim of a crime (versus the assailant) led to increased perceptions that the victim was responsible for the crime occurring (Branscombe et al., 1996). Together these suggest that when certain counterfactuals are salient, individuals may determine blame and responsibility based on what could have occurred rather than solely on what did occur.

More recently, theorists have focused on positive influences of counterfactual thinking. The functional theory of counterfactual thinking states that counterfactuals are useful for goal pursuit (Epstude & Roese, 2011; Roese & Epstude, 2017). Counterfactual thinking increases motivation to improve future situations (Reichert & Slate, 1999; Roese, 1994; Wong, 2007). In one study, after performing poorly on an anagram task, individuals who thought counterfactually (versus factually) about the task persisted longer and scored higher on a similar follow-up anagram task (Markman et al., 2008). Beyond motivation, counterfactual thoughts can provide a plan to help an individual achieve a future goal by strengthening relevant behavioral intentions (Smallman 2013; Smallman & Roese, 2009). For example, in a study focused on students' academic

performances, participants who generated counterfactual thoughts after recalling a poor academic performance had stronger intentions to perform better on similar academic tasks in the future (Roese, 1994). Additionally, counterfactual thinking has been linked to meaning making and perceptions of fate (Kray et al., 2010; Seto, Hicks, Davis, & Smallman, 2015). Imagining how pivotal moments in one's life could have turned out differently increased participants' belief in the meaning of the event more than simply reflecting on the event (Kray et al., 2010).

Negative affect plays a key role in counterfactual thinking (Gleicher et al., 1990; Roese 1994; Roese & Hur, 1997). Importantly, it serves two purposes. Negative affect acts as both a trigger for counterfactual activation, as well as a consequence from engaging in counterfactual comparison. In terms of counterfactual activation, experiencing a negative event triggers a negative affective response. As in Schwarz's "affect as information" model, this negative affect serves as a signal that there is a problem that needs to be addressed (Schwarz, 1990). As mentioned before, counterfactual thinking is often activated following negative real life experiences (Medvec et al., 1995), negative task feedback in the lab (Markman et al., 2008), and negative mood inductions (Sanna, 1998). Thus, negative affect prompts counterfactual thoughts as a way to address the current situation, as well as provide insight for similar future situations. Beyond triggering counterfactual activation, negative affect is also exacerbated by thinking counterfactually. This increase in negative affect after generating counterfactuals serves as a motivator to change future behaviors, in part to decrease the high level of negative affect. This is supported by Russell's (2003) theory

of core affect, which argues that negative affect can shift focus to the discrepancy between a current state and an ideal state, which, in turn, should mediate behavior change. Research has demonstrated that upward counterfactuals exacerbate negative affect through the discrepancy counterfactuals create between the "real" state of the world and an "ideal" state of might could have happened (Roese, 1994; 1997). Through thinking counterfactually about this discrepancy, negative affect is exacerbated above and beyond the affect generated from the negative event. This heightened negative affect can be reduced in a number of ways. First, it can evolve into dysfunctional mental health outcomes such as depression (Broomhall et al., 2017), anxiety (Roese et al., 2009), as well as rumination and trouble coping (Davis et al., 1995). Second, it can be reduced by increasing judgments of blame, responsibility, punishment, and victim compensation (Miller & McFarland, 1986). Finally, similar to cognitive dissonance, the discomfort posed by this intensified negative affect can motivate the individual to change and improve future behaviors to reduce the negative affect (Roese & Olson, 1997). Viewed through this lens, the combination of negative affect and counterfactual thinking should both provide information on how to fix a problem as well as generate motivation to do so (Russell, 2003; Schwarz, 1990).

1.1.1. Individual Differences in Counterfactual Thinking

Counterfactual thinking has been understood as a near-universal cognitive process of mental simulation (Roese & Epstude, 2017), but more recently research has considered the role of individual differences. These individual differences can impact

different counterfactual processes including counterfactual generation, content, and downstream consequences (Kasimatis & Wells, 1995).

Before counterfactuals can be used, they must first be generated by an individual. However, certain individual differences affect counterfactual generation. For example, individual differences in fantasy proneness influences counterfactual generation such that higher fantasy proneness increases counterfactual generation (Bacon, Walsh, & Martin, 2013). This can also be demonstrated with young children. Preschoolers' scores on a theory of mind task predicted counterfactual generation over and above age and language abilities (Guajardo & Turley-Ames, 2004). Given the functional theory of counterfactual thinking, generating fewer counterfactuals may hinder an individual in learning how to improve future behaviors after a mistake (Roese & Epstude, 2017).

As mentioned above, individual differences can affect counterfactuals not only in terms of their generation, but also the content of the counterfactual (e.g., direction, focus, and controllability). In regards to direction, individuals with low levels of optimism generate more upward and fewer downward counterfactuals, while those high in optimism demonstrate the opposite pattern (Roese & Olson, 1993; Sanna, 1996). Additionally, trait-level procrastination was related to fewer upward and more downward counterfactuals (Sirois, 2004). In regards to focus, self-focused counterfactual thoughts are more common in individuals with high self-esteem, while individuals low in self-esteem tend to focus on either another individual or the situation (Brown, Collins, & Schmidt, 1988). Counterfactual controllability is also affected by individual differences. Research has demonstrated that individual differences in depressive

symptoms affects counterfactual content such that more severe depressive symptoms are associated with more trait-based counterfactuals (i.e., "If only I wasn't so stupid" versus "If only I had studied more"; Markman & Miller, 2006). Given that traits are seen as less controllable and more permanent than behaviors, severely depressed individuals might generate counterfactuals which are perceived as uncontrollable.

These individual differences in counterfactual content can also affect the downstream consequences of counterfactual thinking. For instance, imagining more downward counterfactuals may cause an individual to feel less motivated to improve their future behaviors (Kasimatis & Wells, 1995; Roese & Epstude, 2017). Regarding counterfactual consequences, individuals high in free will beliefs reported increased meaning of life after thinking counterfactually (Seto et al., 2015). Individual differences also play a role in the functional consequences of counterfactual thinking (e.g. increased motivation to change behavior and actual behavior change). For example, maladaptive perfectionism was positively associated with controllable counterfactuals, however counterfactual generation had no effect on motivation (Sirois et al., 2010). In a recent set of studies, participants' perceptions of failure correlated with an increase in functional counterfactuals, but also predicted lower ratings of behavioral intentions (Dickey et al., in prep). Taken together, these studies suggest that while counterfactuals can be functional, it is important to understand that individual differences may play a role in the functionality of counterfactual thoughts.

The current research examines the individual difference of self-compassion and how it relates to counterfactual thinking processes. I expect self-compassion to predict

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differences in counterfactual generation (Studies 1a, 1b, & 2), counterfactual content (Studies 1a, 1b, & 2), and counterfactual consequences such as affect (Studies 2 & 3), behavioral intentions (Study 3), and future behaviors (Study 3). However, given that both counterfactual thinking and self-compassion have been shown to increase motivation, I expect to find no differences between self-compassion and motivation (Study 1b, & 2).

1.2. Self-Compassion

Self-compassion is defined as treating one's self with kindness and caring (Neff, 2003). Self-compassion has implications for an individual's wellbeing. In a recent meta-analysis, self-compassion correlated with lower feelings of depression, anxiety, and stress (MacBeth & Gumley, 2012). Additionally, those high in self-compassion ruminate less compared to those low in self-compassion. Similarly, in a cross-lagged study of depressed participants, self-compassion predicted fewer depressive symptoms. However, depressive symptoms did not predict subsequent levels of self-compassion (Krieger et al., 2016).

In addition to well-being, studies have linked self-compassion to motivation (Neff, Hsieh, Dejitterat, 2005). While some may intuitively believe self-compassion should lead to lower motivation (as self-criticism could be perceived to be integral to increasing motivation), the opposite is true. For example, in the domain of academic achievement, self-compassion has been linked to an intrinsic motivation to learn. This was mediated by a lower fear of failure and higher self-reported competence (Neff et al., 2005). Beyond motivation to learn, self-compassionate individuals have a higher

likelihood to persist after failure. Self-compassionate individuals are more likely to re-engage in pursuing goals, even after failing to achieve that goal (Neely, Schallert, Mohammed, Roberts, & Chen, 2009). In another study, self-compassion increased performance enhancing behaviors. After completing a difficult laboratory task, participants asked to think about the task in a self-compassionate manner studied more for a similar subsequent task than those in either a self-esteem or a control condition (Breines & Chen, 2012).

As demonstrated in the previously described study, self-compassion can be viewed not only as an individual difference, but also as a manipulable variable (i.e., trait vs. state). Self-compassion interventions range from eight-week programs (Germer & Neff, 2015) to short writing tasks (Breines & Chen, 2012; Leary, Tate, Adams, Allen, & Hancock, 2007). Longer-term interventions provide a wide array of positive outcomes, including increased life satisfaction, happiness, and self-efficacy, as well as decreased symptoms of depression, rumination, and worry (Neff & Germer, 2015; Smeets, Neff, Alberts, & Peters, 2014). In short-term writing interventions, writing about how negative events reflect on one's self in a self-compassionate way reduces negative affect and feelings of shame (Johnson & O'Brien, 2013; Leary et al., 2007). It is important to note that these self-compassion interventions can be very brief. Although brief, these short inductions allowed individuals to accept their role in a negative event without being overcome by their negative emotions. Studies 1a and 1b use self-compassion as a trait-level individual difference. Studies 2 and 3 use a short state manipulation of self-compassion, which I compared to a control condition.

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1.3. Current Research

While prior research has not directly studied the link between counterfactual thinking and self-compassion, inferences can be made on the relationship between self-compassion and counterfactual thinking. For instance, both counterfactual thinking and self-compassion have been linked to judgements of blame, responsibility, and forgiveness, but in different ways. While counterfactual thinking increases feelings of blame and responsibility towards both one's self and others (Branscombe et al., 2003; Davis et al., 1995), self-compassion decreases self-focused blame and responsibility, while increasing self-forgiveness (Johnson & O'Brien, 2013; Leary et al., 2007; Neff, 2003). Therefore, I hypothesize that thinking counterfactually will positively correlate with self-blame and self-responsibility, as well as negatively correlate with self-forgiveness. I also hypothesize the opposite regarding self-compassion, such that it will negatively correlate with self-blame and self-responsibility, as well as positively correlate with self-forgiveness (Studies 1a and 1b).

Beyond judgements of blame, responsibility, and forgiveness, I hypothesize that self-compassion also differs in terms of counterfactual generation and content. High self-compassion should correlate with fewer generated counterfactuals (Studies 1a, 1b, and 2). Additionally, I hypothesize that when looking at counterfactual content, high self-compassion will correlate with fewer upward, self-focused, and controllable counterfactuals (Studies 1a, 1b, and 2). Similarly, I hypothesize that self-compassion and counterfactual thinking both influence negative affect in different ways. Given that self-compassion is linked to acceptance and mindful awareness of emotions (Neff, 2003), I

expect self-compassion to be related to less negative affect than counterfactual thinking (Study 2). Finally, previous research suggests that counterfactual thinking and self-compassion will both increase motivation to change future situations (Neff et al., 2005; Roese, 1994). I hypothesize that both counterfactual thinking and self-compassion manipulations will lead to increased motivation to change future behaviors when compared to a control condition.

However, no research has examined the interactive effects of counterfactual thinking and self-compassion in regards to counterfactual generation, content, and downstream consequences such as motivation to change behaviors. I expect self-compassion to lead to fewer counterfactual thoughts in terms of their generation and functional components (i.e., upward, self-focused, controllable counterfactuals). Lastly, I hypothesize that manipulating self-compassion before generating counterfactuals may make individuals more motivated to change future situations, and thus generate counterfactuals that are more functional (Study 3).

In four studies, I tested my hypotheses looking at variables such as counterfactual generation and content (Studies 1a & 1b), judgments of blame, responsibility, and forgiveness (Study 1a), measures of motivation to change (Studies 1b, 2, & 3), and manipulations of self-compassion and counterfactual thinking (Studies 2 & 3). Studies 1a and 1b tested key basic premises of the proposed relationship between self-compassion and counterfactual thinking regarding counterfactual generation and content, judgments of blame, responsibility, and forgiveness, as well as motivation. Study 2 examined differences between conditions (self-compassion vs. control) regarding

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motivation, affect, as well as counterfactual generation and content. Study 3 was a two-part study that explored the downstream consequences of a self-compassion (vs. control) manipulation on a variety of academic intentions and engagement. I discuss the relevance and importance of these findings in the general discussion.

2. STUDY 1A

Study 1a explored the link between self-compassion and counterfactual generation. Specifically, I was interested in whether participants who endorsed different levels of self-compassion would differ in counterfactual generation (i.e., the amount generated) and counterfactual content (i.e., direction, locus, and controllability). I was also interested in exploring the relationships between self-compassion with judgements of blame, responsibility, and forgiveness. Additionally, I wanted to explore the relationships between self-compassion and counterfactuals in terms of both their generation and their content. To test this, participants completed a trait measure of self-compassion and a counterfactual task (negative event recall and a counterfactual thought listing). Afterwards, participants answered questions regarding feelings of self- and other-focused blame, responsibility, and forgiveness before self-coding their counterfactuals in terms of direction, locus and controllability.

2.1. Methods and Procedure

An a priori power analysis using G*Power indicated that I would need at least 191 participants for 80% power in detecting a small-to-medium sized correlation of .20. I chose this effect size as previous counterfactual thinking research has shown similar sized effects (i.e., Walker, Smallman, Summerville, & Deska, 2016). I collected 241 participants, which gave me 93.5% power to detect a medium sized effect. Participants were recruited through TAMU subject pool and participated for partial course credit

(N = 241, Age M = 19.60, SD = 2.43, 82% White, 9% Asian, 64% female; see Appendix A for a full list of measures used in Study 1a).

Participants first completed a measure of trait self-compassion using the Self-Compassion Scale – Short Form (SCS-SF; α = .82; Raes, Pommier, Neff, & Van Gucht, 2011). Participants rated their agreement with 12 items on a 5 point scale from 1 (almost never) to 5 (almost always). This scale measured self-compassion on three dimensions, including self-kindness ("I try to be understanding and patient towards those aspects of my personality that I don't like."), isolation ("When I fail at something that's important to me, I tend to feel alone in my failure"), and common humanity ("When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.").

Participants were then asked to recall a negative social situation similar to previous research (Dickey et al., in prep; Gavanski & Wells, 1989). Specifically, participants were asked to "recall a recent social interaction that did not go as well as [the participant] expected or wanted it to." Participants described the situation in a few sentences before continuing.

In line with previous counterfactual research (Kray et al., 2010; Roese, 1994; Roese & Olson, 1993), participants generated counterfactual thoughts about the negative event they had just described. To do so, they were asked to identify things that could have changed the outcome of the negative event using an "if ___, then ___" format. Participants were directed to "list only as many thoughts as you can, naturally, without

repeating any." There were 10 boxes for participants to fill in counterfactual thoughts, however only one counterfactual was required.

After the counterfactual thought listing task, participants were then asked six questions about their feelings towards themselves and the other person involved regarding blame (i.e., "How much do you blame yourself [*the other person*] for the situation?"), responsibility (i.e., "How responsible do you feel you are [*the other person is*] for the situation occurring?"), and forgiveness (i.e., "How much do you forgive yourself [*the other person*] for the situation occurring?"). Participants answered using a 1 (not at all) – 7 (completely) Likert scale.

Finally, participants self-coded each counterfactual thought in terms of a dichotomous choice in regards to its direction (upward or downward), focus (self-focused or other-focused), and controllability (controllable or uncontrollable) before completing demographic information.

2.2. Results and Discussion

2.2.1. Self-Compassion and Counterfactual Thinking

I first focused on the correlations between self-compassion and counterfactual generation and content (see Table 1). For counterfactual generation, self-compassion correlated with fewer counterfactual thoughts overall ($r(239) = -.174$, $p < .008$). Given that one component of self-compassion is mindfulness (i.e., not over-identifying with emotions), and that counterfactuals are often activated via negative affect, it may be the case that feeling self-compassion lowers the likelihood of counterfactual engagement (Neff, 2003; Roese & Epstude, 2017). Next, I examined the relationship between self-

compassion and counterfactual content. Previous research has suggested that functional counterfactuals are generally those that are upward, self-focused, and within one's control (Roese, 1994; Roese, Smallman, & Epstude, 2017). Given this, I tested the correlations between self-compassion and these more functional counterfactual content characteristics. Self-compassion negatively correlated with counterfactuals that were upward ($r(239) = -.183$, $p < .001$), self-focused ($r(239) = -.266$, p < .001), and controllable ($r(239) = -.186$, $p < .001$). Interestingly, my finding regarding self-focused counterfactual thoughts goes against previous self-compassion research, which has found that self-compassionate individuals more strongly acknowledge their role in negative events (Leary et al., 2007). I did not find any significant correlations between self-compassion and the less-functional counterfactual characteristics (i.e., downward, external-focused, and uncontrollable counterfactual thoughts; ps < .27). This may be due in part to these types of counterfactuals being generated at lower rates than their functional counterparts. Though it may be the case where, although individuals may acknowledge their role, they may not think of ways in which their actions or behaviors could have changed the outcome. Drawing from previous counterfactual research, a negative correlation between functional counterfactuals and self-compassion might also suggest that self-compassion would negatively correlate with functional counterfactual outcomes such as motivation, feelings of control, as well as negative affect (Roese & Epstude, 2017).

2.2.2. Self-Compassion and Judgements of Blame, Responsibility, and Forgiveness

Next, I examined the correlations between self-compassion and judgements of blame, responsibility, and forgiveness. As seen in Table 1, when correlating the mean self-compassion score with these judgements, I found significant correlations with the self-focused judgements of blame ($r(239) = -.330$, $p < .001$), responsibility ($r(239) = -.245$, $p < .001$), and forgiveness ($r(239) = .378$, $p < .001$). However, I found no significant correlations between the other-focused judgements of blame ($r(239) = .067$, $p = .300$), responsibility ($r(239) = .025$, $p = .704$), and forgiveness ($r(239) = .062$, $p = .336$). This is to be expected, as self-compassion is a distinct psychological concept that differs from compassion, which is typically other focused (Neff, 2003). It is important to note that both self-blame and self-responsibility negatively correlated with self-compassion, while self-forgiveness positively correlated. This makes intuitive sense, as blame and responsibility differ from forgiveness in terms of their function. For instance, an individual may blame a friend for an event occurring, however that individual may forgive that friend for the event happening. Additionally, in line with previous blame research, thinking self-compassionately is expected to lessen self-blame, as an individual should feel less self-critical of himself or herself (Neff, 2003; Neff & Knox, 2017). Similarly, self-compassion has been linked to greater forgiveness of others (Neff & Pommier, 2013).

2.2.3. Counterfactual Thinking and Judgements of Blame, Responsibility, and Forgiveness

Finally, I examined the correlations between counterfactual generation, counterfactual content, and blame, responsibility, and forgiveness judgments. To study this relationship, I first examined the correlations between counterfactual generation with judgements of blame, responsibility, and forgiveness, finding that counterfactual generation was linked to increased self-blame ($r(239) = .147$, $p = .023$), decreased self-forgiveness ($r(239) = -.175$, $p = .006$), and decreased other-focused forgiveness ($r(239) = -.131$, $p = .043$).. This is in line with previous research, which has demonstrated that thinking counterfactually can increase judgements of blame and responsibility, even after events in which the participant has no control over the outcome (Davis et al., 1995; Wells & Gavanski, 1989).

I also examined correlations between counterfactual content and blame, responsibility and forgiveness judgments. A study of counterfactual thinking and victim blaming by Branscombe and colleagues (1996) found that participants' judgements of blame and responsibility towards both the victim and perpetrator were found to change based on the types of counterfactuals individuals generated. Thus, I wanted to explore these relationships. Accordingly, upward counterfactuals were positively correlated with self-blame ($r(239) = .158$, $p = .014$) and negatively correlated with self-forgiveness ($r(239) = -.146$, $p = .023$), such that imagining how the situation could have been better correlated with an individuals' perceived blameworthiness and decreased self-forgiveness. Additionally, downward counterfactuals were negatively correlated with

other-focused forgiveness, such that imagining how the situation could have been worse

correlated with being less forgiving towards others. Interestingly, self-focused

counterfactuals were positively correlated with self-blame ($r(239) = .314, p < .001$), and

self-responsibility ($r(239) = .281, p < .001$) and negatively correlated with self-

forgiveness ($r(239) = -.288, p < .001$) and other-focused judgements of responsibility

($r(239) = -.288, p < .001$). However, externally focused counterfactuals were related to

less self-blame ($r(239) = -.172, p = .007$), more other-focused blame ($r(239) = .219, p = .001$), less self-focused feelings of responsibility ($r(239) = -.205, p = .001$), and more

other-focused responsibility ($r(239) = .158, p = .014$). This is in line with previous

research, as when imagining things one's self could do to change an event, one may feel

more blame and responsibility towards themselves, less blame and responsibility

towards another, and less forgiveness of one's self. This research supports previous

counterfactual work which has found that imagining what individuals could have done

differently increases blame and perceived responsibility towards that person

(Branscombe et al., 2003; Davis et al., 1995). Lastly, counterfactual controllability was

positively correlated with self-blame ($r(239) = .133, p = .040$) and negatively correlated

with self-forgiveness ($r(239) = -.178, p = .006$). Imagining how a negative event was

within one's control was related to lower feelings of forgiveness. While no research has

directly studied the link between counterfactual thinking and forgiveness, this is similar

to research which has found that controllable counterfactuals are linked to feelings of

guilt (Roese & Olson, 1995).

