

An Examination of Whether and How a Peer's Display of Self-Compassion Can Affect College
Students' Personal Self-Compassion: A Test of Social Cognitive Theory

by

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Abstract

Self-compassion is a kind, caring, and non-judgemental way of relating to personal suffering (Gilbert, 2014; Neff, 2003a), and is a robust predictor of wellbeing (e.g., MacBeth & Gumley, 2012; Zessin et al., 2015). Current interventions for cultivating self-compassion are effective but demanding, meaning there is merit in investigating more accessible approaches to learning self-compassion. The present studies used social cognitive theory, which argues that behaviours can be learned through observing them in others (Bandura, 1965; 1986), as a framework to investigate a novel approach to facilitating learning and performance of self-compassion. Based on this theory, we first hypothesized that observing a peer who describes distress and self-compassionate coping would lead to greater subsequent learning and performance of self-compassion than observing a peer who describes distress without self-compassionate coping. Second, we hypothesized that the subsequent benefit to learning and performance of self-compassion would be greater after observing a peer who describes distress and self-compassionate coping with rewarding outcomes, compared to observing a peer who describes distress and self-compassionate coping without outcomes. Our third hypothesis was that as predicted by social cognitive theory, observing rewarding outcomes of self-compassion would have an indirect effect on the observer's subsequent performance of self-compassion, via increasing the observer's positive outcome expectancies for self-compassion and motivation to be self-compassionate. To test these hypotheses, we conducted two studies, each with a sample of undergraduate women low in trait self-compassion recruited through a Canadian university's psychology participant pool and through posters on the university campus. Study 1 had a sample of $n = 370$; Study 2 currently has a sample of $n = 191$ and recruitment is ongoing. Both studies used the same design, with Study 2 amended slightly to improve the precision and reliability of

our measures, with the goal of clarifying the findings of Study 1. Each study was a two-part online study. In the first part of the study, participants were randomly assigned to listen to one of three audio clips in which they heard an ostensible peer describe either: distress with self-compassionate coping and rewarding outcomes; distress with self-compassionate coping and no specified outcomes; or distress only (as a control condition). Participants completed measures of outcome expectancies for self-compassion and motivation to be self-compassionate immediately after hearing the audio clip; 2-4 days later they completed measures of learning and performance of self-compassion. ANCOVAs revealed that contrary to our first two hypotheses, there were no effects of experimental condition on subsequent learning or performance of self-compassion in either study. Testing for the hypothesized indirect effect of observing rewarding outcomes of self-compassion on performance of self-compassion revealed that our third hypothesis was also not supported in either study. That said, the serial mediation model used to test this hypothesis revealed that in both studies, outcome expectancies for self-compassion immediately after the manipulation significantly predicted motivation to be self-compassionate at the same time point and performance of self-compassion 2-4 days later. Overall, findings of two studies indicate that observing self-compassion displayed by an unknown peer in the form of the brief audio clips used in this study did not lead to observational learning of self-compassion. However, the fact that outcome expectancies for self-compassion emerged as a significant predictor of motivation to be self-compassionate and subsequent performance of self-compassionate coping offers partial support for the applicability of social cognitive theory to self-compassion. Future research should explore whether self-compassion can be learned observationally with a more engaging demonstration of self-compassion using both experimental and naturalistic designs. Continuing

to explore the role of outcome expectancies for self-compassion in predicting self-compassion motivation and performance would also be informative.

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Literature Review and Introduction

Distress is an inevitable part of everyday life – from challenges at work, to managing family life and social relationships, to personal goals and endeavours, we regularly experience stressors that require us to be resilient. Beyond these everyday stressors, we are faced with alarming societal and global events, including the ongoing climate crises, political unrest and conflict, economic disparity, and a recent global pandemic. News headlines point to “doomsday anxiety” and fears of the future as significant sources of distress across generations that are causing harm to people’s psychological well-being (e.g., Global News, 2024; Morrison, 2022). Amid these stressors, there is a need to investigate ways to cope with distress and develop resilience. Self-compassion – a kind, caring, and nonjudgemental way of relating to and coping with personal distress – is an accessible and effective tool for coping with the challenges of the times we live in.

Self-Compassion

What is Self-Compassion?

The concept of self-compassion has origins in Eastern spiritual traditions and philosophies, which have long recognized that compassion can be directed toward the self as well as toward others. For example, early Buddhist writing emphasizes that compassion radiates in all directions without a particular object (e.g., Anālayo & Dhammadinnā, 2021). With this omnidirectional conceptualization at its root, defining self-compassion begins with defining compassion more broadly. Drawing on Buddhist thought, Gilbert (2017) defines compassion as “sensitivity to suffering in self and others and a commitment to try to alleviate and prevent it” (p. 1). Research in psychology has taken a variety of approaches to operationalizing compassion and

self-compassion (see Strauss et al., 2016 for a review); prominent definitions of self-compassion by Neff (2003a) and Gilbert (2017) are described below.

Neff (2003a) describes self-compassion as an adaptive way of relating to oneself in times of failure or personal suffering. Neff conceptualizes self-compassion as a set of three interacting positive components, each with an opposing process that characterizes uncompassionate self-responding: self-kindness (vs. self-criticism), common humanity (vs. isolation), and mindfulness (vs. overidentification). Self-kindness is treating oneself with acceptance and care; it is often likened to how one would treat a friend or loved one who is struggling. Common humanity involves recognizing that imperfection and suffering are universal human experiences; therefore, feeling connected to others in experiences of distress. Mindfulness involves holding one's distressing thoughts and feelings in balanced awareness – recognizing and accepting emotionally difficult experiences that are a part of the present moment and will pass with time. These three positive components are thought to be mutually reinforcing of one another; this assertion is supported by the relationships found among them in scale validation studies and other research. Neff (2003b) developed the Self-Compassion Scale to provide a self-report measure of her conceptualization of self-compassion. This scale consists of 26 items that describe behaviours reflecting the three positive components of self-compassion and their three opponent processes. This original scale has since been adapted into several forms, including a short form (the Self-Compassion Scale-Short Form; Raes et al., 2011) and a state version (the State Self-Compassion Scale, Short and Long Forms, measuring self-compassion in a particular moment rather than as a trait or typical tendency; Neff et al., 2021). It has also been translated into several languages (e.g., French, Brazilian Portuguese, German, Greek, Korean, and others; see Tóth-Király & Neff, 2021).

With its well-validated and widely adapted scales, Neff's conceptualization of self-compassion has become common in psychology research; however, other conceptualizations of self-compassion can help to further our understanding of the construct. Gilbert (2014) defines self-compassion by drawing on evolutionary and motivational theory. Gilbert (2009, 2014, 2017) proposes that humans evolved motivational systems that regulate our social functioning in service of survival; these systems are conceptualized as patterns of activation in our brains and bodies that organize our psychological functioning to enable us to achieve our goals. These social-motivational systems are the competition and social rank system, the cooperation system, the caregiving system, and the care-seeking or care-receiving system. The care-receiving system is thought to play a critical role in our survival as infants, at which time we are unable to care for ourselves. This system responds to being cared for by others by activating parts of the brain and body that elicit feelings of soothing and safeness (e.g., Di Bello et al., 2020; Forster & Kanske, 2022; Porges, 2017). As humans grow out of infancy and into stages where care from others is less critical for survival, we continue to encounter situations in which we experience challenges and need to be cared for. The care-receiving system stays with us, having learned from our early environment to respond to care by creating soothed feelings (e.g., Gilbert, 2020). The caregiving system has a closely related role, as it guides our attention to others who are in need of care, enabling us to respond to meet that individual's needs. These two systems are thought to play essential roles in self-compassion, which involves activation of both the caregiving and care-receiving systems (e.g., Breines & Chen, 2013) – when we are self-compassionate, we give care to ourselves and experience the soothed feelings that the care-receiving system elicits.

Benefits of Trait Self-Compassion

Self-compassion is gaining increasing attention in the fields of social and clinical psychology research because, consistent with theorizing on the construct, empirical studies have consistently linked it to well-being in both clinical and non-clinical populations. Investigating the relationship between trait self-compassion and well-being in a meta-analysis, Zessin et al. (2015) found that individuals higher in self-compassion experience higher psychological well-being (i.e., feeling fulfilled and able to function effectively in day-to-day life), with an average Pearson correlation across 12 studies of $r = .62$; higher cognitive well-being (cognitively evaluating one's well-being positively, i.e., subjective well-being), with an average Pearson correlation across 48 studies of $r = .47$; higher positive affective well-being (i.e., experiencing high positive affect), with an average Pearson correlation across 33 studies of $r = .39$; and lower negative affective well-being (i.e., experiencing low negative affect), with an average Pearson correlation across 32 studies of $r = -.47$. Meta-analyses have also found associations between the tendency to be self-compassionate and several variables affecting health and life satisfaction. Individuals higher in self-compassion report higher self-efficacy ($r = .35$; Liao et al., 2021); more adaptive coping (e.g., seeking emotional support, planning, seeking instrumental support, $r = .31$) and less maladaptive coping (e.g., behavioural disengagement, rumination, $r = -.51$; Ewert et al., 2021); fewer self-reported sleep problems ($r = -.32$, Brown et al., 2021); and better physical health and more engagement in health behaviours ($r = .18$ and $r = .26$, respectively; Phillips & Hine, 2021). Furthermore, a scoping review by Lathren and colleagues (2021) found that self-compassion is positively associated with adaptive family, friendship, and romantic relationship functioning (Lathren et al., 2021). Investigating the relationship between trait self-compassion and clinical variables in a meta-analysis, MacBeth and Gumley (2012) found that self-compassion is negatively associated with depression, anxiety, and stress, with a large effect size ($r = -.54$). A

similar relationship between self-compassion and psychopathology has been found in a variety of populations. For example, Kroshus et al. (2021) reported that self-compassion predicted lower depression and anxiety in students during their transition to college, and Pinto-Gouveia et al. (2013) found that self-compassion predicted lower stress and depression in patients with chronic illnesses and cancer. Taken together, a wealth of research now shows that individuals who have higher trait levels of self-compassion experience a range of psychosocial benefits, including greater psychological well-being, more positive relationships with others, and less psychopathology.

Trait and State Self-Compassion

Self-compassion is often conceptualized as a trait-like variable, such that people are understood to have a general tendency toward a certain average level of self-compassion (i.e., generally high or low relative to others); however, a growing body of research also shows that self-compassion levels vary within an individual at the state level, with corresponding benefits for well-being. Daily diary studies have found that self-compassion levels vary within-person on a day-to-day basis, and on days when people report higher self-compassion they report greater well-being and more adaptive behaviour. Specifically, studies in various populations have found that on days where individuals report higher levels of self-compassion compared to their personal mean self-compassion level, they experience lower perceived stress (Li et al., 2019), lower stress reactivity (Mey et al., 2023), lower levels of eating disorder symptoms (Katan & Kelly, 2021), and more positive emotional experiences (Katan et al., 2024).