Overall, I found an expected pattern of results, which suggests that counterfactual thinking and self-compassion are both related to similar measures. This is in line with previous research, which has found that counterfactual thinking affects both self-focused and other-focused judgments of blame and responsibility (Branscombe et al., 2003; Davis et al., 1995; Goldinger et al., 2003). Similarly, self-compassion is related to less self-focused blame and responsibility, and increased self-forgiveness (Johnson & O'Brien, 2013; Leary et al., 2007; Neff, 2003). However, this does speak to the measures used in this first study as appropriate for exploring the relationship between self-compassion and counterfactual thinking.

Additionally, my findings in regards to self-compassion and counterfactual thinking speak to the hypothesized relationship between variables. As expected, there were negative correlations between self-compassion and both counterfactual generation and content. Intriguingly, research has demonstrated the positive motivational effects of both self-compassion (Breines & Chen, 2012; Leary et al., 2007) and counterfactual thinking (Roese, 1994; Wong, 2007). Therefore, it is likely that both counterfactuals and self-compassion may be affecting motivation in different ways. I further explore this idea by explicitly measuring motivation in Study 1b.

3. STUDY 1B

Study 1a supported my hypotheses that self-compassion and counterfactual thinking both affect judgements of blame, responsibility, and forgiveness. While self-compassion negatively correlated with self-focused judgements of blame, responsibility, and forgiveness, counterfactual thinking positively correlated with these same self-focused judgements. Additionally, Study 1a also supported my hypothesis that self-compassion and counterfactual thinking negatively correlated in regards to counterfactual generation and counterfactual content. Self-compassion was correlated with fewer counterfactuals generated, as well as fewer upward, self-focused, and controllable counterfactuals (i.e., functional counterfactuals). Study 1b extends these findings by examining the relationship between counterfactuals, self-compassion and motivation. Research has shown that both self-compassion and counterfactual thinking increase motivation to change and avoid future mistakes (Leary et al. 2007; Roese, 1994). Therefore, I hypothesize that after recalling a negative event and thinking counterfactually, self-compassion will positively correlate with motivation to change and avoid future mistakes.

3.1. Methods and Procedure

An a priori power analysis using G**Power** indicated that I would need at least 191 participants for 80% power in detecting a medium sized effect, as I expected similar effects to the previous study. I collected 242 participants. Two participants were removed from the data set. One participant did not provide a negative event. Another

participant completed the study twice, so I removed their second completion. This left me with 240 participants which gave me 93.5% power to detect a medium sized effect. Participants were recruited through Texas A&M University's subject pool and participated for partial course credit ($N = 240$, Age $M = 18.57$, $SD = 0.89$, 81% White, 10% Asian, 79% female; see Appendix B for a full list of measures used in Study 1b).

Similar to Study 1a, participants completed the SCS-SF (Raes et al., 2011; $\alpha = .81$) before recalling a negative social event. Immediately after writing about the negative event, participants were asked three questions regarding the event: an objective measure of how long ago the event took place (in days, months, and/or years), a subjective measure of how long ago the event took place on a sliding scale from 0 (very recently) to 100 (a very long time ago), and a question regarding how much control the individual felt they had in the event on a 7-point Likert scale from 1 (no control at all) to 7 (a lot of control). I chose these measures as previous research has demonstrated that counterfactuals tend to focus more on perceived controllable, versus uncontrollable, events (Girotto et al., 1991). Similarly, temporal distance can affect counterfactual thinking as well as its downstream consequences (Gilovich & Medvec, 1994; Smallman & McCulloch, 2012). Given this, these measures allow for a first look at the role these variables play in counterfactual generation, content, and downstream consequences.

After answering these questions, participants were asked to complete a counterfactual thought listing task identical to Study 1a. To assess motivation, participants completed a 6-item motivation measure ($\alpha = .71$) which contained questions modified from Breines and Chen's (2012) studies regarding self-compassion, moral

transgressions, and personal weaknesses. The language of the questions were reworded to focus on motivation to change or improve in the future. Participants answered questions on a 1 (strongly disagree) to 7 (strongly agree) Likert scale. Questions included items regarding motivations to avoid bad situations (i.e., "I am committed to not repeating this behavior (or anything like it) again), and to improve future behaviors (i.e., "Thinking about this situation motivates me to improve similar situations in the future").

Afterwards, participants were asked to rate the counterfactual potency of each counterfactual generated (Petrocelli, Percy, Sherman, & Tormala, 2011). This measure was used to determine the perceived strength and impact of each counterfactual thought. To measure potency, participants were asked to think about the components of their counterfactual separately, identified as the "if" likelihood and the "then" likelihood. First, focusing on the "if" component of their counterfactual, participants completed the if-likelihood (IL) question (i.e., "How confident are you that the first part of this thought [i.e., the 'if' part] might actually have occurred?"). Then, focusing on the "then" component of their counterfactual, participants completed the then-likelihood (TL) question, (i.e., "Now also think about the 'then' part of this thought. If the first part of the statement was true, how confident are you that this would have changed the outcome?") Following Petrocelli et al. (2011), counterfactual potency was measured by multiplying IL and TL measures for each counterfactual, and averaging across their counterfactual thoughts. All items were rated on a scale ranging from 1 (extremely unlikely) to 9 (extremely likely).

As in Study 1, participants were asked to code their counterfactual statements in terms of its direction, focus, and controllability. However, additional coding questions were included such that if counterfactuals were self-focused in nature, participants determined if the counterfactuals were behavior-focused or trait-focused. I chose to include this as counterfactuals about behaviors should be more functional as traits are frequently considered less controllable and mutable than behavior-focused counterfactuals (Markman & Miller, 2006). Finally, participants completed demographic information.

3.2. Results and Discussion

3.2.1. Self-Compassion and Motivation

I first examined the relationship between self-compassion and motivation as seen in Table 2. Given previous research which suggests that self-compassion increases an individual's motivation to change (Breines & Chen, 2012), I expected to find similar results. However, I found no significant relationship between self-compassion and motivation ($r(239) = -.029$, $p = .653$). This may be due to the fact that previous research used a state manipulation of self-compassion, whereas I used a trait measure (Breines & Chen, 2012).

3.2.2. Self-Compassion and Counterfactual Thinking

Next, in order to replicate my findings from Study 1a, I examined the correlations between self-compassion and counterfactual thinking. As in Study 1a, self-compassion was negatively correlated with the total number of counterfactuals generated, ($r(239) = -.140$, $p = .030$), the number of upward counterfactuals ($r(239) = -$

.147, p = .022), and the number of controllable counterfactuals ($r(239) = -.131$, p = .042). Additionally, the other functional counterfactual components (i.e., self-focused and behavior-focused) followed a similar trend, however they were either marginally or not statistically significant (ps = .062 and .115 respectively).

3.2.3. Motivation and Counterfactual Thinking

I also examined the correlations between improvement motivation and my counterfactual content variables. Research has demonstrated that counterfactual thinking increases motivation to change future behaviors (Reichert & Slate, 1999; Roese, 1994; Wong, 2007). Supporting previous research, improvement motivation was positively correlated with the number of self-focused counterfactuals ($r(239) = .147$, p = .023) and the number of behavior-focused counterfactuals ($r(239) = .149$, p = .021), suggesting that functional counterfactual content is related to increased motivation.

3.2.4. Counterfactual Potency

Additionally, I examined the relationship between counterfactual potency and my other counterfactual measures. As mentioned above, counterfactual potency is described as measure of the perceived strength and impact of a counterfactual thought, measured by multiplicatively combining both an "if likelihood" component (the degree of likelihood of the counterfactual antecedent) and a "then likelihood" component (the degree of likelihood of the counterfactual consequent). Given that counterfactual potency has been demonstrated to influence judgements of regret, causation and responsibility (Petrocelli et al., 2011), it may be the case that counterfactual potency also

relates to counterfactual generation and content, as well as feelings of self-compassion, motivation, and judgements of blame, responsibility, and forgiveness.

I first examined the correlations between counterfactual potency and counterfactual generation. Looking at the overall measure of potency, I found a marginally significant effect ($r(239) = -.114$, $p = .076$), such that generating more counterfactuals marginally correlated with less overall potency. Similarly, I found a significant negative correlation between counterfactual generation and the "if" measure of potency ($r(239) = -.13$, $p = .047$). Interestingly, the "then" measure of potency did not correlate with counterfactual generation ($p = .664$). An argument can be made that by generating more counterfactuals, individuals dilute the overall potency. For instance, an individual may have a very potent first counterfactual (i.e., "If only I studied, I would have passed"), but as they generate more counterfactuals, their overall potency may be lower ("I guess if the professor wouldn't have shown up, I wouldn't have had to take the exam"). However, I found no significant differences between the potency scores between an individual's first counterfactual ($M = 35.03$; $SD = 19.82$) and the mean of other counterfactuals generated ($M = 38.58$; $SD = 24.10$). I additionally found no significant differences between the "if likelihood" or "then likelihood" measures of potency, either ($ps < .135$).

I next examined correlations between my measures of counterfactual potency and functional counterfactual components. I expected this relationship to be positive, as this might be part of what makes counterfactuals functional. It is likely that self-focused, controllable, behavior-focused counterfactuals are perceived as more potent, as these

types of counterfactuals should be perceived as more likely to be effective. However, none of these variables were significant ($ps < .236$). Unexpectedly, the overall potency measure only significantly negatively correlated with other-focused counterfactual generation ($r(239) = -.208$, $p = .001$). This finding makes sense given that what others do is something outside of an individual's control and therefore may be both less likely to happen and less likely to change the outcome.

I then examined the correlations between functional counterfactual content and both the "if likelihood" and "then likelihood" measures of counterfactual potency separately. When looking at the "if likelihood" measure, I found significant negative correlations with the number of counterfactuals generated ($r(239) = -.130$, $p = .045$) as well as the number of other-focused counterfactuals ($r(239) = -.303$, $p = .001$). Additionally, the "if likelihood" measure was positively correlated with the number of self-focused ($r(239) = .173$, $p = .034$) and behavior-focused ($r(239) = .140$, $p = .030$) counterfactuals. This makes intuitive sense, as self- and behavior-focused counterfactuals should be correlated with higher perceived likelihood of occurrence as these counterfactuals give individuals insight into ways in which they personally can improve future situations (Epstude & Roese, 2017; Petrocelli et al., 2011), while other-focused counterfactuals should show the opposite effect due to the difficulty of controlling another's behavior. Supporting this, research on self-efficacy and counterfactual thinking has found that certain functional components of counterfactual thinking (i.e., upward counterfactuals) increase feelings of self-efficacy (Tal-Or, Boninger, & Gleicher, 2004). It is likely that self-efficacy and counterfactual potency are

likely similar constructs tapping into similar behaviors. Interestingly, I found no clear pattern of results for the "then likelihood" measure of counterfactual potency. It may be the case that participants did not find these counterfactuals to be effective or likely to change the outcome.

Given that self-compassion negatively correlated with some functional counterfactual characteristics, it may be the case that self-compassion also negatively correlated with an individual's perceived counterfactual potency. However, self-compassion did not significantly correlate with counterfactual potency ($p = .156$), or either of its components (if-likelihood, $p = .400$; then-likelihood, $p = .591$).

When looking at motivation, I found significant correlations between motivation and counterfactual potency ($r(239) = .270, p < .001$), as well as the individual if-likelihood ($r(239) = .233, p < .001$) and then-likelihood measurements ($r(239) = .176, p = .006$). Given that counterfactual potency is a measure of counterfactual effectiveness, it makes sense that there would be a significant positive relationship between the likelihood of counterfactual being effective and the motivation to change one's future behavior (Petrocelli et al., 2011). This fits within the functional theory of counterfactual thinking, suggesting that more potent counterfactuals are related to increased motivation to change, as an individual might feel the counterfactual is likely to happen (Petrocelli et al., 2011).

3.2.5. Time Perception and Control

Finally, I wanted to examine the exploratory negative event measures regarding control, as well as subjective and objective measures of time. As counterfactuals by their

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very nature are past focused, the amount of time which has passed, both objectively and subjectively might affect counterfactual thinking and its downstream consequences. For instance, previous research has found that in general, more recent negative events facilitate more functional counterfactual thinking (Smallman & McCulloch, 2012). Similarly, individuals tend to regret actions more in the short term, but inactions in the long term (Gilovich & Medvec, 1994). One possible explanation for this is the concept of hot and cold cognitions. Hot cognitions are emotionally-laden, whereas cold cognitions are not (Abelson & Rosenberg, 1958). Events that are recent are frequently warmer in terms of cognitions, while distant events are often cooler (Loewenstein, 1996). This suggests that as time passes, individuals may make different judgements about the same negative event. This difference in cognitive processing style has implications for self-compassion, counterfactual thinking, and the downstream outcomes of both.

Additionally, an individual may perceive an event as more or less controllable. Research has demonstrated that counterfactuals are more likely to be generated in a controllable situation (Frosch, Egan, & Hancock, 2014). Were an individual to have an event happen recently in which they had much control (i.e., failing last week's exam they did not study for), the counterfactuals generated may be very different than a distant event in which they had little control (i.e., being rear-ended by another car years ago). Counterfactual research has found evidence suggesting that generating upward counterfactuals is related to perceived control (Nasco & Marsh, 1989). Similarly, generating upward counterfactuals has been demonstrated to lead to greater feelings of

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self-efficacy, which in turn should lead to an increased motivation to improve (Tal-Or et al., 2003). Taken in conjunction with the findings suggesting counterfactuals are more frequently generated after a recent (versus distant) negative events (Smallman & McCulloch, 2012), this suggests that both the amount of time that has passed since the event, as well as the amount of control an individual feels they had at the time of the event likely affects the counterfactual thoughts they generate (Gilovich & Medvec, 1994). I wanted to examine this relationship as an exploratory analysis. The temporal distance and perceived control over a negative event may lead to different styles of counterfactual thinking.

3.2.6. Objective Time

I first examined how the objective length of time from the negative event (measured in days and log transformed) affected my other DVs. Given that time may serve as a way for an individual to downregulate their emotional state, I hypothesized a negative relationship with objective time and motivation. Interestingly, I found a significant positive relationship between objective time and motivation ($r(239) = .141$, $p = .029$). This suggests that there may be a possible link between objective time passing and motivation. Although not measured in this study, this relationship may hint at the role of other psychological mechanisms, such as "hot" cognitions, in motivation. Additionally, I found a significant positive correlation between self-compassion and objective time from the negative event ($r(239) = .128$, $p = .048$). Again, while not measured, these findings may be due to the use of a more cold cognitive style. Additionally, I also examined relationships between the objective measure of time and

counterfactual generation, content, and potency. I found no significant correlations between any measures. Overall, this presents a pattern in which objective time is correlated with increased motivation, but is - interestingly - not correlated with counterfactual variables.

3.2.7. Subjective Time

I next examined my measure of subjective time. This measure asked participants how long ago the event took place on a sliding scale from 0 (very recently) to 100 (a very long time ago). Given that one's measure of objective time did not perfectly correlate to the amount of time that has passed ($r(239) = .660, p < .001$), an individual's perception of time also may play a role. When looking at self-compassion, I again found a significant positive correlation with subjective time ($r(239) = .199, p = .002$). However, when examining subjective time with motivation, I did not find a significant correlation ($p = .243$). One possible explanation is that self-compassion may serve as a way to reflect on a situation after the moment. By increasing the amount of time passed after a negative event, one may begin to focus less on motivating and more on self-reflecting. Additionally I found no significant correlations between subjective time and measures of counterfactual generation, content, and potency, although measures tended to trend in the same direction as correlations with objective time. Given that subjective time was measured on a sliding scale, it may be the case that there was simply more variability in subjective perception of time when compared to the objective measure, leading to a weaker overall effect.

3.2.8. Control

Lastly, I examined the relationship between perceived control of the negative event and my other variables. There was a significant relationship between perceived control and self-compassion ($r(239) = .173$, $p = .007$), but no significant correlation between perceived control and motivation ($p = .168$). In contrast from the previous two measures, perceptions of control negatively correlated with the number of counterfactuals generated ($r(239) = -.148$, $p = .022$), as well as several counterfactual characteristics including upward counterfactuals ($r(239) = -.164$, $p =.011$), other-focused counterfactuals ($r(239) = -.145$, $p > .025$), and uncontrollable counterfactuals ($r(239) = -.154$, $p = .017$). Interestingly, there was not a significant correlation between perceived control over the negative event and the number of controllable counterfactuals generated ($r(239) = -.067$, $p = .302$). This was unexpected, as one could imagine that in a controllable situation, an individual would generate counterfactuals in which they have control. However I found no significant correlations between perceived control and either general counterfactual potency ($p = .632$), or either the if-likelihood ($p = .872$) or then-likelihood ($p = .317$).

In summary, I replicated my findings of Study 1a regarding self-compassion and counterfactual thinking such that self-compassion negatively correlated with counterfactual generation and functional characteristics. However, I did not replicate previous research which found a relationship between self-compassion and motivation. One possible explanation is the type of measurement, as previous research has measured state self-compassion whereas I measured trait self-compassion (Breines & Chen, 2012).

In line with previous research, I also found evidence that certain types of counterfactual content (i.e., self-focused, behavior-focused counterfactuals) positively correlate with motivation (Roese & Epstude, 2017). Motivation was also positively correlated with counterfactual potency while self-compassion was not.

In regards to my exploratory analyses of negative event measures, I found evidence that both objective and subjective temporal distance positively correlated with self-compassion, but not any counterfactual measures. Similarly, perceptions of control positively correlated with self-compassion and negatively correlated with the numbers of counterfactuals generated. It may be the case that self-compassion and counterfactuals operate differently to affect downstream counterfactual consequences, possibly via affect (Neff, 2003; Roese, 1994; Sirois, Kitner, Hirsch, 2015). Given my findings regarding my exploratory measures, I further explored this idea in Study 2.

4. STUDY 2

Thus far, these studies suggest that self-compassion influences evaluative judgements as well as counterfactual generation and characteristics. Additionally, some exploratory analyses suggest that the negative event an individual chooses to write about - in terms of temporal distance and perceived control - correlates to an individual's feelings of self-compassion. However, contrary to previous research, I did not find evidence linking self-compassion and motivation. One possible explanation for this may be due to affect: in terms of their consequences, counterfactual thinking is related to increased rumination (Davis et al., 1995) and more negative affect (Epstude & Roese, 2008; Roese, 1994, 1997) while self-compassion is related to decreased rumination and alleviated negative emotions (Krieger et al., 2016; Neff & Seppala, 2016). In Study 2, I explored how affect plays a role in both self-compassion and counterfactual thinking. To do so, participants recalled and answered questions regarding a negative event before completing either a self-compassion or control writing task. Afterwards, all participants completed a counterfactual task before rating their feelings of shame, guilt, humility, and finally affect. Participants then answered questions regarding motivation to improve future situations. To further examine the effects of time perception and control and their interactions with motivational, affective and self-compassion variables, participants answered the same questions regarding the negative event as in Study 1b both after writing their negative event and at the end of the experiment.

4.1. Methods and Procedure

Based on previous studies, I again expected a medium effect size. An a priori power analysis using G*Power indicated that I would need at least 356 participants for 80% power in detecting a small-to-medium sized effect. I collected data from 408 participants, which gave me 94% power to detect a small-to-medium sized effect. Participants were recruited through Texas A&M University's subject pool and participated in return for partial course credit ($N = 408$, Age $M = 18.62$, $SD = 1.021$, 78% White, 13% Asian, 71% female; see Appendix C for a full list of measures used in Study 2).

Participants first recalled a negative social situation in the same manner as Study 1a and 1b before completing the same negative event recall questions as in Study 1b. To manipulate self-compassion, participants then completed one of two writing tasks: A self-compassion task or a control task. In the self-compassion condition, participants were asked to write three different prompts regarding self-compassion taken from Leary and colleagues (2007). To promote the common humanity element of self-compassion, participants were first asked to "take a moment to list as many ways as you can think of in which other people also experience similar events to the one you just described." The second prompt concerning the self-kindness aspect of self-compassion asked participants to "…write a paragraph expressing understanding, kindness, and concern to yourself, the way you might express concern to a friend who had undergone the experience." Lastly, to encourage participants to reflect on the mindfulness aspect of self-compassion, the final prompt asked participants to "describe your feelings about the experience in an

objective and unemotional fashion." Participants in the control condition were simply

asked to continue to write about the event and were encouraged to "explore the details

you had about the situation and the interaction" as well as the thoughts and feelings they

had at the time. Afterwards, as in Studies 1a and 1b, all participants completed the

counterfactual thought listing task.

Then, participants saw the following three questionnaires in a random order: the

Discrete Emotions Questionnaire (DEQ; α = .841; Harmon-Jones, Bastian, & Harmon-

Jones, 2016), the State Shame and Guilt Scale (SSG; α (shame) = .841; α (guilt) = .875;

Marschall, Sanftner, & Tangney, 1994) and the Brief State Humility Scale (BSHS; α =

.619; Kruse, Chancellor, & Lyubomirsky, 2017). In order to test the role of affect,

participants completed the 36-item Discrete Emotions Questionnaire (DEQ; α (positive)

= .839; α (negative) = .926; Harmon-Jones et al., 2016). This measure included both

positive and negative emotions, which were broken into eight different discrete emotions

(i.e., anger, disgust, relaxation, happiness, etc.). To measure other possible effects of

self-compassion, all participants completed the State Shame and Guilt Scale (SSG;

Marschall et al., 1994). I chose this measure as previous research has found that self-

compassion is negatively correlated with state levels of shame (Johnson & O'Brien,

2013). Additionally, I measured humility using the Brief State Humility Scale (BSHS;

Kruse et al., 2017). I chose this measure as humility should positively correlate with self-

compassion and might help explain the relationship between self-compassion and

motivation.

Afterwards, participants completed the same motivation questions modified from Breines and Chen (2012) as in Study 1b. To examine how self-compassion may influence feelings of control as well as time perception, participants answered two of the three negative event recall questions they answered earlier. These two questions were the subjective measures of time ("how long ago was this event?" measured by sliding scale) and control ("how much control did you feel you had in the event?"). As in Studies 1a and 1b, participants were then asked to code their counterfactuals based on direction, focus, behavior vs trait, and controllability. Finally, participants completed demographic information before being thanked for their time.

4.2. Results and Discussion

For my analyses I first used independent samples t-tests to examine conditional differences between my measures (See Table 3). Additionally, to replicate my Study 1b findings, I also conducted a series of correlations between variables. When examining conditional differences between these correlations, I found few differences between conditions and thus will only present the single combined correlation table (See Table 4).

4.2.1. Self-Compassion, Motivation, and Affect

I first conducted a series of independent-samples t-tests to examine differences between my self-compassion conditions regarding motivation and affect. Additionally, I conducted correlations between these variables to replicate results from Study 1b. When looking at motivation, I again found no significant differences between conditions regarding motivation ($p = .30$). This again goes against previous research which found

that self-compassion was related to increased motivation to improve (Breines & Chen, 2012; Leary et al., 2007). Given the short length of my self-compassion manipulation, it may be the case that my manipulation was less effective than other self-compassion manipulations. While I did not find significant differences between conditions regarding motivation, I did find significant correlations between motivation and other affective variables. Motivation was positively correlated with state shame ($r(407) = .14$, $p < .01$), guilt ($r(407) = .30$, $p < .001$), and negative affect ($r(407) = .11$, $p = .027$), but not positive affect ($p = .509$). This fits within the context of Schwarz's "affect as information" model, as it may be the case that these negative emotions prompt individuals to try to change a future outcome (Schwarz, 1990).Regarding my affective variables, I found no significant differences between conditions regarding feelings of shame ($p = .78$), guilt ($p = .14$), humility ($p = .86$), negative affect ($p = .91$) nor positive affect ($p = .19$). This was unexpected, as one tenet of self-compassion is decreased emotional reactivity (Neff, 2003).

4.2.2. Self-Compassion and Counterfactual Thinking

I next examined the relationship between self-compassion and counterfactual generation and content. Regarding conditional differences, I found a significant difference in counterfactual generation such that individuals in the self-compassion condition generated marginally fewer counterfactuals ($M = 2.68$, $SD = 1.83$) than those in the control condition ($M = 3.01$, $SD = 1.93$; $t(406) = -1.79$, $p = .07$). This mirrors my previous findings which found a significant negative correlation between self-compassion and counterfactual generation.

In terms of counterfactual content, I found a similar pattern of marginally significant results from Study 1b such that individuals in the self-compassion condition generated marginally fewer upward ($p = .08$), self-focused ($p = .09$), and behavior-focused ($p = .09$) counterfactuals than those in the control condition. Additionally, I found a significant difference between conditions regarding the number of controllable counterfactuals generated ($t(406) = -2.30$, $p = .02$). Individuals who thought self-compassionately generated fewer controllable counterfactuals ($M = 2.14$, $SD = 1.54$) than those in the control condition ($M = 2.51$, $SD = 1.76$).

4.2.3. Counterfactual Thinking and Motivation

When examining the correlations between counterfactual thinking and motivation, I replicated my results from Study 1b, showing again that motivation was positively correlated with self-focused ($r(407) = .165$, $p = .001$) and behavior-focused counterfactuals ($r(407) = 1.49$, $p = .003$).

4.2.4. Counterfactual Thinking and Affect

I also examined the relationships between counterfactual generation and content and my affective measures, including shame, guilt, humility, and both negative and positive affect. In terms of shame, I found significant positive correlations with counterfactual generation ($r(407) = .175$, $p < .001$), as well as the functional counterfactual components including upward ($r(407) = .161$, $p = .001$), self-focused ($r(407) = .212$, $p < .001$), behavior-focused ($r(407) = .197$, $p < .001$) and controllable ($r(407) = .163$, $p = .001$) counterfactuals. I found no significant effects of the less functional counterfactual components (ps $< .087$).

I found a similar pattern of correlations regarding feelings of guilt, in that guilt positively correlated with counterfactual generation ($r(407) = .189$, $p < .001$), as well as upward ($r(407) = .168$, $p = .001$), self-focused ($r(407) = .302$, $p < .001$), behavior-focused ($r(407) = .275$, $p < .000$) and controllable ($r(407) = .158$, $p < .001$) counterfactuals. Additionally, I found a significant positive correlation between guilt and trait-focused counterfactuals ($r(407) = .132$, $p < .01$), which I did not find when looking at shame. Regarding humility, uncontrollable counterfactuals were negatively correlated ($r(407) = -.120$, $p = .015$), suggesting that increased feelings of humility were related to fewer uncontrollable counterfactuals.

Also, negative affect was positively correlated with the number of counterfactuals generated ($r(407) = .204$, $p < .001$), as well as the number of counterfactuals generated that were upward ($r(407) = .163$, $p = .01$), downward ($r(407) = .131$, $p = .01$), self-focused ($r(407) = .228$, $p < .001$), behavior-focused ($r(407) = .183$, $p < .001$), trait-focused ($r(407) = .150$, $p < .01$), controllable ($r(407) = .174$, $p < .001$) and uncontrollable ($r(407) = .098$, $p < .048$). However, positive affect was not significantly correlated with any of my measures (p's $> .130$).

These findings fit with previous research on counterfactual thinking in which initial negative affect about a negative event is exacerbated by thinking counterfactually (Roese, 1997; Roese & Epstude, 2017). This increased negative affect can serve as a motivator to improve future situations (Epstude & Roese, 2008), but may also lead to rumination (Davis et al., 1995) or depressive symptoms (Markman & Miller, 2006). Given the lack of significant differences between conditions regarding my affective

measures, it may be the case that while self-compassion decreases counterfactual thinking

4.2.5. Time Perception

As in Study 1b, I also wanted to continue to explore the role that an individual's subjective and objective perceptions of time about a negative event play in downstream counterfactual consequences. To examine this, subjective time perception was measured twice: first after generating a negative event (but before the writing manipulation), and a second time at the end of the study. Objective time perception was only measured once at the beginning of the study, alongside subjective time, as I did not expect this number to change. Therefore, I was able to examine three questions: first, did my writing manipulation affect subjective time perception between time 1 and 2? Second, did either subjective or objective time perception, along with condition, affect any of my motivational or affective measures? Lastly, did any of my motivational or affective measures affect my second measure of subjective time perception? A summary of all these findings can be found in Tables 5-9.

I first looked at how these variables affected my second measure of subjective time, taken at the end of the study. Given that this measure was also taken before and after the manipulation, it serves as a way to examine whether self-compassion affects one's subjective time perception. To answer my first question regarding my self-compassion manipulation and subjective time perception, I ran a regression predicting subjective time 2 perception from subjective time 1 perception, condition, and the interaction (See Table 5). I found a significant main effect of subjective time 1

predicting subjective time 2. However, I found no significant main effect of condition. I found a marginally significant interaction effect between subjective time 1 and condition (See Figure 1). When probing the simple slopes, I found both the self-compassion slope (Simple slope $b = 0.908$, $t(334) = 40.526$, $p < .001$) and the control slope (Simple Slope: $b = 0.966$, $t(406) = 39.144$, $p < .001$) to be significantly different from zero. When plotting this interaction, this effect seems to be driven almost solely by measures of subjective time 1.

Next I examined whether or not subjective time perception predicted any of my motivational or affective variables (See Table 5). To do so, I ran regressions predicting these variables based on subjective time 1, condition, and their interaction. While I found no significant results regarding any of my affective variables, I found a significant main effect of subjective time predicting motivation. However, when predicting motivation, I did not find a main effect of condition, nor an interaction effect. This fits with research which has found that counterfactuals tend to be generated more for recent as opposed to distant negative events (Smallman & McCulloch, 2012). This likely helps explain these findings, as generating counterfactuals frequently comes with the associated affective consequences such as negative affect (Roese, 1994).

I then repeated my findings regarding motivation and affective measures predicting objective, rather than subjective time (See Table 6). When predicting motivation, I found a significant main effect of objective time predicting motivation. However, I found no significant main effect of condition, nor a significant interaction effect. This finding confirms my finding in Study 1b regarding a significant positive

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correlation between objective time and motivation. When examining shame, I did not

find any significant main effects regarding objective time or condition, but I did find a

marginally significant interaction between objective time and condition (See Figure 2).

However, simple slopes analyses revealed that neither the slope was significantly

different from zero (Self-compassion slope: b = -0.112, $t(406)$ = -1.519, p = .130;

Control slope: b = 0.069, $t(406)$ = 0.9978, p = .329).

Similarly, when predicting guilt, I found no significant main effects regarding

objective time and condition. However, I did find a significant interaction effect between

objective time and condition when predicting guilt (See Figure 3). When examining the

simple slopes, I found that for individuals in the self-compassion condition, as the

objective time from the negative event increased, feelings of guilt decreased (b = -0.193,

$t(406)$ = -2.188, p = .029). Individuals in the control condition did not differ in terms of

guilt based on objective time (b = 0.045, $t(406)$ = 0.540, p = .589). This suggests that

self-compassion decreases feelings of guilt, but only for events which happened in the

more distant past. Taken in context with my findings, this might help to explain why I

did not find conditional differences in guilt. It may be the case that my self-compassion

manipulation is more effective for more distant negative events.

When predicting negative affect I found no significant main effects of objective

time or condition. I did find a marginally significant interaction predicting negative

affect (See Figure 4). Simple slopes analyses revealed a similar pattern as my results

with guilt. Individuals in the self-compassion condition reported less negative affect as

time since the event increased (Simple Slope b = -0.178, $t(406)$ = -2.266, p = .024). For

individuals in the control condition, negative affect did not differ as time increased

(Simple Slope $b = 0.033$, $t(406) = 0.450$, $p = .653$). As above, this may suggest that an

important component to consider is distance from the negative event.

To answer my third question, I ran regressions predicting my second measure of

objective time from my motivational and affective variables, condition, and their

interaction (See Table 7). While I found no significant predictors using any of my

affective measures, when using motivation, I found it to be a significant main effect

predictor of subjective time 2. Although neither the main effect of condition, nor the

interaction were significant. Research on goal pursuit has found that as one nears goal

completion, motivation to complete that goal increases (Förster, Higgins, & Idson, 1998;

Kivetz, Urminsky, & Zheng, 2006). It is possible that this increase in motivation is

specifically for goals which are close to being achieved.

4.2.6. Control

I additionally repeated the same procedure for my variables regarding control as I

did for subjective and objective measures of time. Given that control was measured both

at the beginning and end of the study, I was able to ask the same three questions as

above: first, did my writing manipulation affect perceptions of control between times 1

and 2? Second, did control, along with condition, affect any of my motivational or

affective measures? Lastly, did any of my motivational or affective measures affect my

second measure of control? A summary of these findings can be found in Tables 8 and 9.

Regarding my first question, I ran a regression with control time 1, condition,

and their interaction predicting control time 2. I found a significant main effect of

control time 1 predicting control time 2. However, neither condition, nor the interaction were significant predictors of control at time 2 (See Table 8).

In regards to my second question, I again predicted motivation and affective measures from control at time 1, condition, and the interaction (See Table 8). In spite of my findings regarding motivation and measures of subjective and objective time perspective, I found no significant main effect of control time 1 predicting motivation. When examining shame, I found a significant main effect of time 1 control such that control at time 1 significantly predicted shame. I did not find a significant effect of condition or their interaction on shame. In line with this finding, I also found a marginal main effect of control at time 1 when predicting negative affect. However, I did not find a significant main effect of condition, nor a significant interaction. Given these findings together, it may be the case that feeling in control of a negative event helps to blunt feelings of shame and general negative affect after thinking counterfactually.

Lastly, I ran a series of regressions predicting my various motivational and affective measures, along with condition and their interaction to predict my control time 2 measure. In line with my previous findings, shame was a significant main effect predictor of time 2 control. However, neither condition nor the interaction were significant. Similarly, I found a marginal main effect of negative affect suggesting that negative affect marginally predicted perceptions of control at time 2. My main effect of condition and interaction were both not significant. Taken alongside previous findings, this suggests that negative affect and feelings of shame may affect perceptions of control over a negative event.

5. STUDY 3

Thus far, I have been unable to replicate previous self-compassion research regarding increases in motivation. In Study 2, I did not find evidence of differences between conditions regarding affect. However, counterfactual generation and functional content positively correlated with shame, guilt, and negative affect. In Study 3 I explored how self-compassion and functional counterfactual thoughts together impact downstream counterfactual consequences - specifically in regards to academic performance. Given my finding that individuals who wrote self-compassionately generated marginally fewer counterfactuals with marginally fewer functional components, it may be the case that individuals who complete a self-compassion writing task and then are forced to generate functional counterfactuals may perform better on a follow-up task. To do so, I conducted a two-part study in which introductory psychology participants were invited to take part in my study after completing their first introductory psychology exam. In Part 1, individuals reported their exam 1 grade and their satisfaction with their performance. In the same manner as Study 2, participants were randomly assigned to complete a self-compassion manipulation or a control writing task. Afterwards, all participants generated three functional counterfactuals (i.e., upward, self-focused, behavior-focused, and controllable) regarding ways in which the participant could have performed better on their exam. Afterwards, participants rated their intentions to engage in their counterfactual thoughts, as well as intentions to engage in general academic behaviors for exam 2. In Part 2, participants reported their exam 2

satisfaction and score before self-reporting their counterfactual and general academic

engagement in preparation for exam 2. Finally, participants were asked to complete

counterfactual and general academic intentions questions in regards to their third exam.

5.1. Methods and Procedure

Given my previous experiments, an a priori power analysis using G*Power

indicated that I would need at least 260 participants for 80% power to detect a small-to-

medium sized effect. I collected 263 participants for Part 1, and 224 participants for Part

2, leaving an attrition rate of 17%. This left me with 75% power to detect a small-to-

medium sized effect. Participants were introductory psychology students recruited using

the Texas A&M University subject pool ($N = 224$, Age $M = 18.33$, $SD = .711$, 80%

White, 9% Asian, 70% female; see Appendix D for a full list of measures used in Study

3).

The experiment took place in two parts approximately one month apart. Students

were recruited after completion of their first introductory psychology exam. Participants

were recruited via a class announcement and subject pool. The recruitment period for

both part 1 (after exam 1) and part 2 (after exam 2) was class-specific in that it began

when the class' exam grades were available and ended two weeks later.

In Part 1 of the study, participants were first asked to provide their email to link

their data across Parts 1 and 2. Afterwards, participants recalled their experience taking

their first introductory psychology exam. Afterwards, all participants were asked to

provide their exam 1 score. Next, as in Study 2, participants were randomly assigned to

one of the two writing tasks (i.e., self-compassion vs. control condition). Then, all

participants were instructed to generate exactly three functional counterfactual thoughts concerning how they could have improved their exam score (i.e., "If only I _____"). Again, as in Study 2, participants completed the DEQ (Harmon-Jones et al., 2016), the SSG (Marschall et al., 1994) and the BSHS (Kruse, et al., 2017) in a counterbalanced order. As a measure of behavioral intentions, participants then rated the likelihood they will engage in the behavior described in each counterfactual before the second exam on a scale from 1 (not at all likely) to 7 (extremely likely). To capture academic behavioral intentions more broadly, participants were also asked to rate the likelihood that they will engage in certain positive academic behaviors before the second exam (e.g., going to office hours, making flash cards, etc.) on a 1 (not at all likely) to 7 (very likely) scale (Roese, 1994). Lastly, participants had the option to complete demographic information before being debriefed from Part 1.

After the second exam grades were posted, participants were invited to return to the lab to complete Part 2. As with Part 1, participants had a window of two weeks after their second exam grades were posted to complete Part 2. In Part 2, participants first provided their exam 2 score. Afterwards, participants were shown their counterfactual statements from Part 1. For each of the three counterfactual statements, participants rated the extent to which they engaged in the behavior in preparation for exam 2 on a scale from 1 (none of the time) to 7 (most of the time). Next, using the same questions from Part 1, participants rated the extent to which they engaged in general academic behaviors more broadly in preparation for exam 2 on a scale of 1 (none of the time) to 7 (most of the time). Afterwards, I again asked participants to view their counterfactuals, as well as

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the general academic behaviors, and rate their behavioral intentions in regards to exam 3 on a scale from 1 (not at all likely) to 7 (extremely likely). This was done in order to test differences between exam 2 intentions and exam 3 intentions. Finally, participants completed demographics a second time to aid in matching Part 1 and Part 2 scores before being debriefed.

5.2. Results and Discussion

To measure changes between Part 1 and Part 2 of the study, I conducted several repeated-measures ANOVAs with each of my relevant Part 1 measures, condition, and their interaction. I examined several different dependent variables, including scores for exam 1 and 2, as well as satisfaction ratings for both exams. Additionally, in Part 1 of the study I measured counterfactual and general academic intentions. In Part 2 of the study, I measured both counterfactual and general academic behaviors before the second exam, as well as counterfactual and general academic intentions about Exam 3. The descriptive data of these results are summarized in Table 10 and Figures 5-12.

5.2.1. Exam Performance and Satisfaction

I first examined the relationship between participants' exam performance and satisfaction across both time points. Given that the participants' first exam score - and thus their satisfaction with that score - were measured before the manipulation, this allowed me to examine any pre-manipulation differences as well as determine if my manipulation affected my post-manipulation measures.

I first conducted a repeated-measures ANOVA to determine the effect of time (within subject) and condition (between subjects) on exam 2 scores. As seen in Figure 5,

there was a significant main effect of time ($F(1,222) = 17.768$, $p < .001$, $\eta_p^2 = .074$), such that when collapsing across condition, Exam 2 scores were lower ($M = 77.53$, $SD = 17.27$) than Exam 1 scores ($M = 82.17$, $SD = 12.58$). However, there was no significant main effect of condition ($F(1,222) = .682$, $p = .410$, $\eta_p^2 = .003$). Additionally, I found a marginally significant interaction between time and condition ($F(1,222) = 2.828$, $p = .094$, $\eta_p^2 = .013$). Pairwise comparisons showed that while there were no differences between Exam 1 scores for the self-compassion ($M = 82.46$, $SD = 11.38$) and the control condition ($M = 81.97$, $SD = 13.73$; $t(222) = -.486$, $p = .773$), Exam 2 scores marginally differed such that individuals in the self-compassion condition did marginally worse ($M = 75.88$, $SD = 18.06$) than individuals in the control condition ($M = 79.15$, $SD = 16.45$; $t(222) = 3.27$, $p = .158$). Based on previous self-compassion research, this finding was unexpected (Breines & Chen, 2012; Leary et al., 2007).

Next, I examined the effect of time, condition, and their interaction on exam 2 satisfaction (See Figure 6). I found a significant main effect of time ($F(1,222) = 8.380$, $p = .004$, $\eta_p^2 = .036$). When collapsing across conditions, exam 2 scores were rated as more satisfying ($M = 4.12$, $SD = 2.06$) than exam 1 scores ($M = 4.55$, $SD = 1.95$). However, there was no significant main effect of condition on satisfaction ($F(1,222) = .136$, $p = .713$, $\eta_p^2 = .001$). Additionally, I found no significant interaction between time and condition regarding exam 2 satisfaction ($F(1,222) = .224$, $p = .637$, $\eta_p^2 = .001$). In context of my previous finding regarding exam 2 scores, this was unexpected. Given that individuals in the self-compassion condition received lower grades, I expected lower satisfaction ratings for individuals with self-compassion. However, self-compassion may

be serving as a blunting mechanism against negative affect from poorer exam scores, thus causing null effects.