Though it is increasingly well-established that self-compassion has state-like properties, and that these state fluctuations within a person are meaningfully related to psychosocial functioning, little research has examined the factors that influence within-person variability in

self-compassion. One study by Zuroff and colleagues (2021) suggests that the life domain in which a disappointment or failure has occurred is one factor that might explain variations in a given individual's level of self-compassion. Indeed, the researchers found that self-compassion and self-criticism levels vary within a person across the domains of academic or work performance, friendships, family relationships, intimate relationships, physical appearance, health, and finances, with individuals demonstrating unique 'signature' profiles representing the domains in which they tend to be relatively more versus less self-compassionate. Despite these interesting findings, there is little other research examining the factors that influence variations in self-compassion within a person resulting in limits to our current theoretical understanding of how self-compassion operates and to the contextual factors that influence it. We also face practical limits to the strategies and interventions currently being recommended as approaches to enable individuals to treat themselves with relatively more self-compassion than their typical level.

Self-Compassion Interventions

Despite the lack of research on the within-person predictors of self-compassion, researchers and clinicians have developed interventions of varying formats that aim to help individuals cultivate self-compassion.

Self-compassion interventions typically involve practices such as compassion-focused meditation or other exercises (e.g. imagery, writing) intended to bring people in touch with their distress in a compassionate way. (e.g., Ferrari et al., 2019; Kelly & Waring, 2018; Neff & Germer, 2013). Some interventions use Neff's components of self-compassion as a framework to identify the cognitions, skills, and ways of self-relating that characterize self-compassion. For example, Neff and Germer (2019) developed an 8-week group program called Mindful Self-

Compassion, which uses presentations, formal and informal mindfulness practices, and discussion to help participants cultivate self-kindness, common humanity, and mindfulness. Another intervention, compassion-focused therapy (CFT), was developed by Gilbert (2009; 2014; see also Gilbert & Procter, 2006) using the framework of social mentality theory. The goal of CFT is to help individuals learn to generate soothed and safe feelings within themselves, using compassion to activate their evolved neurophysiological soothing system. To achieve this goal, clients are guided to practice self-compassion by cultivating what Gilbert (2009) refers to as the skills and attributes of compassion. The attributes of compassion include sensitivity to suffering, distress tolerance, working to understand the meaning and function of a person's experience, and being non-judgemental of a person's experience. These are expressed within the therapeutic relationship by the therapist as the client is guided to develop these attributes in their own self-relating. Gilbert (2009) describes several skills of compassion, including focusing attention on what is helpful, compassionate reasoning (understanding the functions of one's thoughts, acknowledging, and validating them), and taking actions to alleviate distress, as well as compassionate imagery, feeling, and sensation (exploring physiological feelings and cultivating inner feelings of warmth and kindness).

There is now strong evidence that self-compassion interventions offer psychosocial benefits to individuals with a range of presenting concerns. Ferrari et al. (2019) conducted a meta-analysis of 27 randomized controlled trials examining the effectiveness of self-compassion-based interventions for both clinical and non-clinical populations. Interventions included in the meta-analysis were either solely focused on cultivating self-compassion (e.g., compassion-focused imagery; self-compassionate writing) or involved adding self-compassion training to another form of therapy (e.g., mindfulness-based cognitive therapy with added self-compassion

components; cognitive behavioural therapy with compassionate mind training). In clinical and non-clinical samples, these interventions led to improvement in overall self-compassion scores as well as several other domains: they noted a large effect on eating behaviours; medium effects on stress, depression, anxiety, self-criticism, and mindfulness; and small effects on negative affect, positive affect, and life satisfaction. Benefits of self-compassion interventions have been demonstrated for a variety of clinical populations, including those with eating disorders (e.g., Kelly et al., 2017; Millard et al., 2023; Morgan-Lowes et al., 2023), depression (e.g., Asano et al., 2022; Javidi et al., 2023; Millard et al., 2023), social anxiety disorder (Cândeă & Szentágotai-Tătar, 2018), obsessive-compulsive disorder (Petrocchi et al., 2021), and post-traumatic stress disorder (e.g., Hiraoka et al., 2015; Javidi et al., 2023; Scoglio et al., 2015; Winders et al., 2020). In sum, a wealth of evidence demonstrates that self-compassion interventions, either alone or in combination with other psychological interventions, lead to positive outcomes for a wide variety of populations. Continuing to investigate ways to help people become more self-compassionate is thus an important endeavour.

Fear of Self-Compassion

Although self-compassion interventions have proven beneficial, engaging in these interventions is challenging for some individuals because they have negative perceptions or experiences of compassion. Gilbert et al. (2011) observed in his clinical work that some individuals avoid compassion or experience negative emotional reactions in response to it. When introducing self-compassion to clients, Gilbert noted that some individuals react with doubt, fear, or resistance, and may feel ambivalent towards developing self-compassion. Importantly, these experiences are not limited to self-compassion – people can respond similarly to receiving compassion from others, or to expressing compassion to others. Based on these observations,

Gilbert and colleagues (2011) conceptualized the construct of fear of compassion, and developed measures for fears of receiving compassion from others, fear of expressing compassion to others, and fear of self-compassion. Fear of self-compassion is characterized by negative beliefs about self-compassion and its outcomes, as well as negative responses to self-compassion. Gilbert and colleagues' (2011) self-report measure of fear of self-compassion captures this construct with items such as "I feel that I don't deserve to be kind and forgiving to myself," "I fear that if I become kinder and less self-critical to myself then my standards will drop," and "If I really think about being kind and gentle with myself it makes me sad." Considering these scale items as examples of the beliefs that individuals who are fearful of self-compassion endorse, it is understandable that fear of self-compassion poses a significant challenge for engagement in self-compassion practices.