5.2.2. Intentions and Behavior

I then examined the relationship between behavioral intentions (both specified in the counterfactual and general academic) generated in Part 1, and actual behavior (both specified in the counterfactual and general academic) which was measured in Part 2. This allowed me to examine differences in what students intended to do, as well as what they actually did. It is important to note that both Part 1 and Part 2 measures were taken after the writing task manipulation. Research on the theory of planned behavior suggests that behaviors are predicted by intentions (Broonen, 2001; Ajzen, 1991). Research in counterfactual thinking has demonstrated that counterfactual thoughts facilitate behavioral intentions, specifically when the intention is related to both the negative event and the counterfactual (Smallman & Roese, 2009). However, not all intentions become behaviors. It may be the case that while intentions are strengthened after generating counterfactuals, these intentions are not acted upon, and thus the counterfactual behaviors are not enacted (Ajzen, 1991). To examine this, I conducted repeated-measures ANOVAs to see if my manipulation affected downstream behavior (counterfactual and general academic).

I next wanted to see if time, condition, or their interaction would affect counterfactual behavior (See Figure 7). I again found a significant main effect of time $(F(1,222) = 157.864, p < .001, \eta_p^2 = .415)$. When collapsing across conditions, counterfactual behaviors $(M = 4.12, SD = 1.7)$ was rated lower than counterfactual

intentions ($M = 5.48$, $SD = 1.23$). I found no significant main effect of condition on counterfactual behaviors ($F(1,222) = .022$, $p = .882$, $\eta_p^2 < .001$). Similarly, I found no significant interaction effect between time and condition on counterfactual behaviors ($F(1,222) = .545$, $p = .461$, $\eta_p^2 = .002$). As mentioned above, not all intentions will become behaviors, so it makes sense that the amount of behavior would be less than what one intended to do at Time 1 (Ajzen, 1991).

I examined a similar link between general academic behavioral intentions (time 1) and behavior (time 2). As seen in Figure 8, I found a significant main effect of time on general academic intentions ($F(1,222) = .022$, $p = .882$, $\eta_p^2 < .001$). When collapsing across condition, general academic behavior at time 1 ($M = 2.41$, $SD = .91$) was rated lower than general academic intentions at time 2 ($M = 4.13$, $SD = 1.16$). There was no significant main effect of condition on general academic behavior ($F(1,222) = .057$, $p = .812$, $\eta_p^2 < .001$). Additionally, I found no significant interaction effect between time and condition when predicting general academic behavior ($F(1,222) = 17.768$, $p > .001$, $\eta_p^2 = .074$). Again, this finding is to be expected given the previous finding and research on the intentions-behavior link (Ajzen, 1991).

5.2.3. Future Intentions (Exam 3)

I also conducted several repeated measures ANOVAs examining both counterfactual and general academic to predict intentions towards Exam 3. To predict exam 3 intentions, I utilized two counterfactual models and two general academic models. Regarding my counterfactual models, I first examined the effect of exam 2 counterfactual intentions, condition, and their interaction. I also examined the effect of

exam 2 counterfactual behaviors, as well as condition and their interaction. For my general academic models, I substituted my counterfactual intentions and behaviors for their general academic counterparts.

I first examined whether exam 3 counterfactual intentions were influenced by participants' exam 2 counterfactual intentions, condition, or the interaction between these variables. As seen in Figure 9, I found no significant main effects for either time $(F(1,222) = .421, p = .517, \eta p2 = .002)$ nor condition $(F(1,222) = .329, p = .567, \eta p2 = .001)$. Similarly, I found no significant interaction between time and condition $(F(1,222) = .086, p = .577, \eta p2 < .001)$. This was unexpected as the intentions participants made previously are likely to be relevant to their future situation and thus should have affected their intentions (Broonen, 2001; Orbell, Hodgkins, & Sheeran, 1997; Smallman & Roese, 2009). It may be the case that the generated counterfactuals were seen as less applicable to the third exam than the second exam. An alternate explanation is that students who engaged in those counterfactual intentions towards Exam 2 found them to not be useful.

Next I examined whether exam 3 counterfactual intentions were influenced by exam 2 counterfactual behaviors (See Figure 10). There was a significant main effect of time such that when collapsing across condition, intentions to engage in counterfactual behaviors before Exam 3 was higher $(M = 5.54, SD = 1.31)$ than exam 2 counterfactual behaviors toward Exam 2 $(M = 4.12, SD = 1.36; F(1,222) = 224.935, p < .001, \eta p2 < .001)$. There was no significant main effect of condition on counterfactual behaviors $(F(1,222) = .022, p = .882, \eta p2 < .001)$. I found no significant interaction between time

and condition regarding Exam 3 counterfactual intentions ($F(1,222) = .421$, $p = .517$,

$\eta p2 = .002$). This follows a similar pattern as the link between counterfactual intentions

for Exam 2 and counterfactual behaviors in Exam 2 in that intentions tend to be higher

than actual behaviors (Ajzen, 1991; Smallman & Roese, 2009).

I performed the same above two analyses on general academic (rather than

counterfactual) intentions and behaviors as well. First, I predicted exam 3 general

academic intentions using exam 2 general academic intentions, condition, and their

interaction. As seen in Figure 11, time significantly predicted exam 3 general academic

intentions, such that, when collapsing across condition, exam 3 general academic

intentions were higher ($M = 3.80$, $SD = 1.38$) than exam 2 general academic intentions

($M = 4.13$, $SD = 1.16$; $F(1,222) = 27.201$, $p < .001$, $\eta p2 = .109$). Additionally, the main

effect of condition was not significant ($F(1,222) = .114$, $p = .736$, $\eta p2 = .001$). I found

no significant interaction between time and condition regarding general academic

intentions towards the third exam ($F(1,222) = .323$, $p = .570$, $\eta p2 = .001$). This is

interesting, given that the similar analysis regarding predicting exam 2 counterfactual

intentions was not significant. It may be the case that a broader range of academic

behaviors come to mind more strongly than the specific counterfactual thoughts.

Lastly, I examined whether exam 3 general academic intentions was predicted by

exam 2 general academic behaviors, condition, and the interaction between the two

terms (See Figure 12). I found a significant main effect of time ($F(1,222) = 422.943$, $p <$

$.001$, $\eta p2 = .656$). When collapsing across condition, exam 3 general academic

intentions were again higher ($M = 3.80$, $SD = 1.38$) than exam 2 general academic

behaviors (M = 2.40, SD = .914). I found no significant effect of condition ($F(1,222)$ = .003, p = .960, $\eta p2$ < .001). Similarly, I found no significant interaction effects ($F(1,222)$ = 1.497, p = .223, $\eta p2$ = .007). Again, this is in line with previous research on the intentions to behavior link (Ajzen, 1991)

5.2.4. Affective Analyses

Additionally, I conducted independent samples t-tests looking at my major affective DVs. As in Study 2, there were no significant differences between our affective variables based on condition (ps > .074). These analyses can be found summarized in Table 11 in the appendix.

In sum, I found marginal evidence that a self-compassion writing task (in comparison to a control writing task) leads to a worse follow-up exam score. When looking at follow-up exam performance, individuals who completed a self-compassionate writing task scored marginally worse than those who simply continued to describe the negative event. Although all participants generated three functional counterfactuals after the writing manipulation, individuals in the self-compassion condition did not seem to implement their counterfactual thoughts.

6. GENERAL SUMMARY

Over four studies I examined the role that the individual difference of self-compassion plays in counterfactual thinking. I specifically investigated the ways an individual's feelings of self-compassion influenced counterfactual generation, content, and downstream consequences. Overall, I found evidence that self-compassion decreased counterfactual generation and led to less functional counterfactual content. Additionally, in a two-part study I found marginal evidence that self-compassion was related to worse follow-up exam scores compared to a control task. These findings have broad implications for understanding the role of individual differences in counterfactual thinking, as well as the role of self-compassion after a negative event.

In Study 1a, I found evidence that self-compassion negatively correlated with counterfactual generation and functional counterfactual components (i.e., upward, self-focused, controllable counterfactuals). Regarding the downstream counterfactual consequences, I found evidence that self-compassion was negatively correlated with self-focused judgements of blame and responsibility, and positively correlated with self-focused judgements of forgiveness, suggesting that self-compassionate individuals feel less blame and guilt as well as more forgiveness towards themselves. Additionally I found that counterfactual thinking followed the opposite pattern and correlated positively with both self-focused blame and other-focused forgiveness, and negatively correlated with self-focused forgiveness.

In Study 1b, I replicated my results regarding self-compassion and counterfactual content, but only marginally replicated my finding regarding self-compassion and counterfactual generation. Additionally, in spite of previous evidence (Breines & Chen, 2012; Neely et al., 2009; Neff et al., 2005), self-compassion did not correlate with motivation. To further expand my findings of Study 1a, I included a measure of counterfactual potency (i.e., the degree of influence of counterfactuals upon judgements of regret, causation, and responsibility; Petrocelli et al., 2011). I found no evidence that self-compassion correlated with counterfactual potency. However, motivation was positively correlated with counterfactual potency. This suggests that the more "potent" a counterfactual is, the more it is likely to influence motivation. Additionally, I found evidence that time perception (both subjective and objective), as well as event control positively correlated with self-compassion.

In Study 2, I moved from a correlational design to an experimental design in which participants either completed a self-compassion or control writing task. I examined conditional differences regarding counterfactual generation and content as well as motivation and affect. I found evidence suggesting that, compared to my control task, the self-compassionate writing manipulation led to marginally fewer counterfactuals generated, as well as marginally fewer functional counterfactual components (ps < .088). I did find a significant difference between conditions regarding controllable counterfactuals, such that individuals in the self-compassionate condition generated significantly fewer controllable counterfactuals compared to those in the control condition. Surprisingly, I found no significant conditional differences regarding

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motivation or any measure of affect. However, I found that motivation was positively

correlated with shame, guilt, and negative affect.

Within Study 2 I also conducted exploratory analyses on measures regarding

time perception (both subjective and objective) as well as perceptions of control.

Overall, I found evidence which suggests motivation plays a role in measures of

subjective and objective times, as well as perceptions of control. Beyond this, feelings of

control at time 1 predicted measures of shame and negative affect, while time 2

perceptions of control were predicted by these same feelings. Future research should

explore the mechanisms regarding motivation, shame, and negative affect.

Finally, in Study 3, I used a two-part research design to explore the downstream

counterfactual consequences of self-compassion on affect, exam scores, satisfaction,

behavioral intentions, and behavioral outcomes. Regarding affect, I again found a

marginal pattern of results similar to that of Study 2. Interestingly, I found that

individuals in the self-compassion condition did marginally worse on their second exam

compared to those in the control condition. However, I found no differences between

conditions regarding exam score satisfaction, suggesting that individuals in the self-

compassion condition not only did marginally worse on their exams, but also did not feel

less satisfied by their decrease in performance. Additionally, I found evidence that

across conditions, participants reported higher future behavioral intentions ratings

towards a future exam, but report lower ratings of actual behavioral engagement.

Interestingly, Studies 1a, 1b, and 2 demonstrated both marginal and significant

evidence that self-compassion was related to fewer overall counterfactuals generated.

While I had hypothesized high self-compassion as being related to fewer

counterfactuals, I had expected this to be in part via feelings of negative affect. These

findings give insight into another individual difference that can affect counterfactual

generation. However, in Studies 2 and 3, I found no significant differences in negative

affect based on condition. There are two possible explanations for this finding: First,

self-compassion may blunt counterfactual generation due to a different mechanism other

than negative affect. Second, it may be that my state manipulation was not strong

enough to see a difference in affect. Given that this was a state-focused rather than trait-

focused measure, this might be the case. Future research should explore both these

possible explanations.

In addition to serving a preparatory role, another function that counterfactuals

can serve is a mood reparative function through the use of downward counterfactuals

(McMullen & Markman, 2000; Roese & Epstude, 2017) .Given that self-compassion

includes a aspects of mindfulness and common humanity, which has been demonstrated

to decrease emotional reactivity (Neff, 2003), I had expected self-compassionate

individuals to generate more downward counterfactuals which would serve a mood

reparative function (Roese, 1994). However I found no evidence of a positive correlation

between self-compassion and downward counterfactuals. One possible interpretation of

this finding is that as one component of self-compassion is kindness and caring to one's

self, self-compassionate individuals may not need to generate downward counterfactual

thoughts to avoid negative affect (Neff, 2003; Roese & Epstude, 2017).

Certain types of counterfactuals (i.e., upward, self-focused, controllable) tend to lead to more functional outcomes than others (Roese, 1994; Roese et al., 2017). In line with this, I found evidence that only self-focused and behavior-focused counterfactuals were positively correlated with motivation. This fits with the concept of the content-specific pathway of counterfactual thinking - a pathway focused on utilizing the content of the counterfactual thought to increase relevant behavioral intentions and behavior (Epstude & Roese, 2008. However, controllable counterfactuals were not significantly correlated with motivation. One possible explanation for this is due to the types of events participants chose to write about. Controllable counterfactuals are found more after self-initiated (rather than other-initiated) events (Roese et al., 2017). Given that in Studies 1a, 1b, and 2, participants were allowed to write about any negative event, it may be the case that participants did not write about self-initiated negative events.

While counterfactual thinking can be beneficial, it can also be harmful (Markman & Miller, 2006; Roese & Epstude, 2017). In Study 3 I found marginal evidence that by writing about a negative event in a self-compassionate manner and then generating counterfactuals, participants performed marginally worse on a follow-up exam a month later compared to those who completed a control writing task about their event and then generated counterfactuals. However, those in the self-compassion conditions reported similar levels of exam satisfaction as those in the control condition. Previous work has shown that making counterfactual thinking salient can actually be dysfunctional for future performances, especially for individuals high in need for cognition (Petrocelli, Seta, & Seta, 2013). For individuals high in need for cognition, salient counterfactuals

were correlated with worse performance outcomes. Similarly, increased counterfactual generation (via prompting) has been shown to inhibit studying behaviors (Petrocelli, Seta, Seta, & Prince, 2012). The authors argue that individuals who generated counterfactuals were frequently inaccurate about the correct cause of the negative event. This suggests that another reason counterfactuals may not be functional is that they are not accurately reflecting the situation. For instance, if an individual rear ends another car at an intersection, the counterfactual "if only the person I hit had not stopped at the stop sign, then I wouldn't have gotten in an accident" does not accurately portray the most likely cause of a negative event.

In terms of counterfactual thinking more generally, this research builds upon a growing amount of evidence that suggests individual differences play an important role in counterfactual processes. For instance, research examining differences in procrastination and counterfactual thinking has found that procrastination was related to more mood reparative downward counterfactuals (Sirois, 2004). This is interesting, as I found that self-compassionate individuals did not generate more downward counterfactuals specifically, but overall fewer counterfactuals. This suggests another mood-repairing strategy might be at play, such as avoiding counterfactual generation. Additionally my findings also tie in with research on individual differences in how counterfactual thinking influences behavioral intentions. For example, research on failure mindsets (i.e., the belief that failure is inherently bad or good) has found that strong beliefs that failure is either enhancing or debilitating decrease behavioral intentions (Dickey et al., in prep). Given that enhancing beliefs about failure also affect

behavioral intentions, this adds evidence to suggest that certain feelings which are seen as positive (e.g., failure is okay) may decrease counterfactual functionality. Accordingly, both self-compassion or failure mindsets may prompt individuals to not worry about failure, and could lead to generating fewer functional counterfactuals.

This research also helps inform self-compassion literature. Most interestingly, I was unable to replicate previous findings in which self-compassion had been linked to increased motivation (Neff et al., 2005), re-engagement in goal pursuit (Neely et al., 2009), and increased performance-enhancing behaviors (Breines & Chen, 2012). One possible reason for this was due to the type of manipulation I used. My self-compassionate writing prompt was based on Breines & Chen's (2012) self-compassionate writing manipulation which was a series of three writing prompts. This short state manipulation may not be as effective a measure as lengthier self-compassion measures. For instance, the short writing task may be less powerful than a longer state-based measure. Additionally, I would expect a trait-based measure to be more stable than one that is state-based. Supporting this, the original research using this prompt found evidence that self-compassionate thinking was related to less shame - a finding which was not replicated in the current research. Another possible reason for the lack of replication may be due to the context of the negative event description. Breines & Chen (2012) asked individuals to describe a shameful situation, whereas I asked individuals to recall a more broadly-construed negative event. Given that shame is likely a smaller part of the negative scenario for the majority of participants, it may be the case where self-

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compassion has lower levels of shame to reduce to begin with. Future research should examine the different event contexts in which self-compassion may be effective.

Overall, my findings have possible broader implications. For instance, although I found a marginally significant performance decrease after thinking self-compassionately, individuals did not report lower levels of satisfaction with their marginally decreased performance. Generally, counterfactual thinking typically leads to a decrease in satisfaction (Medvec et al., 1995). This was a surprising finding that suggests self-compassion is serving as a protective mechanism. As one component of self-compassion is common humanity, it may be the case that highly self-compassionate individuals recognize their failures as part of life, and thus do not decrease feelings of satisfaction (Neff, 2003). For situations in which performance is not an issue, it may be a helpful strategy to think self-compassionately before generating counterfactuals.

Additionally, one can think of the role that self-compassion may play in the classroom. Given my Study 3 findings that self-compassion marginally decreased exam performance, self-compassion, like counterfactual thinking, may be a double-edged sword. While self-compassion seems to decrease negative emotions, it may also decrease counterfactual activation and generation. This may lead to downstream consequences such as counterfactual thinking not being activated when it may be useful (i.e., after failing an exam), or the generation of less functional (i.e., other-focused, trait-focused, uncontrollable) counterfactuals. However, other studies have suggested self-compassion increases motivation to improve, which theoretically should increase performance

(Neely et al., 2009; Neff et al., 2005). Future research should attempt to explain the discrepancies of these findings.

However, there are several limitations which warrant consideration. First, in Studies 2 and 3, I used a short self-compassion manipulation, but did not include a self-compassion manipulation check. It may be the case that my self-compassion manipulation was not a strong enough manipulation to influence the dependent measures. Future research should explore stronger self-compassion manipulations which might affect my measures of counterfactual generation, content, as well as measures of affect and motivation differently. Additionally, all individuals were prompted to generate counterfactuals. I did not include any conditions asking individuals to write freely (e.g., an unprompted counterfactual generation task; Gavanski & Wells, 1989). As mentioned above, high self-compassion might be linked to the avoidance of counterfactual thought all together. Thus, I have no evidence to speak to whether or not self-compassionate individuals naturally generate fewer counterfactuals or only during a prompted counterfactual task. This should be addressed in future studies, as it may provide evidence of larger differences in counterfactual generation.

In sum, the present research supports the concept that self-compassion affects counterfactual generation, content, and downstream consequences. Self-compassionate individuals demonstrated a pattern of generating both fewer overall counterfactuals, as well as fewer counterfactuals with functional components. In terms of downstream consequences, my self-compassion manipulation led to marginally worse grade outcomes for participants, but did not decrease feelings of grade satisfaction. These

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findings suggest a nuanced role for self-compassion in counterfactual processes and outcomes.

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APPENDIX A

MATERIALS FOR STUDY 1A

Self-Compassion Scale – Short Form (SCS-SF; Raes, Pommier, Neff, & Van Gucht, 2011)

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

Almost never				Almost always
1	2	3	4	5

_____1. When I fail at something important to me I become consumed by feelings of inadequacy.

_____2. I try to be understanding and patient towards those aspects of my personality I don't like.

_____3. When something painful happens I try to take a balanced view of the situation.

_____4. When I'm feeling down, I tend to feel like most other people are probably happier than I am.

_____5. I try to see my failings as part of the human condition.

_____6. When I'm going through a very hard time, I give myself the caring and tenderness I need.

_____7. When something upsets me I try to keep my emotions in balance.

_____8. When I fail at something that's important to me, I tend to feel alone in my failure

_____9. When I'm feeling down I tend to obsess and fixate on everything that's wrong.

_____10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.

_____11. I'm disapproving and judgmental about my own flaws and inadequacies.

_____12. I'm intolerant and impatient towards those aspects of my personality I don't like.

Negative Event Recall

Please think about a specific example of a recent social interaction between you and another individual that did not go as well as you expected or wanted it to. Take a moment to imagine yourself back in the middle of the situation. Try to place yourself back into that moment as if it had just occurred. In the space below, write about that experience including a description of the interaction, details about the situation, and how you felt when it did not go as planned or as you had hoped.

Please take a few minutes to write a few sentences describing this situation in the box below. When you are finished, press continue to move on to the next screen where you will be asked to answer a few questions about this experience.

After 60 seconds, the continue button appeared on the screen.

Counterfactual Thought Listing

After these sorts of experiences, people sometimes cannot help thinking 'what if…' or 'if only…' and imagining how things might have gone differently.

For example, what if something were different or if only something were changed?

In each box below, please identify something you can think of that, had it been different, would have changed the outcome of the negative event you just described and briefly state how (i.e., If___, then___.)

You should only list as many of these thoughts as you can naturally without repeating any.

When you are finished, please scroll to the bottom of the page and click continue.

In the box below, please list ONE 'if only' thought about how that event could have been different and how the outcome could have changed (i.e., "if only _____").

(Participants then saw 9 more text boxes, each with the following instructions)

If you have another 'if only' thought about how that event could have been different, please list it here. If not, scroll to the bottom of the page and press continue.

Questions of Blame, Responsibility, and Forgiveness

When thinking about the situation which you wrote about earlier, please answer the following questions:

Questions were presented with a 1 to 7 Likert scale below each question. Question anchor points differed between questions. For questions 1 and 2 regarding blame, the anchor points were 1 (not at all to blame) to 7 (completely to blame). For questions 3 and 4 regarding responsibility, the anchor points were 1 (not at all responsible) to 7 (completely responsible). For questions 5 and 6 regarding forgiveness, the anchor points were 1 (not at all) to 7 (completely).

1. How much do you blame yourself for the situation?
2. How much do you blame the other person?
3. How responsible do you feel you are for the situation occurring?
4. How responsible do you feel the other person is for the situation occurring?
5. How much do you forgive yourself for the situation occurring?
6. How much do you forgive the other person for the situation occurring?

Counterfactual Coding

Focus again on this statement in which you described an alternative scenario for an event you have experienced.

<Counterfactual statement>

With this statement in mind, please answer the following questions.

1. Is the alternative described in this thought better or worse than the actual outcome?
   - Better
   - Worse

2. Does your "if only" thought focus on something within you (for example, your abilities, skills, or an action you could have taken) as opposed to something external (for example, another person or the situation)?

   - Mostly me
   - Mostly something external

3. [If previously answered "mostly me"] Does your "if only thought focus on a behavior/action that you could have taken (or not taken), or a trait/characteristic you have?

   - Behavior/Action
   - Trait/Characteristic

4. Does your "if only" thought focus on something within you (for example, your abilities, skills, or an action you could have taken) as opposed to something external (for example, another person or the situation)?

   - Can be controlled
   - Can't be controlled

Demographic Information

1. Age _____

2. Gender (Select One)
> Male
> Female

3. Ethnicity (Select One)
> Hispanic
> Not Hispanic

4. Your Race (Check all that apply)
> African American
> American Indian or Alaska Native
> Asian
> Native Hawaiian or Other Pacific Islander
> White
> Other (Please Specify)

5. Your First Language
> English
> Other (Please Specify)

6. *If other language is chosen, participants are asked:*
> "Are you fluent In English?"
> Yes
> No
> I don't know/I am not sure

7. If yes or I don't know/I am not sure are selected, participants are asked:
> "At what age did you become fluent in English?" _____

Self-Compassion Scale – Short Form (SCS-SF; Raes, Pommier, Neff, & Van Gucht, 2011)

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

Almost never				Almost always
1	2	3	4	5

_____1. When I fail at something important to me I become consumed by feelings of inadequacy.

_____2. I try to be understanding and patient towards those aspects of my personality I don't like.

_____3. When something painful happens I try to take a balanced view of the situation.

_____4. When I'm feeling down, I tend to feel like most other people are probably happier than I am.

_____5. I try to see my failings as part of the human condition.

_____6. When I'm going through a very hard time, I give myself the caring and tenderness I need.

_____7. When something upsets me I try to keep my emotions in balance.

_____8. When I fail at something that's important to me, I tend to feel alone in my failure

_____9. When I'm feeling down I tend to obsess and fixate on everything that's wrong.

_____10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.

_____11. I'm disapproving and judgmental about my own flaws and inadequacies.

_____12. I'm intolerant and impatient towards those aspects of my personality I don't like.

Negative Event Recall

Please think about a specific example of a recent social interaction between you and another individual that did not go as well as you expected or wanted it to. Take a moment to imagine yourself back in the middle of the situation. Try to place yourself back into that moment as if it had just occurred. In the space below, write about that experience including a description of the interaction, details about the situation, and how you felt when it did not go as planned or as you had hoped.

Please take a few minutes to write a few sentences describing this situation in the box below. When you are finished, press continue to move on to the next screen where you will be asked to answer a few questions about this experience.

After 60 seconds, the continue button appeared on the screen.

Negative Event Recall Questions

Think back to the negative event you just described and answer the following questions:

1. When did this event take place? (in days, months, or years)
2. How long ago was the event? (Sliding scale from 0 – very recently to 100 – a very long time ago)
3. How much control did you feel you had in the event? (1 – No control at all to 7 – A lot of control)

Counterfactual Thought Listing

After these sorts of experiences, people sometimes cannot help thinking 'what if…' or 'if only…' and imagining how things might have gone differently.

For example, what if something were different or if only something were changed?

In each box below, please identify something you can think of that, had it been different, would have changed the outcome of the negative event you just described and briefly state how (i.e., If___, then___.)

You should only list as many of these thoughts as you can naturally without repeating any.

When you are finished, please scroll to the bottom of the page and click continue.

In the box below, please list ONE 'if only' thought about how that event could have been different and how the outcome could have changed (i.e., "if only _____").

(Participants then saw 9 more text boxes, each with the following instructions)

If you have another 'if only' thought about how that event could have been different, please list it here. If not, scroll to the bottom of the page and press continue.

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Motivation Questions

Think back to the negative event you described earlier. With that in mind, please answer the following questions:

(Questions will be presented with a 1 (strongly disagree) to 7 (strongly agree) likert scale below each question.)

1. I am committed to not repeating this behavior (or anything like it) again
2. I will do my best to never do something like this again
3. I wish I could go back and erase what happened
4. Realistically, it is likely that something like this will happen again in the future (reverse)
5. I feel capable of making positive changes to avoid this negative situation in the future
6. Thinking about this negative situation motivates me to improve similar situations in the future

Counterfactual Potency Questions

Think back to the "if only" thoughts you wrote about. As a reminder your first [second, third, etc.] thought was: <counterfactual statement>

How confident are you that the first part of this thought (i.e., the "if" part) might actually have occurred?

Not at all confident								Extremely Confident
1	2	3	4	5	6	7	8	9

Now, also think about the "then" part of this thought. Assuming that what you listed in the "if" part actually occurred, how confident are you that this would have changed the outcome?

Not at all   Extremely

confident   Confident

   1   2   3   4   5   6   7   8   9

Counterfactual Coding
Focus again on this statement in which you described an alternative scenario for an event you have experienced.

<Counterfactual statement>

With this statement in mind, please answer the following questions.

2. Is the alternative described in this thought better or worse than the actual outcome?
   - Better
   - Worse

2. Does your "if only" thought focus on something within you (for example, your abilities, skills, or an action you could have taken) as opposed to something external (for example, another person or the situation)?

   - Mostly me
   - Mostly something external

3. [If previously answered "mostly me"] Does your "if only thought focus on a behavior/action that you could have taken (or not taken), or a trait/characteristic you have?

   - Behavior/Action
   - Trait/Characteristic

4. Does your "if only" thought focus on something within you (for example, your abilities, skills, or an action you could have taken) as opposed to something external (for example, another person or the situation)?

- Can be controlled
- Can't be controlled

Demographic Information

1. Age _____

2. Gender (Select One)
      Male
      Female

3. Ethnicity (Select One)
      Hispanic
      Not Hispanic

4. Your Race (Check all that apply)
      African American
      American Indian or Alaska Native
      Asian
      Native Hawaiian or Other Pacific Islander
      White
      Other (Please Specify)

5. Your First Language
      English
      Other (Please Specify)

6. *If other language is chosen, participants are asked:*
      "Are you fluent In English?"
   Yes
   No
   I don't know/I am not sure

7. If yes or I don't know/I am not sure are selected, participants are asked:
      "At what age did you become fluent in English?" _____

APPENDIX C

MATERIALS FOR STUDY 2

Negative Event Recall

Please think about a specific example of a recent social interaction between you and another individual that was especially negative or disappointing. Take a moment to imagine yourself back in the middle of the situation. That is, think about being right in the middle of this interaction again, like it is happening right now.

In the space below, write about that experience including a description of the interaction, details about the situation, and how you were feeling during the situation. Please take a few minutes to write. When you are finished, press continue to move on to the next screen where you will be asked to answer a few questions about this experience.

After 60 seconds, the continue button appeared on the screen.

Negative Event Recall Questions

Think back to the negative event you just described and answer the following questions:

1. When did this event take place? (in days, months, or years)
2. How long ago was the event? (Sliding scale from 0 – very recently to 100 – a very long time ago)
3. How much control did you feel you had in the event? (1 – No control at all to 7 – A lot of control)

Self-Compassion Manipulation (modified from Breines & Chen, 2012)

Bearing in mind the experience you just described, please provide a written response to each of the following three instructions. It is important for you to really make an effort with your responses and to write down everything that is relevant.

Take a moment to list as many ways as you can think of in which other people also experience similar events to the one you just described.
(After 60 seconds, the continue button appeared on the screen)

Take a moment to write a paragraph expressing understanding, kindness, and concern to yourself the way you might express concern to a friend who had undergone the experience.
(After 60 seconds, the continue button appeared on the screen)

Take a moment to describe your feelings about the experience in an objective and unemotional fashion.

(After 60 seconds, the continue button appeared on the screen)

Control Task

Now we would like you to continue to write about the event. Really explore the details you had about the situation and the interaction. Explore your thoughts and feelings you had at the time.

(After 60 seconds, the continue button appeared on the screen)

Counterfactual Thought Listing

After these sorts of experiences, people sometimes cannot help thinking 'what if…' or 'if only…' and imagining how things might have gone differently.

For example, what if something were different or if only something were changed?

In each box below, please identify something you can think of that, had it been different, would have changed the outcome of the negative event you just described and briefly state how (i.e., If___, then___.)

You should only list as many of these thoughts as you can naturally without repeating any.

When you are finished, please scroll to the bottom of the page and click continue.

In the box below, please list ONE 'if only' thought about how that event could have been different and how the outcome could have changed (i.e., "if only _____").

(Participants then saw 9 more text boxes, each with the following instructions)

If you have another 'if only' thought about how that event could have been different, please list it here. If not, scroll to the bottom of the page and press continue.

Discrete Emotions Questionnaire (DEQ; Harmon-Jones et al., 2016)

Please indicate your response using the scale provided. While writing your "if only" thoughts, to what extent did you experience these emotions?

1	2	3	4	5	6	7
Not at all	Slightly	Somewhat	Moderately	Quite a bit	Very much	An extreme amount

Anger (Ag)	Scared (F)
Wanting (Dr)	Mad (Ag)
Dread (Ax)	Satisfaction (H)
Sad (S)	Sickened (Dg)
Easygoing (R)	Empty (S)
Grossed out (Dg)	Craving (Dr)
Happy (H)	Panic (F)
Terror (F)	Longing (Dr)
Rage (Ag)	Calm (R)
Grief (S)	Fear (F)
Nausea (Dg)	Relaxation (R)
Anxiety (Ax)	Revulsion (Dg)
Chilled out (R)	Worry (Ax)
Desire (Dr)	Enjoyment (H)
Nervous (Ax)	Pissed off (Ag)
Lonely (S)	Liking (H)

Ag = Anger items, Dg = Disgust items, F = Fear items, Ax = Anxiety items, S = Sadness items, Dr = Desire items, R = Relaxation items, H = Happiness items.

State Shame and Guilt Measure
Please answer the following questions regarding how you feel **RIGHT NOW**

Not feeling   Feeling   Feeling
this way   this way   this way
at all   somewhat   very strongly

1 --------- 2 ----------- 3 ---------- 4 ---------- 5

1. I want to sink into the floor and disappear.
2. I feel remorse, regret.
3. I feel small.
4. I feel tension about something I have done
5. I feel like I am a bad person.
6. I cannot stop thinking about something bad I have done.
7. I feel humiliated, disgraced.
8. I feel like apologizing, confessing.
9. I feel worthless, powerless.
10. I feel bad about something I have done.

Scoring Each scale consists of 5 items:
Shame - Items 1, 3, 5, 7, 9
Guilt - Items 2, 4, 6, 8, 10
All items are scored in a positive direction

Brief State Humility Scale
Please answer the following questions regarding how you feel **RIGHT NOW**

1 (strongly disagree) – 7 (strongly agree)
1. I feel that, overall, I am no better or worse than the average person.
2. I feel that I have both many strengths and flaws.
3. I feel that I do not deserve more respect than other people.
4. To be completely honest, I feel that I am better than most people.
5. I feel that I deserve more respect than everyone else.
6. I feel that I do not have very many weaknesses.

Motivation Questions

Think back to the negative event you described earlier. With that in mind, please answer the

following questions:

(Questions will be presented with a 1 (strongly disagree) to 7 (strongly agree) likert scale below each question.)

1. I am committed to not repeating this behavior (or anything like it) again
2. I will do my best to never do something like this again
3. I wish I could go back and erase what happened
4. Realistically, it is likely that something like this will happen again in the future (reverse)
5. I feel capable of making positive changes to avoid this negative situation in the future
6. Thinking about this negative situation motivates me to improve similar situations in the future

Negative Event Recall Questions

Think back to the negative event you just described and answer the following questions:

1. How long ago was the event? (Sliding scale from 0 – very recently to 100 – a very long time ago)

2. How much control did you feel you had in the event? (1 – No control at all to 7 – A lot of control)

Counterfactual Coding

Focus again on this statement in which you described an alternative scenario for an event you have experienced.

<Counterfactual statement>

With this statement in mind, please answer the following questions.

1. Is the alternative described in this thought better or worse than the actual outcome?
- Better
- Worse

2. Does your "if only" thought focus on something within you (for example, your abilities, skills, or an action you could have taken) as opposed to something external (for example, another person or the situation)?
- Mostly me
- Mostly something external

3. [If previously answered "mostly me"] Does your "if only thought focus on a behavior/action that you could have taken (or not taken), or a trait/characteristic you have?

- Behavior/Action
- Trait/Characteristic

    4. Does your "if only" thought focus on something within you (for example, your abilities, skills, or an action you could have taken) as opposed to something external (for example, another person or the situation)?

- Can be controlled
- Can't be controlled

Demographic Information

1. Age _____

2. Gender (Select One)
   - Male
   - Female

3. Ethnicity (Select One)
   - Hispanic
   - Not Hispanic

4. Your Race (Check all that apply)
   - African American
   - American Indian or Alaska Native
   - Asian
   - Native Hawaiian or Other Pacific Islander
   - White
   - Other (Please Specify)

5. Your First Language
   - English
   - Other (Please Specify)

6. *If other language is chosen, participants are asked:*
   "Are you fluent In English?"
   - Yes
   - No
   - I don't know/I am not sure

7. If yes or I don't know/I am not sure are selected, participants are asked:
   "At what age did you become fluent in English?" _____

APPENDIX D

MATERIALS FOR STUDY 3

Study 3 Part 1 Measures

Exam Recall

In the box below, please take a few minutes to write about your experience taking your first PSYC 107 exam. Take a moment to imagine yourself back in the middle of the situation. Try to place yourself back in the moment as if it had just occurred.

In the space below, write about your experience taking the exam including details about the situation and how you were feeling during the situation. Please take a few minutes to write. When you are finished, press continue to move on to the next screen where you will be asked to answer a few questions about this experience.

(After 60 seconds, the continue button appeared on the screen)

Exam 1 Questions

1. What was your score on your first exam? _____
2. Was that score in points or percentage? (forced choice: points or percentage)
3. How satisfied were you with your first exam score? (1 – very unsatisfied to 7 – very satisfied)

Self-Compassion Manipulation (modified from Breines & Chen, 2012)

Focusing on the exam performance you just described, please provide a written response to each of the following three instructions. It is important for you to really make an effort with your responses and to write down everything that is relevant.

Take a moment to list as many ways as you can think of in which other people also experience similar events to the one you just described.

(After 60 seconds, the continue button appeared on the screen)

Take a moment to write a paragraph expressing understanding, kindness, and concern to yourself the way you might express concern to a friend who had undergone the same exam experience.

(After 60 seconds, the continue button appeared on the screen)

Take a moment to describe your feelings about this exam experience in an objective and unemotional fashion.

(After 60 seconds, the continue button appeared on the screen)

Control Task

Now we would like you to continue to write about the exam. Focusing on the exam performance you just described, please take a few minutes to write a few sentences describing how you felt about the exam. Really explore the details you had about it, and explore your thoughts and feelings you had at the time.

(After 60 seconds, the continue button appeared on the screen)

Functional Counterfactual Generation

After taking exams (like the one you just described), people sometimes cannot help thinking "what if…" or "if only" and imagine how things might have been better.

For example, what if I had done something differently or if only I had changed something, then the outcome would have been better?

In the boxes below please **identify behaviors that, had you done them differently, would have improved your performance on the first exam and briefly describe how** (i.e., "if only I _____, then _____").

Please write one "if only" thought per box, for a total of 3 thoughts.

In the box below, please list **ONE** 'if only' thought about how you could have improved your exam performance and how the outcome would have been better (i.e., "if only I _____").

In the box below, please list **A SECOND** 'if only' thought about how you could have improved your exam performance and how the outcome would have been better (i.e., "if only I _____").

In the box below, please list **A THIRD** 'if only' thought about how you could have improved your exam performance and how the outcome would have been better (i.e., "if only I _____").

Discrete Emotions Questionnaire (DEQ; Harmon-Jones et al., 2016)

Please indicate your response using the scale provided. While writing your "if only" thoughts, to what extent did you experience these emotions?

1	2	3	4	5	6	7
Not at all	Slightly	Somewhat	Moderately	Quite a bit	Very much	An extreme amount

Anger (Ag)   Scared (F)
Wanting (Dr)   Mad (Ag)
Dread (Ax)   Satisfaction (H)
Sad (S)   Sickened (Dg)
Easygoing (R)   Empty (S)
Grossed out (Dg)   Craving (Dr)
Happy (H)   Panic (F)
Terror (F)   Longing (Dr)
Rage (Ag)   Calm (R)
Grief (S)   Fear (F)
Nausea (Dg)   Relaxation (R)
Anxiety (Ax)   Revulsion (Dg)
Chilled out (R)   Worry (Ax)
Desire (Dr)   Enjoyment (H)
Nervous (Ax)   Pissed off (Ag)
Lonely (S)   Liking (H)

Ag = Anger items, Dg = Disgust items, F = Fear items, Ax = Anxiety items, S = Sadness items, Dr = Desire items, R = Relaxation items, H = Happiness items.

State Shame and Guilt Measure

Please answer the following questions regarding how you feel **RIGHT NOW**

Not feeling	Feeling	Feeling
this way	this way	this way
at all	somewhat	very strongly

1 --------- 2 ----------- 3 ---------- 4 ---------- 5

1. I want to sink into the floor and disappear.
2. I feel remorse, regret.
3. I feel small.
4. I feel tension about something I have done
5. I feel like I am a bad person.
6. I cannot stop thinking about something bad I have done.
7. I feel humiliated, disgraced.
8. I feel like apologizing, confessing.
9. I feel worthless, powerless.
10. I feel bad about something I have done.

Scoring each scale consists of 5 items:
Shame - Items 1, 3, 5, 7, 9
Guilt - Items 2, 4, 6, 8, 10
All items are scored in a positive direction

Brief State Humility Scale

Please answer the following questions regarding how you feel **RIGHT NOW**
1 (strongly disagree) – 7 (strongly agree)

1. I feel that, overall, I am no better or worse than the average person.
2. I feel that I have both many strengths and flaws.
3. I feel that I do not deserve more respect than other people.
4. To be completely honest, I feel that I am better than most people.
5. I feel that I deserve more respect than everyone else.
6. I feel that I do not have very many weaknesses.

Counterfactual Intentions Questions

Think back to your first "if only" thought you wrote about.

\<Counterfactual statement\>

With this statement in mind, please answer the following question.

(Likert scale 1 (not at all) to 7 (extremely likely))

How likely are you to engage in this behavior before your second exam?

Academic Behavioral Intentions

For each of the following behaviors, please indicate how likely you are to engage in each activity **BEFORE THE SECOND EXAM.** (Likert scale from 1 (not at all) to 7 (extremely likely)).