Qualitative research exploring fear of self-compassion shows that even when people recognize that self-compassion may be beneficial, fear of self-compassion can still arise. In a clinical sample (women with anorexia nervosa, Kelly et al. 2021) and in a non-clinical sample (undergraduates and community adults, Campion & Glover 2017), interviewees expressed perceiving potential benefits of self-compassion including improving one's mood and social relationships; however, both populations also expressed significant concerns. The clinical sample reported worries that self-compassion would lead to a loss of personal standards, weakness, and failure. They also shared doubts about the effectiveness and genuineness of self-compassion and noted feeling undeserving of self-compassion. The non-clinical sample noted that self-compassion seems incompatible with current social norms. Both samples expressed concerns that self-compassion would create unpleasant feelings of selfishness and vulnerability, and that self-compassion may be more appropriate or effective for others than for themselves. These

findings highlight that fear of self-compassion is prominent in individuals with and without psychopathology.

Fear of self-compassion is an important barrier to address in clinical and non-clinical populations because it is associated with a wide range of difficulties. In clinical populations, fear of self-compassion tends to be high and is associated with more severe psychopathology and poorer outcomes. For example, Geller et al. (2020) reported that in individuals with eating disorders, fear of self-compassion is associated with lower readiness to change, greater eating disorder symptoms, poorer psychological functioning (e.g., interpersonal problems, affective problems), and poorer self-reported quality of life. In a sample of people with depression, higher fear of self-compassion was associated with higher self-criticism, self-coldness, depression, anxiety, and stress (Gilbert, 2014). Furthermore, a meta-analysis including both clinical and non-clinical samples found that fear of self-compassion was moderately related to depression, anxiety, distress, shame, self-criticism, and lower well-being (Kirby et al., 2019). Fear of self-compassion has also been linked to attenuated benefits from self-compassion interventions (Kelly et al., 2013), emphasizing the importance of addressing this barrier.

Summary of Self-Compassion Literature and the Need for Novel Approaches to Learning Self-Compassion

It has been well-established that self-compassion is a beneficial way of relating to personal suffering because it promotes psychological well-being. While existing interventions are effective at increasing self-compassion for many individuals who engage in them, these interventions are limited in availability and are demanding of participants – they require a dedicated commitment to working toward greater self-compassion through consistent practice. These demands present a discouraging challenge for some individuals, such as those who are

high in fear of self-compassion and those who have limited access to formal self-compassion interventions. Exploring novel ways to cultivate self-compassion would thus provide important insight into ways to make learning self-compassion more accessible. Establishing a better understanding of factors that vary within an individual that might influence self-compassion, such as the social interactions they have and people to whom they are exposed, is an understudied theoretical direction to pursue with potentially novel and fruitful implications for how self-compassion levels might increase without deliberate practice.

Social Cognitive Theory

We propose that theories of learning provide a promising lens through which to explore ways in which self-compassion can be learned outside of structured clinical interventions. One such theory is Bandura's (1986) social cognitive theory, which describes the influence of social environment on our learning and behaviour. Bandura's early work in this area was his well-known Bobo doll experiments, in which he studied children's behaviour toward a Bobo doll after seeing an adult behave aggressively toward the same doll (1965; Bandura et al., 1961). Bandura (1965) observed that when the children saw the adult be rewarded for their aggressive behaviour, they too acted aggressively toward the doll; however, when they saw the adult be punished for their aggressive behaviour, the children were less likely to imitate the aggressive behaviour. Compared to the observed punishment condition, children who saw an adult receive no consequences for their aggressive behaviour also behaved aggressively towards the doll, but at a lower frequency than children who were in the observed reward condition. These results led Bandura to the development of social cognitive theory.

Social cognitive theory argues that observing another person, or 'model', engaging in a behaviour can influence one's likelihood of engaging in that behaviour oneself, via the process of

observational learning (also known as social learning or vicarious learning; Bandura, 1965, 1986). Observational learning is the process through which observing a modelled behaviour can increase one's knowledge about the behaviour – the model provides a demonstration of the behaviour and how it is performed in context. Having gained this knowledge, the observer can put it into practice by engaging in the observed behaviour themselves. Building on this principle, Bandura and other researchers identified several cognitive, environmental, and interpersonal factors that work together to influence the observational learning process.

The Process of Observational Learning

Bandura (1986, see also Schunk & Usher, 2019) described four steps of cognitive processing that the one experiences when learning through observation: attention (the observer must attend to the model, their behaviour, and its consequences); retention (the observer must form a mental representation of the observed behaviour so they can later engage in the behaviour themselves); reproduction (the observer performs or is able to perform the behaviour that was observed); and motivation (the observer must feel motivated to perform the behaviour).

Recognizing these separate processes highlights the difference between learning and performance in social cognitive theory – an observer may form a cognitive representation of a modelled behaviour (i.e., having learned knowledge about the behaviour) without necessarily carrying out the behaviour.

Beyond these cognitive processes, several factors that influence the observational learning process have been identified. Two important observer factors are their outcome expectancies (the observer's beliefs about what outcome is likely to occur if they engage in the modelled behaviour) and motivation (the extent to which they want to engage in the modelled behaviour) (Bandura, 1986, 2000; Schunk & DiBenedetto, 2020). These two factors are related

to each other – expecting a behaviour to lead to a positive outcome can motivate engagement in that behaviour. In other words, if the observer sees that the model experiences rewarding or positive outcome due to their behaviour, the observer will develop positive outcome expectancies for that behaviour and will be more motivated to try to perform it themselves. The rewarding outcomes that the model experiences may include any kind of positive outcome (Bandura, 1986), such as a material reward (e.g., monetary gain), social rewards (e.g., positive affirmation), emotional rewards (e.g., feeling happy or relaxed), or any other outcome that is perceived as positive. In the case of using self-compassion as a way to cope with distress, emotional rewards may be the most immediate benefit, but more distal benefits such as those summarized in the literature review above are also relevant rewarding outcomes. Conversely, if the observer sees that the model's behaviour leads to a negative outcome, they will develop negative outcome expectancies for the behaviour and will be less motivated to try it themselves. To further understand how the model's behaviour provides information to the observer, it is necessary to also consider how model characteristics influence the observational learning process.