- Read the textbook
- Make flash cards
- Join or make a study group with people from class
- Go to office hours
- Ask questions during class
- Go to tutoring sessions
- Email the instructor or TA with questions
- Review the previous exam questions
- Ask the instructor about what questions I missed

Demographic Information

Note that questions 8-11 are only asked in Study 3

1. Age _____

2. Gender (Select One)
   - Male
   - Female

3. Ethnicity (Select One)
   - Hispanic
   - Not Hispanic

4. Your Race (Check all that apply)
   - African American
   - American Indian or Alaska Native
   - Asian
   - Native Hawaiian or Other Pacific Islander
   - White
   - Other (Please Specify)

5. Your First Language
   - English
   - Other (Please Specify)

6. *If other language is chosen, participants are asked:*
   "Are you fluent In English?"
   - Yes
   - No
   - I don't know/I am not sure

7. If yes or I don't know/I am not sure are selected, participants are asked:
   "At what age did you become fluent in English?" _____

8. How would you describe your family's social class?
   - Working class
   - Lower middle class
   - Middle class
   - Upper middle class
   - Upper class

9. What is the highest level of education your <u>primary parent or guardian / caregiver</u> has attained?
   - Less than high school graduate
   - High school graduate

Some college / vocational school
Associate's (2-year college) degree
Bachelor's (4-year college) degree
Some graduate school
Master's degree
Law degree
Medical degree
Doctoral degree

10. What is the highest level of education your <u>secondary parent or guardian / caregiver has attained?</u>
      Less than high school graduate
      High school graduate
      Some college / vocational school
      Associate's (2-year college) degree
      Bachelor's (4-year college) degree
      Some graduate school
      Master's degree
      Law degree
      Medical degree
      Doctoral degree

11. If you have siblings, are you the first among your siblings to attend college?
      Yes, I am the first of my siblings to attend college
      No, I have at least one sibling who has attended college
      I do not have siblings
      Other (please specify

12. If any answer other than "yes" is chosen for question 10, participants are asked:
      "How many of your siblings have attended college?" _____

Study 3 Part 2 Measures

Exam 2 Questions

1. What was your score on your second exam? _____
2. Is that score in points or percentage? (forced choice: points or percentage)
3. How satisfied were you with your second exam score? (1 – very unsatisfied to 7 – very satisfied)

Counterfactual Engagement Questions

After your first exam, we asked you to write three "if only" thoughts about behaviors you could have done to improve your performance on the second exam. Please take a moment to read over your "if only" thoughts and answer the following questions:

<first [second, third] counterfactual thought>

(Likert scale 1 (None of the time) to 7 (Most of the time) with midpoint of 4 (Some of the time)

1. How often did you engage in this behavior in preparation for your second PSYC 107 exam?

Academic Behavior Engagement Questions

In this part of the study, we are interested in the kinds of behaviors that you may or may not have engaged in as preparation for your second exam. For each of the following behaviors, please indicate how often you engaged in each activity **IN PREPARATION FOR THE SECOND EXAM.** Likert scale 1 (None of the time) to 7 (Most of the time) with midpoint of 4 (Some of the time)

- Read the textbook
- Made flash cards
- Joined or made a study group with people from class
- Went to office hours
- Asked questions during class
- Went to tutoring sessions
- Email the instructor or TA with questions
- Reviewed the previous exam questions
- Asked the instructor about what questions I missed

Counterfactual Future Intentions

Again, please take a moment to read over your "if only" thoughts and answer the following questions

<first [second, third] counterfactual thought>

1. How likely are you to engage in this behavior in preparation for your **third** PSYC 107 exam?

(Likert scale 1 (Not at all likely) to 7 (Extremely likely))

Academic Behavior Engagement Questions

For each of the following behaviors, please indicate to what extent you plan to engage in each activity **IN PREPARATION FOR THE THIRD EXAM.**

(Likert scale 1 (Not at all likely) to 7 (Extremely likely))

- Read the textbook
- Made flash cards
- Joined or made a study group with people from class
- Went to office hours
- Asked questions during class
- Went to tutoring sessions
- Email the instructor or TA with questions
- Reviewed the previous exam questions
- Asked the instructor about what questions I missed

Demographic Information

Note that questions 8-11 are only asked in Study 3

1. Age _____

2. Gender (Select One)
    Male
    Female

3. Ethnicity (Select One)
    Hispanic
    Not Hispanic

4. Your Race (Check all that apply)
    African American
    American Indian or Alaska Native
    Asian
    Native Hawaiian or Other Pacific Islander
    White
    Other (Please Specify)

5. Your First Language
    English
    Other (Please Specify)

6. *If other language is chosen, participants are asked:*
    "Are you fluent In English?"
    Yes
    No
    I don't know/I am not sure

7. If yes or I don't know/I am not sure are selected, participants are asked:
   "At what age did you become fluent in English?" _____

8. How would you describe your family's social class?
   Working class
   Lower middle class
   Middle class
   Upper middle class
   Upper class

9. What is the highest level of education your <u>primary parent or guardian / caregiver has attained?</u>
   Less than high school graduate
   High school graduate
   Some college / vocational school
   Associate's (2-year college) degree
   Bachelor's (4-year college) degree
   Some graduate school
   Master's degree
   Law degree
   Medical degree
   Doctoral degree

10. What is the highest level of education your <u>secondary parent or guardian / caregiver has attained?</u>
    Less than high school graduate
    High school graduate
    Some college / vocational school
    Associate's (2-year college) degree
    Bachelor's (4-year college) degree
    Some graduate school
    Master's degree
    Law degree
    Medical degree
    Doctoral degree

11. If you have siblings, are you the first among your siblings to attend college?
    Yes, I am the first of my siblings to attend college
    No, I have at least one sibling who has attended college
    I do not have siblings
    Other (please specify

12. If any answer other than "yes" is chosen for question 10, participants are asked:
    "How many of your siblings have attended college?" _____

Table 1 Correlation Coefficients for Study 1a

	1	2	3	4	5	6	7	8	9	10	11
1. Self-Compassion	-										
2. CFs Generated	-.17**	-									
3. Upward CFs	-.18**	.92**	-								
4. Downward CFs	-.02	.43**	.05	-							
5. Self-Focused CFs	-.27**	.76**	.75**	.20**	-						
6. External CFs	.07	.57**	.46**	.40**	-.11	-					
7. Controllable CFs	-.19**	.86**	.91**	0.09	.77**	.33**	-				
8. Uncontrollable CFs	-.04	.57**	.34**	.69**	.23**	.58**	.06	-			
9. Self-Blame	-.33**	.15*	.16*	0.01	.31**	-.17**	.13*	.07	-		
10. Other Blame	.07	.08	.06	0.06	-.08	.22**	.09	.01	-.39**	-	
11. Self-Responsibility	-.25**	.10	.10	0.02	.28**	-.21**	.11	.01	.75**	-.41**	-
12. Other Responsibility	.02	-.03	-.02	-0.03	-.17**	.16*	.01	-.08	-.39**	.70**	-.37**
13. Self-Forgiveness	.38**	-.17**	-.15*	-0.11	-.29**	.10	-.18**	-.05	-.43**	.06	-.32**
14. Other Forgiveness	.06	-.13*	-.09	-.13*	-.09	-.08	-.11	-.07	.22**	-.42**	.24**

Table 1 Continued

	12	13	14
1. Self-Compassion			
2. CFs Generated			
3. Upward CFs			
4. Downward CFs			
5. Self-Focused CFs			
6. External CFs			
7. Controllable CFs			
8. Uncontrollable CFs			
9. Self-Blame			
10. Other Blame			
11. Self-Responsibility			
12. Other Responsibility	-		
13. Self-Forgiveness	.13	**-**	
14. Other Forgiveness	**-.30****	**28****	**-**

Table 2 Correlation coefficients for Study 1b

	1	2	3	4	5	6	7	8	9	10	11
1. Self-Compassion	-										
2. Motivation	-.03	-									
3. CFs Generated	-.14	.08	-								
4. Upward CFs	**-.15***	.09	**.96****	-							
5. Downward CFs	.03	-.05	.10	**-.19****	-						
6. Self-Focused CFs	-.12	**.15***	**.64****	**.60****	.09	-					
7. External CFs	-.06	-.04	**.64****	**.62****	.03	**-.19****	-				
8. Behavior-Focused	-.10	**.15***	**.48****	**.44****	.10	**.82****	**-.21****	-			
9. Trait-Focused	-.06	.04	**.43****	**.42****	.01	**.53****	**.01**	-.04	-		
10. Controllable CFs	**-.13***	.09	**.81****	**.79****	.03	**.57****	**.47****	**.49****	**.28****	-	
11. Uncontrollable CFs	-.05	.01	**.51****	**.47****	.12	**.25****	**.40****	.10	**.33****	-.09	-
12. CF Potency	.09	**.27****	-.12	-.08	-.12	.06	**-.21****	.07	.00	-.08	-.07
13. CF Potency "If"	.05	**.23****	**-.13***	-.11	-.07	**.14***	**-.30****	**.14***	.03	-.11	-.06
14. CF Potency "Then"	.03	**.18****	-.03	.03	**-.22****	-.04	.00	-.04	.00	.01	-.06
15. Objective Time	**.13***	**.14***	-.03	-.03	.00	.01	-.04	-.07	.10	.00	-.06
16. Subjective Time	**.20****	.08	-.03	-.05	.07	-.03	-.02	-.08	.08	-.02	-.02
17. Event Control	**.17****	-.09	**-.15***	**-.16***	.06	-.04	**-.15***	-.02	-.05	-.07	**-.15***

Table 2 Continued

	12	13	14	15	16	17
1. Self-Compassion						
2. Motivation						
3. CFs Generated						
4. Upward CFs						
5. Downward CFs						
6. Self-Focused CFs						
7. External CFs						
8. Behavior-Focused						
9. Trait-Focused						
10. Controllable CFs						
11. Uncontrollable CFs						
12. CF Potency	-					
13. CF Potency "If"	**.83****	-				
14. CF Potency "Then"	**.61****	**.17****	-			
15. Objective Time	.02	.02	.00			
16. Subjective Time	.00	.03	-.04	**.66****	-	
17. Event Control	-.03	-.01	-.07	-.07	-.02	-

Table 3. Study 2 Independent Samples T-Tests

Variable	Self-Compassion		Control	
	M	*SD*	*M*	*SD*
1. Motivation	4.28	1.20	4.40	1.21
2. CFs Generated	2.68	1.83	3.01	1.93
3. Upward CFs	2.39	1.59	2.69	1.91
4. Downward CFs	0.29	0.78	0.32	0.70
5. Self-Focused CFs	1.30	1.23	1.52	1.31
6. External CFs	1.38	1.36	1.50	1.59
7. Behavior-Focused CFs	1.06	1.04	1.25	1.21
8. Trait-Focused CFs	0.24	0.58	0.26	0.53
9. Controllable CFs	2.14	1.54	2.51	1.76
10. Uncontrollable CFs	0.54	1.01	0.50	0.94
11. Mean Shame	1.82	0.90	1.85	0.89
12. Mean Guilt	1.93	1.01	2.08	1.00
13. Mean Humility	3.76	0.60	3.77	0.58
14. Mean Negative Affect	1.95	1.00	1.94	0.83
15. Mean Positive Affect	2.90	0.95	2.78	0.98
16. Mean Anger	2.03	1.35	2.17	1.40
17. Mean Disgust	1.36	0.81	1.29	0.56
18. Mean Fear	1.55	1.14	1.48	0.88
19. Mean Anxiety	2.54	1.50	2.56	1.36
20. Mean Sadness	2.24	1.38	2.18	1.20
21. Mean Desire	2.33	1.30	2.25	1.28
22. Mean Relaxation	3.58	1.49	3.33	1.43
23. Mean Happiness	2.80	1.29	2.76	1.33

Table 3 Continued

Variable	$t(406)$	p	Cohen's d
1. Motivation	1.20	4.40	1.21
2. CFs Generated	1.83	3.01	1.93
3. Upward CFs	1.59	2.69	1.91
4. Downward CFs	0.78	0.32	0.70
5. Self-Focused CFs	1.23	1.52	1.31
6. External CFs	1.36	1.50	1.59
7. Behavior-Focused CFs	1.04	1.25	1.21
8. Trait-Focused CFs	0.58	0.26	0.53
9. Controllable CFs	1.54	2.51	1.76
10. Uncontrollable CFs	1.01	0.50	0.94
11. Mean Shame	0.90	1.85	0.89
12. Mean Guilt	1.01	2.08	1.00
13. Mean Humility	0.60	3.77	0.58
14. Mean Negative Affect	1.00	1.94	0.83
15. Mean Positive Affect	0.95	2.78	0.98
16. Mean Anger	1.35	2.17	1.40
17. Mean Disgust	0.81	1.29	0.56
18. Mean Fear	1.14	1.48	0.88
19. Mean Anxiety	1.50	2.56	1.36
20. Mean Sadness	1.38	2.18	1.20
21. Mean Desire	1.30	2.25	1.28
22. Mean Relaxation	1.49	3.33	1.43
23. Mean Happiness	1.29	2.76	1.33

Table 4. Correlation Coefficients for Study 2.

	1	2	3	4	5	6	7	8
1. Motivation	-							
2. CFs Generated	.08	-						
3. Upward CFs	.09	**.92****	-					
4. Downward CFs	-.02	**.36****	-.04	-				
5. Self-Focused CFs	**.17****	**.62****	**.53****	**.33****	-			
6. External CFs	-.04	**.74****	**.72****	**.17****	-.07	-		
7. Behavior-Focused	**.15****	**.53****	**.46****	**.25****	**.90****	**-.10***	-	
8. Trait-Focused	.08	**.34****	**.27****	**.25****	**.46****	.04	.03	-
9. Controllable CFs	.09	**.86****	**.79****	**.30****	**.60****	**.57****	**.56****	**.24****
10. Uncontrollable CFs	.00	**.47****	**.43****	**.17****	**.18****	**.45****	.08	**.25****
11. Mean Shame	**.14****	**.17****	**.16****	.06	**.21****	.04	**.20****	.08
12. Mean Guilt	**.30****	**.19****	**.17****	.08	**.30****	-.02	**.28****	**.13****
13. Mean Humility	.07	-.01	-.03	.05	.02	-.03	.01	.02
14. Mean Negative Affect	**.11***	**.20****	**.16****	**.13****	**.23****	.06	**.18****	**.15****
15. Mean Positive Affect	.03	-.04	-.03	-.01	-.02	-.03	-.06	.08

Table 4 Continued.

	9	10	11	12	13	14	15
1. Motivation							
2. CFs Generated							
3. Upward CFs							
4. Downward CFs							
5. Self-Focused CFs							
6. External CFs							
7. Behavior-Focused							
8. Trait-Focused							
9. Controllable CFs	-						
10. Uncontrollable CFs	-.05	-					
11. Mean Shame	**.16****	.06	-				
12. Mean Guilt	**.16****	.10	**.59****	-			
13. Mean Humility	.06	**-.12***	-.07	.09	-		
14. Mean Negative Affect	**.17****	**.10***	**.70****	**.49****	-.03	-	
15. Mean Positive Affect	-.04	-.01	**-.31****	-.08	**.12***	**-.17****	-

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Table 5. Regression analysis summary for subjective time 1, condition, and the interaction predicting various variables

Predictor variable & DVs	B	95% CI	β	t	p	R²
Subjective Time 2						.888
Subjective Time 1	0.91	[0.86, 0.93]	0.92	40.506	.000	
Condition	-1.00	[-2.71, 0.71]	-0.03	-1.152	.250	
Interaction	0.06	[-0.01, 0.12]	0.05	1.742	.082	
Motivation						.023
Subjective Time 1	0.01	[0.01, 0.02]	0.16	2.441	.015	
Condition	-0.05	[-0.35, 0.25]	-0.02	-0.326	.745	
Interaction	0.00	[-0.01, 0.01]	-0.04	-0.498	.619	
Shame						.002
Subjective Time 1	0.04	[-0.19, 0.26]	0.02	0.304	.761	
Condition	0.00	[-0.01, 0.01]	0.06	0.943	.346	
Interaction	0.00	[-0.01, 0.01]	-0.06	-0.768	.443	
Guilt						.008
Subjective Time 1	-0.08	[-0.33, 0.18]	-0.04	-0.601	.548	
Condition	0.00	[-0.01, 0.01]	0.06	0.896	.371	
Interaction	0.00	[-0.01, 0.01]	-0.06	-0.825	.410	
Humility						.000
Subjective Time 1	-0.01	[-0.16, 0.14]	-0.01	-0.119	.905	
Condition	0.00	[-0.01, 0.02]	-0.01	-0.131	.896	
Interaction	0.00	[-0.01, 0.01]	0.00	-0.054	.957	
Negative Affect						.004
Subjective Time 1	0.08	[-0.15, 0.32]	0.05	0.711	.478	
Condition	0.00	[-0.01, 0.01]	0.02	0.247	.805	
Interaction	0.00	[-0.01, 0.00]	-0.08	-1.050	.294	
Positive Affect						.004
Subjective Time 1	0.12	[-0.13, 0.36]	0.06	0.926	.355	
Condition	0.00	[-0.01, 0.01]	0.00	-0.065	.948	
Interaction	0.00	[-0.01, 0.01]	0.01	0.151	.880	

Table 6. Regression analysis summary for objective time 1, condition, and the interaction predicting various variables

Predictor variable & DVs	B	95% CI	β	t	p	R²
Motivation						.036
Objective Time 1	0.16	[-0.25, 0.57]	0.07	0.779	.437	
Condition	0.34	[0.15, 0.53]	0.24	3.521	.000	
Interaction	-0.20	[-0.48, 0.07]	-0.14	-1.467	.143	
Shame						.008
Objective Time 1	0.19	[-0.11, 0.5]	0.11	1.237	.217	
Condition	0.07	[-0.07, 0.21]	0.07	0.951	.342	
Interaction	-0.18	[-0.39, 0.03]	-0.16	-1.714	.087	
Guilt						.018
Objective Time 1	0.13	[-0.21, 0.48]	0.07	0.753	.452	
Condition	0.05	[-0.12, 0.21]	0.04	0.556	.578	
Interaction	-0.24	[-0.47, -0.01]	-0.19	-2.014	.045	
Humility						.004
Objective Time 1	0.09	[-0.11, 0.29]	0.08	0.892	.373	
Condition	0.04	[-0.05, 0.14]	0.06	0.92	.358	
Interaction	-0.08	[-0.22, 0.05]	-0.12	-1.204	.229	
Negative Affect						.013
Objective Time 1	0.26	[-0.06, 0.57]	0.14	1.609	.108	
Condition	0.03	[-0.11, 0.18]	0.03	0.45	.653	
Interaction	-0.21	[-0.42, -0.00]	-0.19	-1.955	.051	
Positive Affect						.007
Objective Time 1	0.21	[-0.13, 0.54]	0.11	1.218	.224	
Condition	0.08	[-0.07, 0.24]	0.07	1.075	.283	
Interaction	-0.06	[-0.28, 0.17]	-0.05	-0.513	.608	

Table 7. Regression analysis summary for various variables, condition, and the interaction predicting subjective time 2

Predictor variable & DVs	B	*95% CI*	β	t	p	R²
Subjective Time 2						.021
Motivation	2.30	[0.02, 4.59]	0.14	1.980	.048	
Condition	-2.58	[-6.49, 1.33]	-0.06	-1.298	.195	
Interaction	-0.41	[-3.66, 2.85]	-0.02	-0.246	.806	
Subjective Time 2						.010
Shame	-9.76	[-21.42, 1.90]	-0.24	-1.646	.100	
Condition	2.16	[-0.95, 5.27]	0.10	1.367	.172	
Interaction	-2.77	[-7.15, 1.61]	-0.19	-1.243	.214	
Subjective Time 2						.007
Guilt	-2.50	[-6.49, 1.50]	-0.06	-1.228	.220	
Condition	1.15	[-1.63, 3.92]	0.06	0.811	.418	
Interaction	-1.82	[-5.74, 2.09]	-0.06	-0.916	.360	
Subjective Time 2						.005
Humility	-2.87	[-15.32, 9.59]	-0.07	-0.453	.651	
Condition	-0.27	[-5.09, 4.56]	-0.01	-0.109	.913	
Interaction	0.02	[-6.68, 6.71]	0.00	0.004	.997	
Subjective Time 2						.008
Negative Affect	-4.94	[-13.82, 3.95]	-0.12	-1.092	.275	
Condition	-0.41	[-3.76, 2.95]	-0.02	-0.238	.812	
Interaction	-1.15	[-5.51, 3.21]	-0.07	-0.520	.603	
Subjective Time 2						.006
Positive Affect	-3.94	[-9.33, 1.45]	-0.10	-1.437	.151	
Condition	-0.77	[-3.6, 2.07]	-0.04	-0.532	.595	
Interaction	1.25	[-2.83, 5.33]	0.05	0.601	.548	

Table 8. Regression analysis summary for control time 1, condition, and the interaction predicting various variables

Predictor variable & DVs	B	*95% CI*	β	t	p	R²
Motivation						.019
Control Time 1	-0.03	[-0.51, 0.46]	-0.01	-0.116	.908	
Condition	-0.07	[-0.17, 0.03]	-0.10	-1.420	.156	
Interaction	-0.03	[-0.17, 0.10]	-0.05	-0.479	.632	
Shame						.042
Control Time 1	0.04	[-0.32, 0.39]	0.02	0.193	.847	
Condition	-0.09	[-0.17, -0.02]	-0.18	-2.598	.010	
Interaction	-0.02	[-0.12, 0.08]	-0.05	-0.446	.656	
Guilt						.009
Control Time 1	-0.03	[-0.44, 0.38]	-0.02	-0.154	.878	
Condition	-0.01	[-0.09, 0.07]	-0.02	-0.275	.783	
Interaction	-0.04	[-0.15, 0.08]	-0.07	-0.658	.511	
Humility						.002
Control Time 1	0.08	[-0.16, 0.32]	0.07	0.645	.520	
Condition	0.02	[-0.03, 0.07]	0.05	0.770	.442	
Interaction	-0.03	[-0.09, 0.04]	-0.09	-0.831	.407	
Negative Affect						.040
Control Time 1	0.18	[-0.19, 0.55]	0.10	0.972	.332	
Condition	-0.07	[-0.15, 0.00]	-0.14	-1.942	.053	
Interaction	-0.06	[-0.16, 0.04]	-0.13	-1.116	.265	
Positive Affect						.046
Control Time 1	-0.12	[-0.5, 0.26]	-0.06	-0.617	.538	
Condition	0.06	[-0.01, 0.14]	0.12	1.666	.096	
Interaction	0.08	[-0.02, 0.19]	0.17	1.509	.132	

Table 9. Regression analysis summary for various variables, condition, and the interaction predicting control time 2