Characteristics of the model play an important role in observational learning. These characteristics include model status, observer-perceived model competence, and observer-perceived model similarity (e.g., Bandura, 1986, Schunk & Usher, 2019). Model status influences observational learning such that observers may be more likely to attend to, and thus learn from, the behaviour of others whom they perceive to be of high or important status in that domain (e.g., an expert in a particular field; someone with social influence; a parent or older sibling of a child). Similarly, an observer may prefer to emulate the behaviour of someone who they perceive to be competent at performing that behaviour; however, research indicates that high competence is not always the most beneficial for observational learning. Research has

shown that for some observers it is more beneficial to observe the learning process of a “coping model” - someone who is initially at a similar level of competence to the observer, but gradually improves their competence over time, compared to observing a “mastery model,” namely, someone who is already an expert at the performing the behaviour at the time of observation (e.g., Schunk, 1987). Observing a coping model is thought to be beneficial for learning because it helps to increase the observer’s self-efficacy; perceived similarity plays an important role here. When an observer perceives a model to be similar to themselves, Bandura (1986, 2000) argues that they are more likely to learn from that model’s behaviour because it appears relevant and applicable to themselves. The observer’s perceived similarity to the model can be based on a variety of factors, such as age, gender, profession, or, in the case of a coping model, initial challenges experienced in the process of learning a new behaviour.

Observational Learning of Self-Compassion

Social cognitive theory suggests that observing self-compassion in others may promote the learning and performance of self-compassion. As predicted by social cognitive theory, research by Miller and colleagues has found that self-compassion may be learned indirectly through observing it in others. In the first study demonstrating this effect, Miller and Kelly (2020) had female undergraduates listen to an audio clip in which an alleged peer experienced an academic failure and responded to the experience in one of three ways: self-compassionately (coping with their distress with self-kindness, mindfulness, and common humanity, which provides a demonstration Neff’s three components of self-compassion); self-esteem enhancing (expressing positive self-beliefs, downward social comparisons, and self-serving evaluations of the reasons for failure, demonstrating behaviours that enhance self-esteem as described by Crocker & Park, 2004); or neutrally and factually (as a control condition). Participants were not

told that they were to learn a coping skill from the audio clip. After listening to the audio clip, participants wrote a reflection about their own academic challenges and reported their own state self-compassion. Participants in the self-compassion condition reported significantly higher state self-compassion than those in the control condition. Furthermore, observer ratings of participants' self-compassion based on their written reflections about their academic stress also indicated more self-compassionate behaviour in the self-compassion condition compared to the control group. Both of these findings indicate that hearing a peer's display of self-compassion is beneficial for the observer's own self-compassion.

Extending these findings into the domain of body image distress, Miller et al. (2022) used a similar design in two studies. The first of these studies compared the effects of hearing a peer cope with body image distress in three different ways: self-compassion, self-esteem enhancing, or distraction. Results showed that hearing a peer cope with body image distress led to increased self-compassion, regardless of the type of coping that was demonstrated in the audio clip. The authors theorized that the common humanity component of self-compassion contributed to lack of differences across conditions – participants may have come to feel less alone in their own experiences of body image distress through hearing about a peer's experience in the audio clip, facilitating greater self-compassion through common humanity. Testing this theory, Miller et al.'s second study compared the effects of hearing a peer cope with body image distress self-compassionately versus hearing a peer describe body image distress without coping (to induce common humanity without explicitly demonstrating self-compassion) versus hearing a peer describe feeling content with her body (which should not facilitate common humanity). Supporting their idea that exposure to a coping peer can increase self-compassion through common humanity, Miller et al. found that both the self-compassion condition and the distress

without coping condition led to greater body-image focused state self-compassion than the control condition. Notably, the self-compassion condition led to the greatest body-image focused state self-compassion, suggesting that hearing an example of self-compassionate coping is more beneficial for the listener's self-compassion than hearing about distress alone.

Taking a different approach to examining observational learning of self-compassion, Andreeva and Green (2024) conducted three studies in which participants read a narrative about a character who experienced everyday stressors and demonstrated either high or low self-compassion. After reading the narrative, participants reported their own state self-compassion. Two of their three studies found that reading a narrative about a character with high self-compassion did not lead to greater self-compassion in the reader, compared to reading a narrative about a character with low self-compassion. They also found no differences between their self-compassion conditions and a neutral control condition. In their third study, there were no differences in state self-compassion as measured with Neff and colleagues' (2021) State Self-Compassion Scale; however, when measuring self-compassion with the Self-Criticism and Compassion Scales (Falconer et al., 2015), they found that the low self-compassion condition led to lower self-compassion than the high self-compassion condition and a neutral control condition. In sum, Andreeva and Green (2024) did not find evidence that observing self-compassion via reading about a character who displays self-compassion was beneficial for the reader's self-compassion; however, they found that reading about a character who was low in self-compassion negatively influenced the reader's self-compassion, suggesting that the level of self-compassion one observes in others may influence the observer's level of self-compassion.