Predictor variable & DVs	B	*95% CI*	β	t	p	R^2
Control Time 2	-2.58	[-6.49, 1.33]	-0.06	-1.298	.195	.021
Motivation	2.31	[0.02, 4.59]	0.14	1.980	.048	
Condition	-0.41	[-3.66, 2.85]	-0.02	-0.246	.806	
Interaction	-9.76	[-21.42, 1.9]	-0.24	-1.646	.100	
Control Time 2	2.16	[-0.95, 5.27]	0.10	1.367	.172	.010
Shame	-2.77	[-7.15, 1.61]	-0.19	-1.243	.214	
Condition	-2.50	[-6.49, 1.50]	-0.06	-1.228	.220	
Interaction	1.15	[-1.63, 3.92]	0.06	0.811	.418	
Control Time 2	-1.82	[-5.74, 2.09]	-0.06	-0.916	.360	.007
Guilt	-2.87	[-15.32, 9.59]	-0.07	-0.453	.651	
Condition	-0.27	[-5.09, 4.56]	-0.01	-0.109	.913	
Interaction	0.01	[-6.68, 6.71]	0.00	0.004	.997	
Control Time 2	-4.94	[-13.82, 3.95]	-0.12	-1.092	.275	.005
Humility	-0.41	[-3.76, 2.95]	-0.02	-0.238	.812	
Condition	-1.15	[-5.51, 3.21]	-0.07	-0.520	.603	
Interaction	-3.94	[-9.33, 1.45]	-0.10	-1.437	.151	
Control Time 2	-0.77	[-3.61, 2.07]	-0.04	-0.532	.595	.008
Negative Affect	1.25	[-2.83, 5.33]	0.05	0.601	.548	
Condition	-2.58	[-6.49, 1.33]	-0.06	-1.298	.195	
Interaction	2.31	[0.02, 4.59]	0.14	1.980	.048	
Control Time 2	-0.41	[-3.66, 2.85]	-0.02	-0.246	.806	.006
Positive Affect	-9.76	[-21.42, 1.9]	-0.24	-1.646	.100	
Condition	2.16	[-0.95, 5.27]	0.10	1.367	.172	
Interaction	-2.77	[-7.15, 1.61]	-0.19	-1.243	.214	

Table 10. Means and standard deviations for different Study 3 measures as a 2 (time) by 2 (condition) design

Outcome and Group	T1		T2	
	M	SD	M	SD
Exam Score				
Self-Compassion	81.50	12.38	77.53	18.06
Control	81.97	13.73	79.15	16.45
Exam Satisfaction				
Self-Compassion	4.46	2.00	4.13	2.05
Control	4.34	1.98	4.12	2.06
Counterfactual Intentions (T1) → Behavior (T2)				
Self-Compassion	5.55	1.20	4.17	1.38
Control	5.46	1.28	4.10	1.35
Academic Intentions (Exam 2) → Behavior (T2)				
Self-Compassion	4.12	1.15	2.44	0.96
Control	4.14	1.17	2.39	0.89
Counterfactual Intentions (Exam 2) → Intentions (Exam 3)				
Self-Compassion	5.51	1.23	5.18	1.45
Control	5.45	1.25	5.59	1.15
Counterfactual Behavior (Exam 2) → Intentions (Exam 3)				
Self-Compassion	4.17	1.38	5.18	1.45
Control	4.10	1.35	5.59	1.15
Academic Intentions (Exam 2) → Intentions (Exam 3)				
Self-Compassion	4.12	1.17	3.57	1.41
Control	4.14	1.16	3.84	1.36
Academic Behavior (Exam 2) → Intentions (Exam 3)				
Self-Compassion	2.44	0.96	3.57	1.41
Control	2.37	0.88	3.84	1.36

Table 11. Summary of Independent Samples t-tests for variables in Study 3

Variable	Self-Compassion		Control		$t(406)$	p	Cohen's d
	M	*SD*	*M*	*SD*			
1. CF Behavioral Intentions	5.45	1.25	5.51	1.23	-0.36	.718	0.05
2. General Academic Behavioral Intentions	4.12	1.17	4.14	1.16	-0.11	.911	0.02
3. Mean Shame	1.64	0.73	1.58	0.81	0.66	.511	0.09
4. Mean Guilt	1.85	0.97	1.73	0.84	0.99	.323	0.13
5. Mean Humility	3.82	0.57	3.75	0.69	0.82	.414	0.11
6. Mean Negative Affect	1.51	0.92	1.42	0.81	0.77	.442	0.10
7. Mean Positive Affect	1.20	0.43	1.15	0.38	0.92	.357	0.12
8. Mean Anger	1.49	0.78	1.58	1.05	-0.68	.496	0.09
9. Mean Disgust	2.42	1.25	2.55	1.32	-0.74	.460	0.14
10. Mean Fear	1.73	0.95	1.72	1.00	0.07	.948	0.01
11. Mean Anxiety	2.66	1.31	2.47	1.27	1.08	.281	0.20
12. Mean Sadness	3.97	1.50	4.06	1.45	-0.46	.644	0.09
13. Mean Desire	3.37	1.31	3.35	1.26	0.13	.898	0.02
14. Mean Relaxation	1.67	0.68	1.68	0.76	-0.13	.894	0.03
15. Mean Happiness	3.34	0.92	3.30	0.85	0.33	.741	0.06
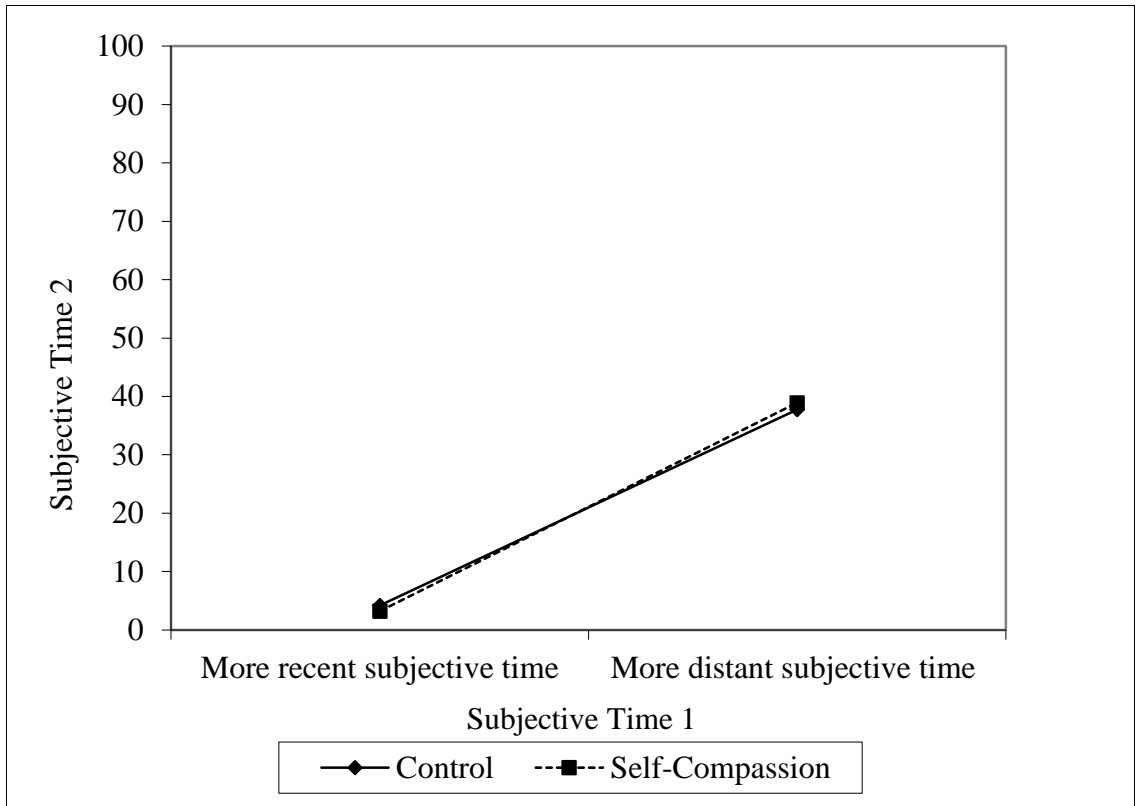
Figure 1. Regression predicting subjective time 2 from subjective time 1, condition, and their interaction. Self-compassion simple slope: $b = 0.908$, $t(334) = 40.526$, $p < .001$. Control simple slope: $b = 0.966$, $t(406) = 39.144$, $p < .001$
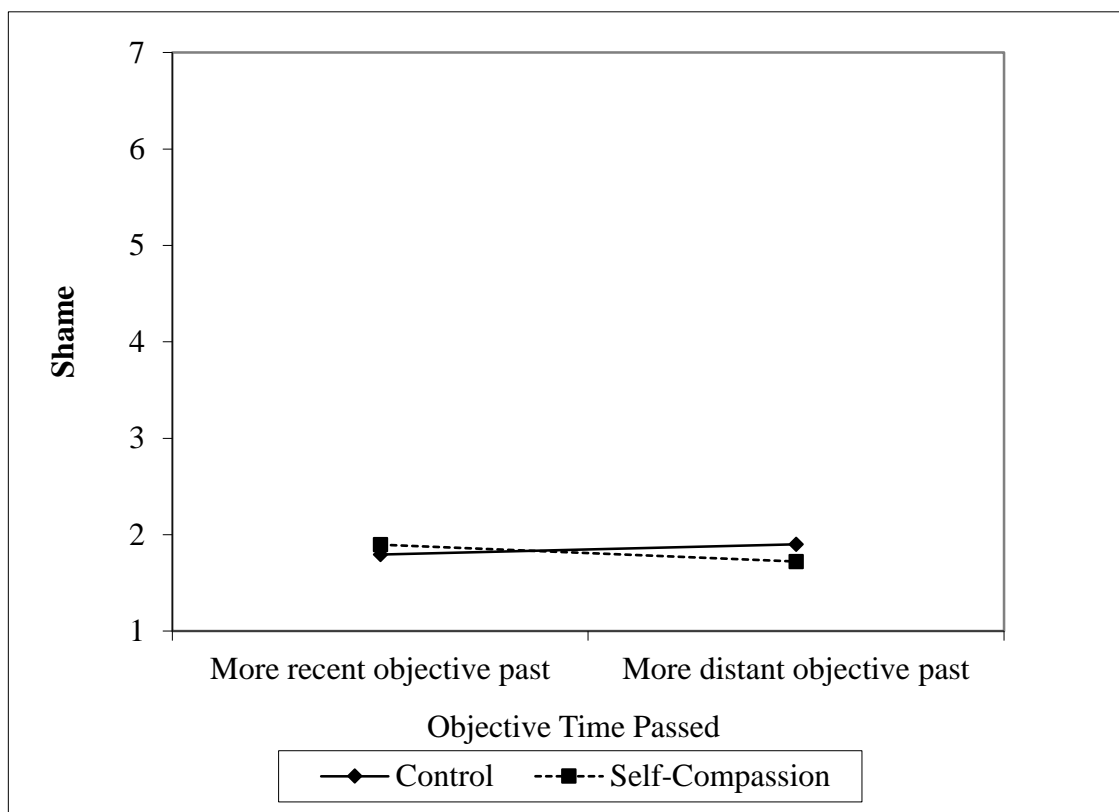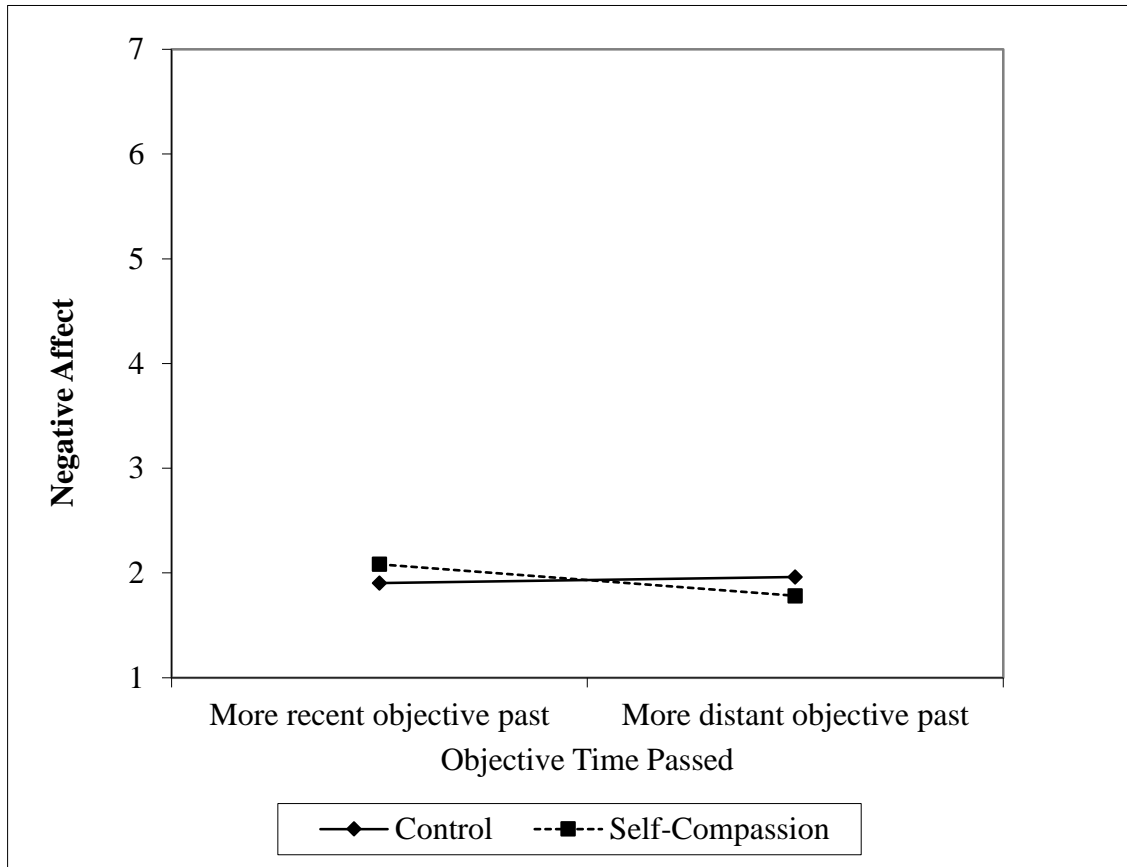
Figure 2. Regression predicting shame from objective time, condition, and their interaction. *Note:* Self-compassion simple slope: $b = -0.112$, $t(406) = -1.519$, $p = .130$. Control simple slope: $b = 0.069$, $t(406) = 0.9978$, $p = .329$.
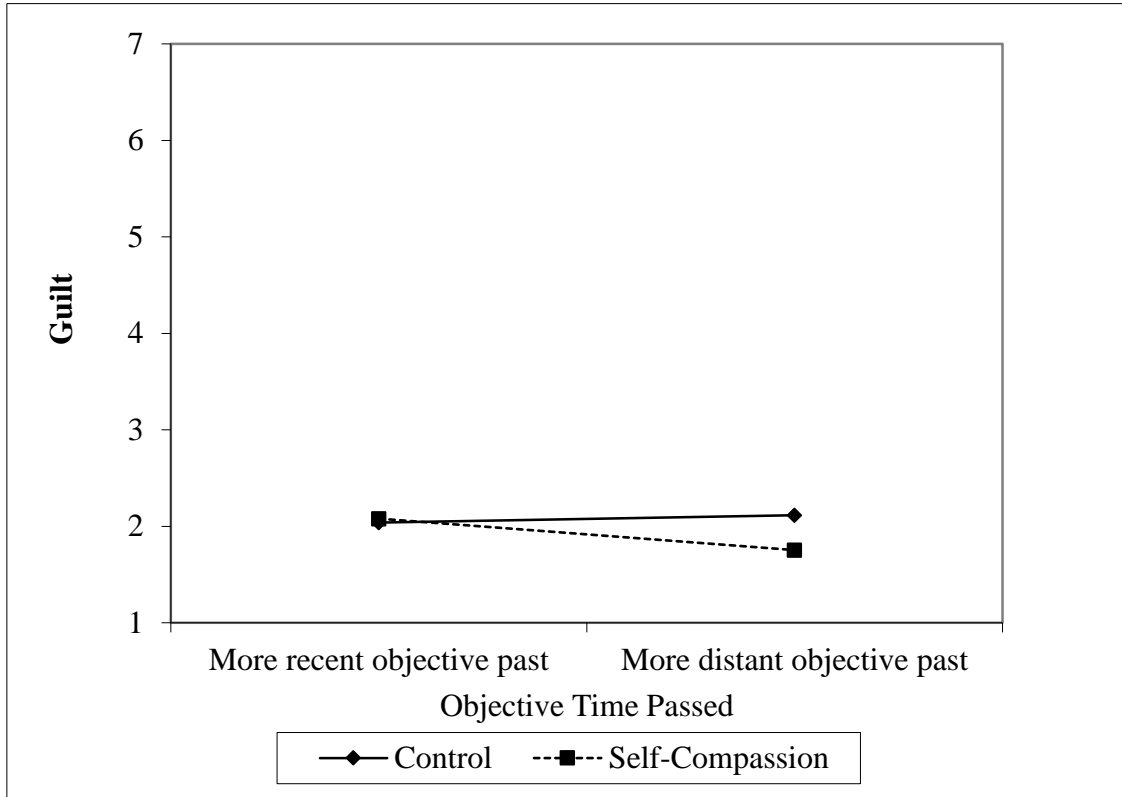
Figure 3. Regression predicting guilt from objective time, condition, and their interaction. *Note:* Self-compassion simple slope: $b = -0.193$, $t(406) = -2.188$, $p = .029$. Control simple slope: $b = 0.045$, $t(406) = 0.540$, $p = .589$.