Though not directly testing social cognitive theory or observational learning, studies on the effects of exposure to self-compassion content on social media also provide some evidence

that observing self-compassion expressed by others may be beneficial for the observer's self-compassion. For example, in a study by Slater et al (2017), undergraduate women viewed Instagram posts of either interior design content (control condition), 'fitspiration' (images framed to motivate a 'healthy lifestyle' but known to promote a thin-ideal body and unhealthy eating habits), self-compassion (quotes with no images of bodies), or a combination of fitspiration and self-compassion content. The self-compassion condition led to greater state self-compassion than any of the other conditions, though this effect was moderated by thin-ideal internalization. Of note, the fitspiration alone condition led to lower state self-compassion than the control condition; however, the fitspiration and self-compassion combined condition also led to greater state self-compassion than the fitspiration alone condition, suggesting that viewing even a small amount of self-compassion content may be beneficial. Similarly, Seekis and Kennedy (2023) found that viewing TikTok videos about self-compassion strategies and personal stories led to greater state self-compassion in the viewer compared to viewing videos about beauty tips or travel destinations; Sullivan et al. (2024) also reported that viewing Instagram posts about self-compassion (text only) and body positivity (photos) both led to greater state self-compassion than a neutral control condition.

Summary of Observational Learning Literature and the Applicability of Social Cognitive Theory to Self-Compassion

Social cognitive theory asserts that people can learn new behaviours by observing a peer model who demonstrates the behaviour ("observational learning"). By observing a behaviour in others, people gain knowledge about the when and how the behaviour can be performed (i.e., learning of the behaviour); they also become more likely to engage in the behaviour themselves (i.e., performance of the behaviour). Learning through observation is purported to be more likely

when the behaviour is observed to lead to a rewarding outcome for the model, because the observer comes to expect that the behaviour will lead to similar outcomes for themselves; this increase in positive outcome expectancies is thought to increase motivation to engage in the behaviour and thus, performance of the behaviour. Preliminary research showing that exposure to a self-compassionate peer leads to greater performance of self-compassion in the observer (Miller & Kelly, 2020; Miller et al., 2022) suggests that observational learning can be applied to self-compassion. Further supporting this possibility, research examining the effect of seeing self-compassion on social media has found that viewing brief examples of self-compassion on social media is beneficial for people's self-compassion. More research is needed to replicate these findings and test further tenets of social cognitive theory, including the role of rewards in observational learning, vis-à-vis self-compassion.

The Present Studies

Research Objectives

The present studies sought to address the broad need for a better understanding of the contextual factors that influence state self-compassion with an eye toward inspiring novel practical strategies that might allow individuals to access more self-compassion without formal, direct practice. Preliminary evidence from Miller and colleagues (Miller & Kelly, 2020; Miller et al., 2022) demonstrated the fundamental principle of observational learning in relation to self-compassion by showing that hearing a peer model of self-compassion promotes greater self-compassion in the observer, suggesting that social cognitive theory may be a fruitful theoretical model from which to advance research on this topic. The present research therefore aimed to replicate Miller and colleagues' findings and to extend their work by testing further tenets of social cognitive theory as they apply to self-compassion.

Specifically, the present studies sought to test the social cognitive theory tenets that: **(1)** observing a peer model demonstrate a behaviour should lead to subsequent learning of that behaviour (i.e., knowledge that the behaviour is an available option in a particular context; knowledge of how to perform the behaviour), and even more so when the observer perceives the peer model to experience rewarding outcomes attributable to the modelled behaviour; **(2)** observing a peer model demonstrate a behaviour should lead to subsequent performance of that behaviour (i.e., engagement in the behaviour oneself), and even more so when the observer perceives the peer model to experience rewarding outcomes as a result of the behaviour; and **(3)** this latter effect should occur indirectly via the observer coming to expect that the behaviour may lead to the same rewarding outcomes for themselves (i.e., they develop positive outcome expectancies for the behaviour), thereby motivating performance of the behaviour.

To test these ideas vis-à-vis self-compassion, we conducted two between-subjects experiments, each comparing the effects of three conditions on the learning and performance of self-compassion: observing a peer cope with distress self-compassionately and experience rewarding outcomes; observing a peer cope with distress self-compassionately without rewarding outcomes; and observing a peer experience distress without any demonstration of self-compassionate coping (control). To account for potential domain-specificity in participants' level of self-compassion (Zuroff et al., 2021), and to ensure that the speaker in the audio clip described challenging experiences that would be similar to those that the undergraduate participants in the study may experience, the speaker in the audio clip discussed distress in the academic domain in all three conditions. Participants completed a measure of the extent to which academics are important to their self-esteem (i.e., academic contingencies of self-worth; Crocker et al., 2003) to be used as a control variable in analyses. We thought it would be important to control for this

variable given the research showing that s there are individual differences in the extent to which college base their self-worth on academics (Crocker et al., 2003), which should affect students' capacity to be self-compassionate vis-à-vis an academic struggle.

Hypotheses

Hypotheses 1a and 1b: Learning of Self-Compassion as a Function of Whether and How it is Modelled. Based on social cognitive theory, hypothesis 1a was that observing a peer who models self-compassion would lead to greater learning of self-compassion (i.e., knowledge that self-compassion could be used as a coping strategy when experiencing distress) in the observer, compared to observing a peer who does not model self-compassion. Regarding the effect of observing rewarding outcomes for the model, hypothesis 1b was that observing a peer who models self-compassion and emphasizes self-compassion-related rewards would lead to greater learning of self-compassion compared to observing a peer who models self-compassion but does not emphasize self-compassion-related rewards.

Hypotheses 2a and 2b: Performance of Self-Compassion as a Function of Whether and How it is Modelled. Similar to our hypotheses concerning learning of self-compassion and aiming to replicate Miller & Kelly (2020), hypothesis 2a was that observing a peer who models self-compassion would lead to greater performance of self-compassion (i.e., engagement in self-compassionate coping) in the observer compared to observing a peer who does not model self-compassion. Building on these findings to incorporate the role of rewards, hypothesis 2b was that observing a peer who models self-compassion and emphasizes self-compassion-related rewards would lead to greater performance of self-compassion compared to observing a peer who models self-compassion but does not emphasize self-compassion-related rewards.

Hypothesis 3: Rewards Influencing Performance of Self-Compassion Indirectly via Outcome Expectancies and Motivation. Testing a more complex model proposed by social cognitive theory, we hypothesized that the effects predicted in Hypothesis 2b – namely, that performance of self-compassion would be greater among those who observe a self-compassionate model who emphasizes versus does not emphasize self-compassion related rewards – would occur indirectly via greater observer positive outcome expectancies for self-compassion and motivation to be self-compassionate.

Study 1

Method

We conducted a two-part online study with a sample of undergraduate women low in trait self-compassion. All participants completed a pre-screening questionnaire to determine their eligibility to participate. During the first part of the study, participants were randomly assigned to one of three conditions using the randomization function in QualtricsTM, in which they listened to one of three audio clips of an ostensible undergraduate peer: 1) describing academic distress + self-compassionate coping + self-compassion-related rewards (the “self-compassion with rewards” condition); 2) describing academic distress + self-compassionate coping (the “self-compassion without rewards” condition); or 3) describing academic distress (the “distress only” control condition). After listening to the audio clip, participants completed Part 1 measures. As previously noted, we chose to focus on the domain of academics to ensure that the distress described by the peer in the audio clip would be similar to participants’ own experiences and to account for possible domain specificity in participants’ tendency to be self-compassionate; given likely differences in the extent to which participants base their self-esteem on academics, we assessed participants’ academic contingencies of self-worth to be used as a control variable in analyses. Participants were asked to complete the second part of the study 2-4 days after completing Part 1; in part two, they completed a second set of measures. The study was approved by the university’s Research Ethics Board. Data collection took place from July 2023 to December 2023.

Participants

Eligibility Criteria

Social cognitive theory argues that people are more likely to learn a behaviour through observing a model when they perceive the model to be similar to themselves. Because the present study was not aimed at testing differences in observational learning of self-compassion as a function of perceived similarity, we chose to control for perceived model similarity using two eligibility criteria: to participate in the study, participants had to self-identify as women and be current undergraduate students. These factors were selected as eligibility criteria to ensure that participants were of a similar identity and status to the speaker in the audio clip, who was a woman-identifying researcher portraying an undergraduate student. In addition to these eligibility criteria, to participate in the study, participants had to be able to listen to audio clips using device speakers or headphones and had to be relatively low in trait self-compassion. Low trait self-compassion was defined as having a score less than 2.87, the typical mean in an undergraduate sample (based on Kelly et al., 2014; Waring & Kelly, 2019) on a commonly used measure of trait self-compassion, the Self-Compassion Scale-Short Form (Raes et al., 2011). We selected a sample of women low in trait self-compassion to ensure that our sample had the potential to learn and benefit from observing a self-compassionate peer – individuals above the mean in trait self-compassion would have less to learn from a self-compassionate model, given their already relatively high level of self-compassion.

Recruitment and Remuneration

The present study had a sample of 370 participants. Participants were woman-identifying undergraduate students at the University of Waterloo, recruited through the university's psychology participant pool ($n = 335$) and advertisements displayed in buildings on the University of Waterloo campus ($n = 35$). The participant pool sample received course credit as remuneration (0.5 credits for each of Part 1 and Part 2, to a possible total of 1.0 credits), and the

non-participant pool sample received pay (\$5.00 CAD for each of Part 1 and Part 2, to a possible total of \$10.00 CAD).

Sample Characteristics

Trait self-compassion scores in the sample reflected the requirement for participants to be low in self-compassion ($M = 2.40$, $SD = 0.47$) and did not significantly differ in the participant pool and non-participant pool samples, $F(2, 354) = 0.99$, $p = .372$. The two samples were combined for all analyses to provide sufficient statistical power. Demographic characteristics for the full sample are presented in Table 1.

Sample Size

Prior experimental research conducted in our lab examining observational learning of self-compassion (Miller & Kelly, 2020; Miller et al., 2022) revealed effect sizes of roughly $\eta_p^2 = .10$. Based on these effect sizes, we determined that a sample size of approximately 50 participants per condition (total $N = 150$) would be sufficient to uncover evidence in support of hypothesis 1, that observing self-compassion (with or without rewards) would result in greater learning of self-compassion in the observer than not observing self-compassion.

Regarding hypothesis 2, that observing self-compassion with rewards versus without would yield greater performance of self-compassion via greater outcome expectancies and motivation to be self-compassionate, we used an online app to run an a priori Monte Carlo power analysis for a mediation model with two serial mediators (Schoemann et al., 2017). We estimated small to medium path coefficients (0.2-0.4) based on theory and previous research (Bandura, 1965, 1986; Miller & Kelly, 2020; Miller et al., 2022; Schunk & DiBenedetto, 2020). This power analysis showed that approximately 100 participants per group would provide 80% power to detect the hypothesized indirect effect. Taking together the required sample sizes to observe the

predicted effects underlying hypotheses 1 and 2, we will aim to recruit 100 participants per condition.

Measures

Eligibility Measures and Demographics

For the participant pool sample, measures to determine eligibility and demographics were completed as part of a larger pre-screening survey administered to the entire participant pool. The non-participant pool sample completed the eligibility measures in an online pre-screening survey whose link was listed on study advertisements; eligible participants then provided demographic information in Part 1 of the study.