Figure 4. Regression predicting negative affect from objective time, condition, and their interaction. *Note:* Self-compassion simple slope: $b = -0.178$, $t(406) = -2.266$, $p = .024$. Control simple slope: $b = 0.033$, $t(406) = 0.450$, $p = .653$.
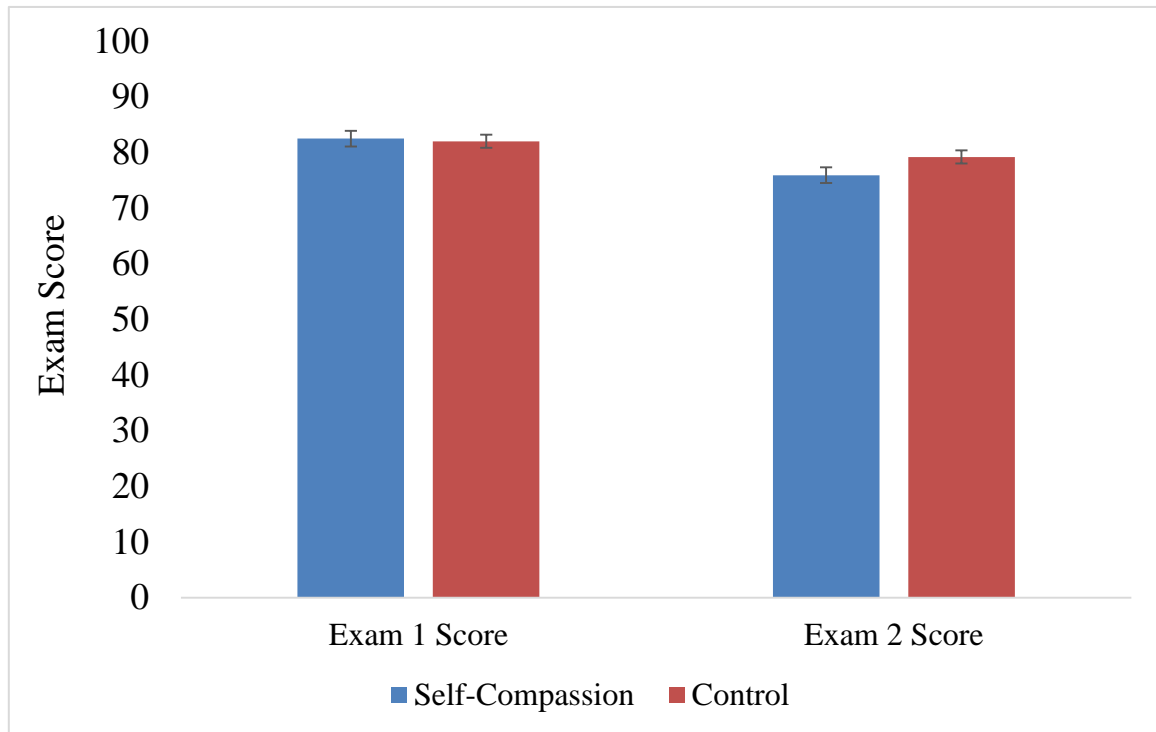
Figure 5. Two-way repeated measures ANOVA predicting exam 2 score from exam 1 score, condition, and their interaction. Error bars represent 95% confidence intervals.
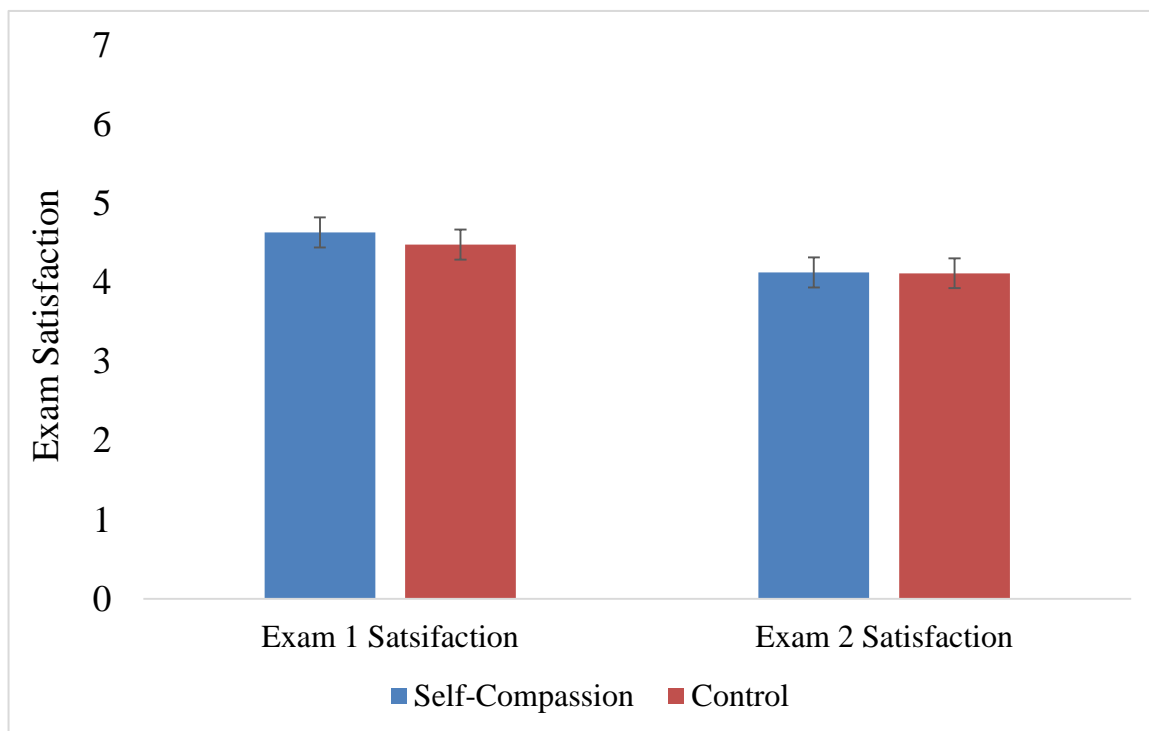
Figure 6. Two-way repeated measures ANOVA predicting exam 2 satisfaction from exam 1 score, condition, and their interaction. Error bars represent 95% confidence intervals.
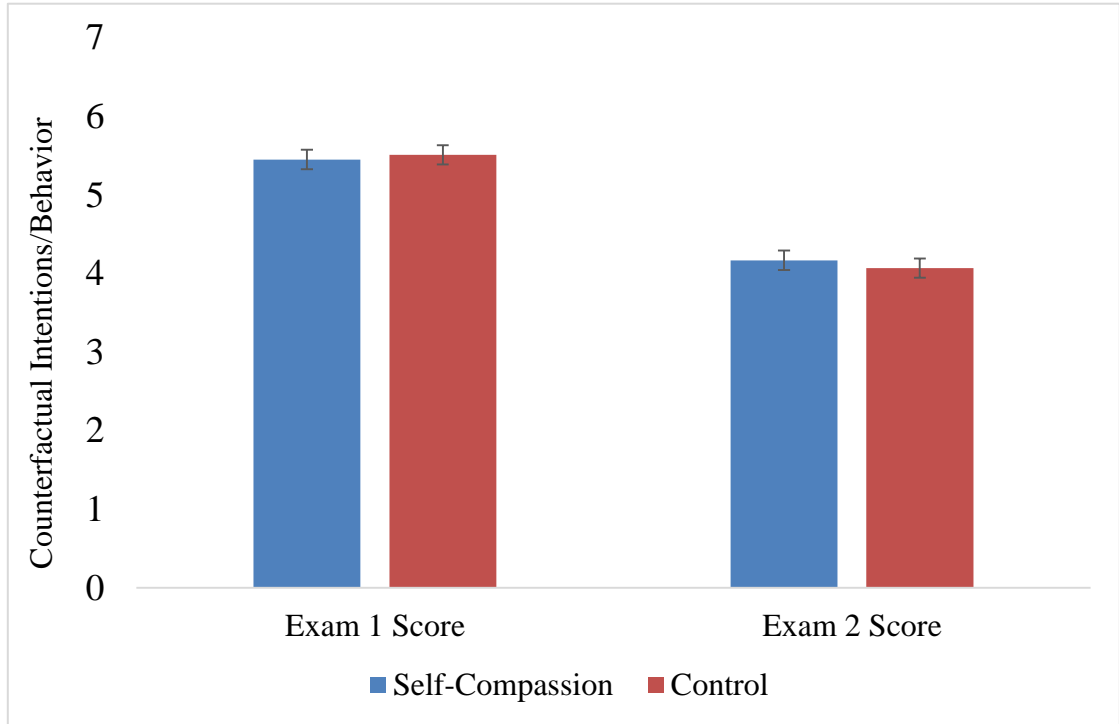
Figure 7. Two-way repeated measures ANOVA predicting counterfactual engagement from counterfactual intentions, condition, and their interaction. Error bars represent 95% confidence intervals.
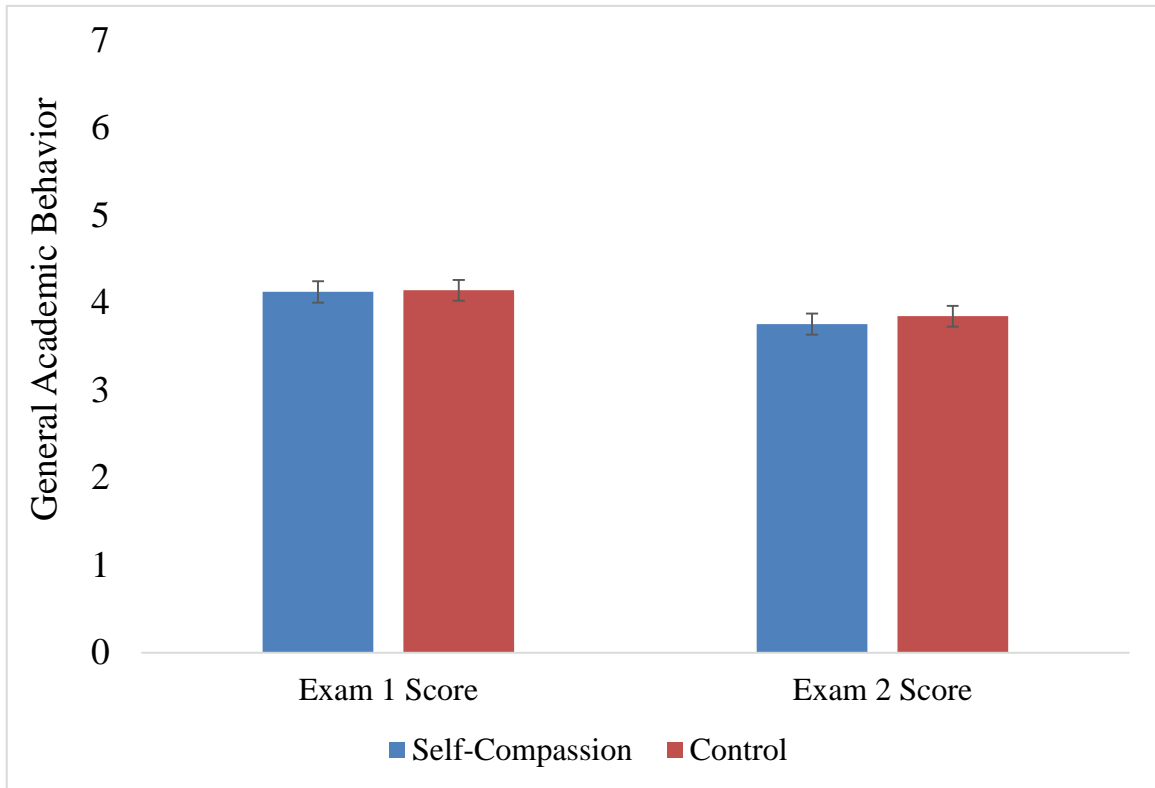
Figure 8. Two-way repeated measures ANOVA predicting general academic engagement from general academic intentions, condition, and their interaction. Error bars represent 95% confidence intervals.
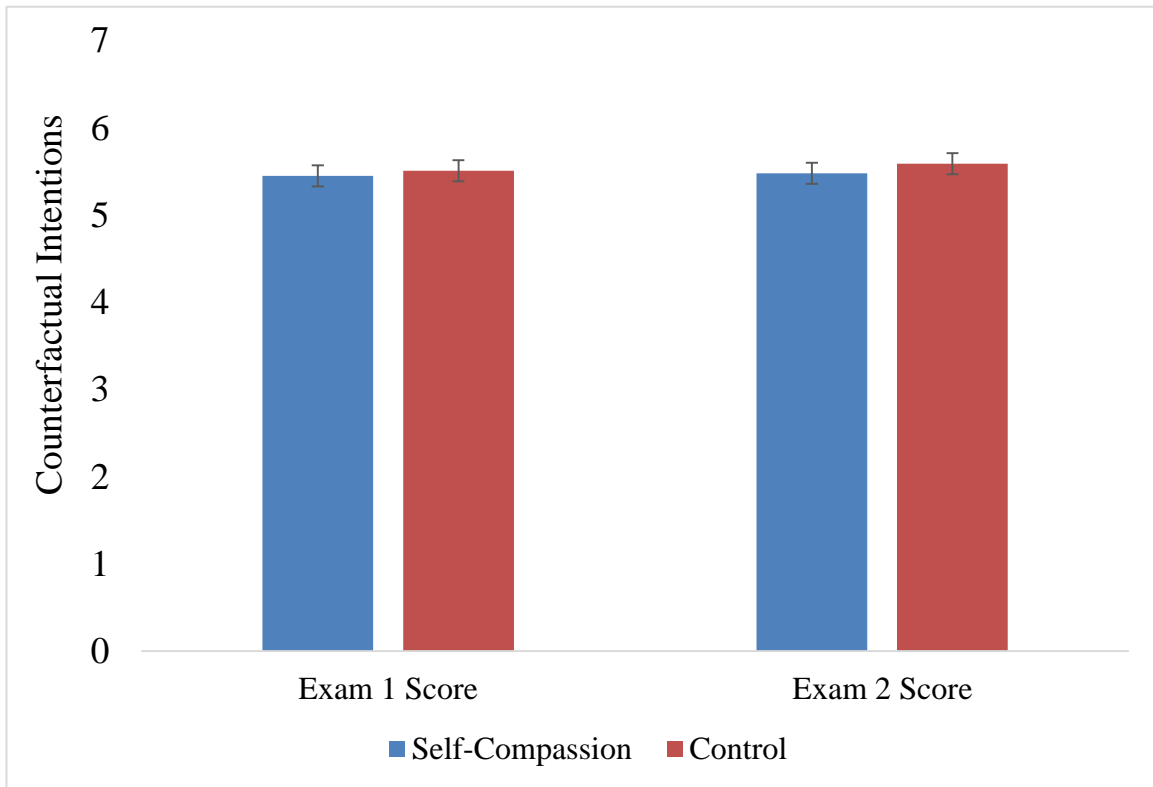
Figure 9. Two-way repeated measures ANOVA predicting exam 3 counterfactual intentions from exam 1 counterfactual intentions, condition, and their interaction. Error bars represent 95% confidence intervals.
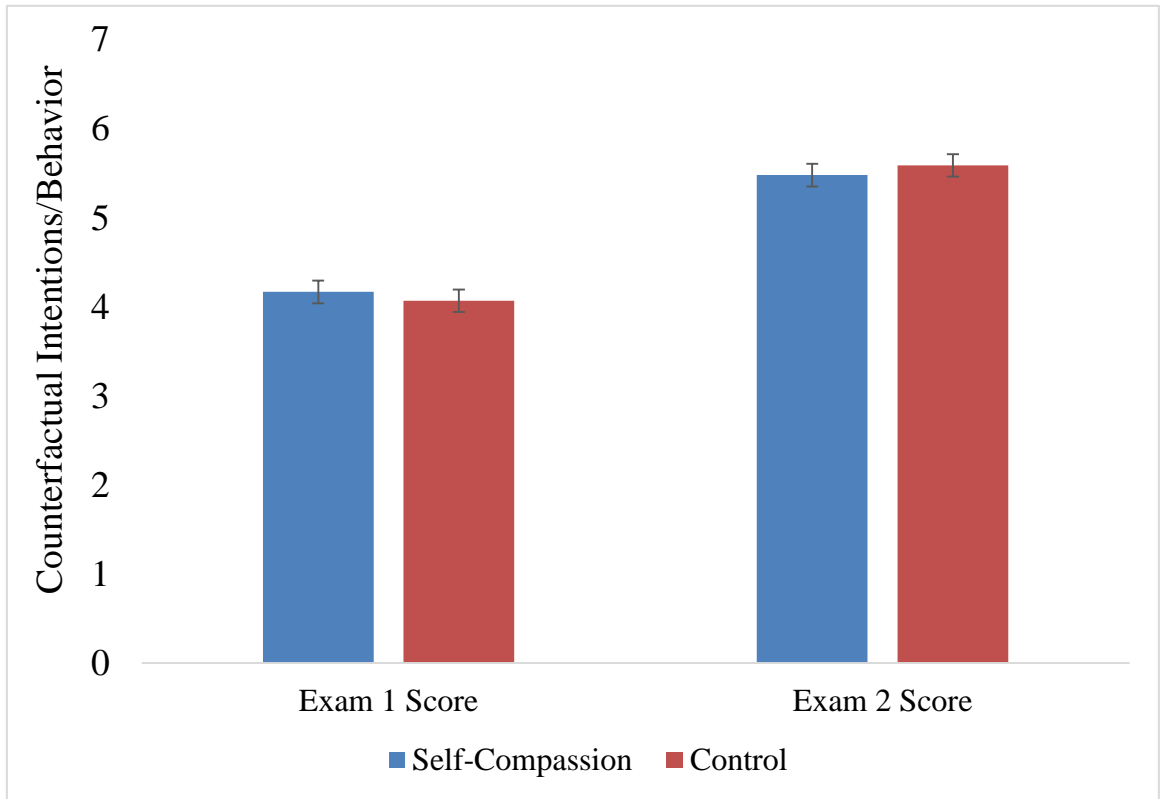
Figure 10. Two-way repeated measures ANOVA predicting exam 3
counterfactual intentions from exam 2 counterfactual behavior, condition, and
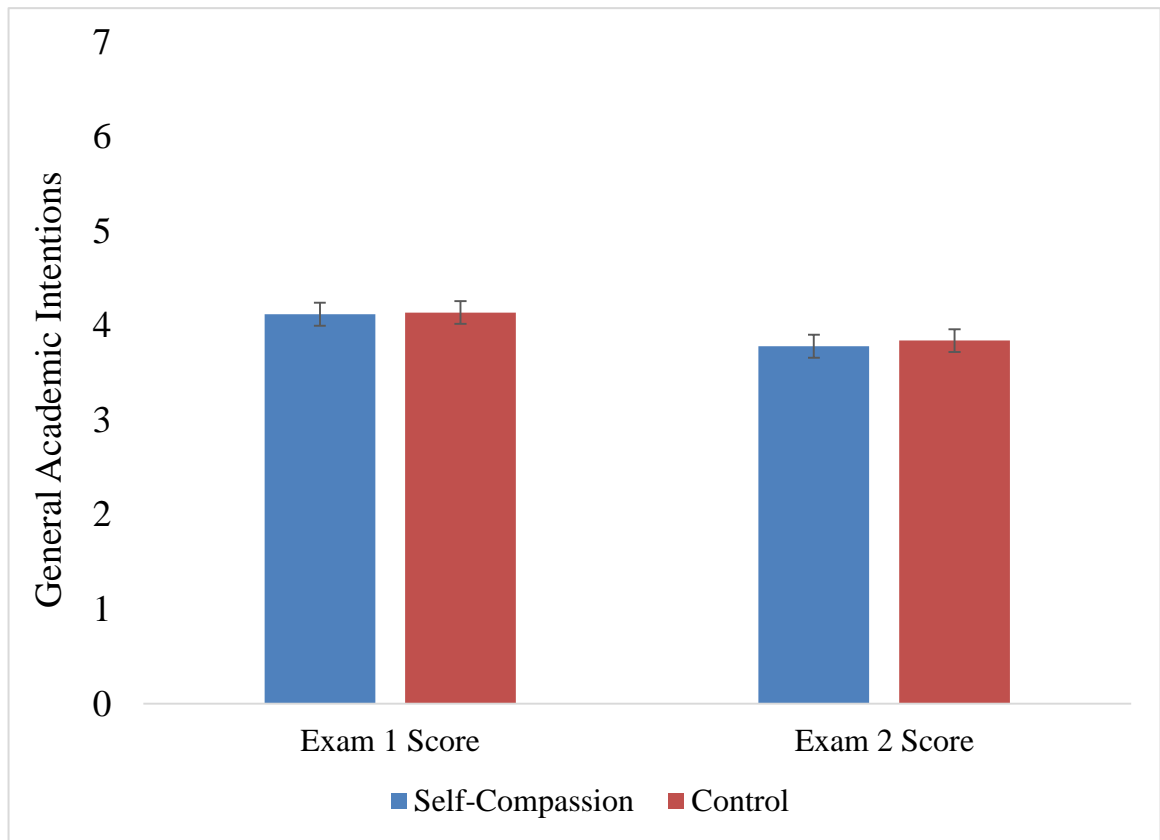their interaction. Error bars represent 95% confidence intervals.

Figure 11. Two-way repeated measures ANOVA predicting exam 3 general academic intentions from exam 1 general academic intentions, condition, their interaction. Error bars represent 95% confidence intervals.
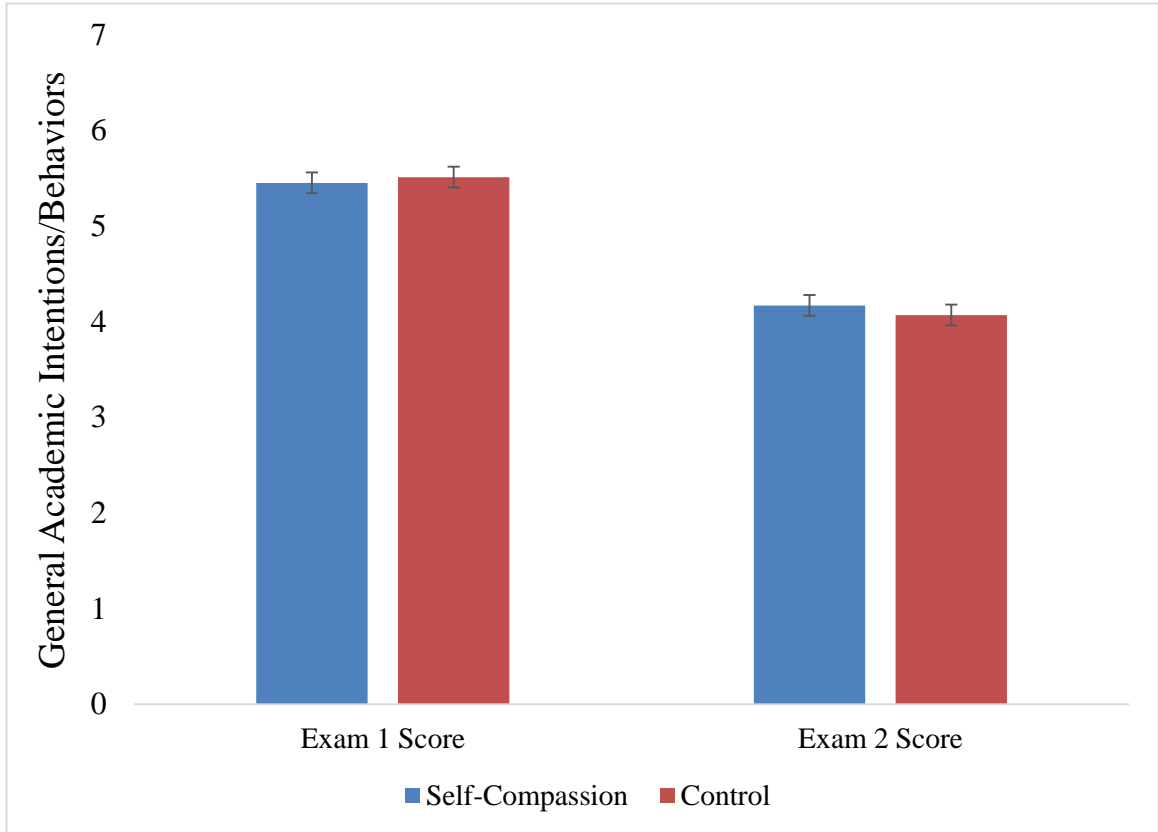
Figure 12. Two-way repeated measures ANOVA predicting exam 3 general academic behavior from exam 2 general academic behavior, condition, and their interaction. Error bars represent 95% confidence intervals.