Demographics. Participants reported their current age, gender, biological sex, primary racial group, and ethnicity. Participants also reported their current year of university and their grade point average.

Trait Self-Compassion. Participants completed the Self-Compassion Scale – Short Form (SCS-SF; Raes et al., 2011) to measure their trait level of self-compassion. The SCS-SF is a widely used 12-item measure of self-compassion based on Neff’s (2003) conceptualization of the construct. Accordingly, its items assess three positive components of self-compassion (self-kindness, common humanity, mindfulness) and their corresponding negative components (self-criticism, isolation, overidentification). Sample items include “I try to be understanding and patient towards those aspects of my personality I don’t like” (self-kindness item) and “When I fail at something that’s important to me, I tend to feel alone in my failure” (isolation item). Participants respond to these items on a scale from 1 (*Almost Never*) to 5 (*Almost Always*), indicating how often they behave in the stated manner. After reverse scoring negative items, the

mean of each participant's responses provides a composite score with higher values indicating greater trait self-compassion. This scale had acceptable reliability in this study ($\alpha = .72$).

Covariate

Academic Contingencies of Self-Worth. Because the audio clips in the study focused on the academic domain, we expected that the extent to which participants base their self-esteem on their academics may impact their learning and performance of self-compassion after listening to the audio clips. To control for this possibility, we included the Academic subscale of the Contingencies of Self-Worth Scale (Crocker et al., 2003) in Part 1 of the study. We included the Competition subscale and Approval from Others subscale as filler items aimed at covering up our primary interest in the study. The Academic subscale has 5 items which describe one's relationship to their academic performance (e.g., "Doing well in school gives me a sense of self-respect"), one of which is negatively phrased and reverse scored. To calculate a composite score, we took the mean of the five Academic items. Scores on this subscale had good reliability, $\alpha = .82$.

Manipulation Check and Attention Measures

Perceived Rewards (Administered in Part 1). To allow us to test the effect of our experimental manipulations, participants completed four items which assessed the extent to which they perceived the student in the audio clip to have experienced positive outcomes. Negative items were reverse scored. The mean of the 4 items provides a composite score with higher levels indicating greater perceived rewards. $\alpha = .87$

Attention to Audio Clip (Administered in Part 1). Because the experimental manipulation was delivered in the audio clip, it was important to screen for inattention at this part of the study. Participants therefore rated their agreement with three statements aimed at

assessing attention (“I focused my complete attention on listening to the audio clip”; “I was thinking about other things while listening to the audio clip”; “I was doing other things (e.g., looking at my phone) while listening to the audio clip”) on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). We computed an attention score for each participant as the mean of these items, which had good reliability, $\alpha = .80$.

Study Perceptions (Administered in Part 2). To identify participants who were suspicious of the study’s purpose or the nature of the audio clip, at the end of Part 2 of the study, participants were asked to report if they had doubts or suspicions about the study. Participants rated the extent to which they believed the audio clip was a true recording on a scale from 1 (*I did not believe it was a recording of a student from a previous study*) to 5 (*I completely believed it was a recording of a student from a previous study*); this scale also included the option *I do not remember listening to the audio clip* (corresponding to 0 on the scale). This item was used for data quality screening; participants who reported not remembering the audio clip when they completed part 2 of the study were excluded from analyses. An open-ended text response item provided participants with the opportunity to describe when, if at all, they had doubts about the believability of the audio clip.

Mediating Variables (Administered in Part 1)

Outcome Expectancies for Self-Compassion. Participants’ outcome expectancies for self-compassion were assessed using a researcher-generated measure with 14 items. Participants were asked to rate their agreement with statements describing expected outcomes of self-compassion on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). We included six negatively worded items to prevent a response set; these were taken from the Fear of Self-Compassion Scale (Gilbert et al., 2011; sample item “I fear that if I am too compassionate

towards myself, bad things will happen”). Positive items were based on positive outcomes of self-compassion that have been identified in meta-analyses and systematic reviews (e.g., “Being self-compassionate would help me cope with stress in my life,” based on Ewert et al., 2021; other items were based on MacBeth & Gumley, 2012; Ortiz et al., 2023), or adapted from a measure of self-compassion with items assessing intentions to be self-compassionate (e.g., “Being compassionate to myself will improve my overall wellbeing,” from the Self-Compassion Intention subscale of the Compassion Motivation and Action Self-Compassion Scale, Steindl et al., 2021). In addition, two items reflecting general positive beliefs about self-compassion were adapted from the Life Optimism Test-Revised (e.g., “Overall, I think self-compassion is more good than bad”, Scheier et al., 1994). We conducted an exploratory principal components analysis with oblimin rotation to examine the factor structure of this scale. This analysis indicated that the items loaded on two factors; based on item content, these factors appeared to represent high endorsement of positive outcome expectancies and low endorsement of negative outcome expectancies. These two subscales had a correlation of $r = .35, p < .001$; because retaining all items yielded good reliability ($\alpha = .85$) and there was no improvement in reliability when treating these factors as two subscales (high positive outcome expectancies items $\alpha = .85$; low negative outcome expectancies $\alpha = .83$), all items were retained. The mean of all scale items, with negative items reverse scored, provides a composite score with higher values representing more positive and less negative outcome expectancies for self-compassion.

Motivation to be Self-Compassionate. Participants completed a 10-item researcher-generated measure of motivation to be self-compassionate. This measure was adapted from the Compassionate Engagement and Action Scales, Self-Compassion Scale (Gilbert et al., 2016) and the Self-Compassion Motivation subscale of the Compassion Motivation and Action Self-

Compassion Scale (Steindl et al., 2021). Participants rated their agreement with statements describing a desire to treat oneself with compassion in times of distress on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). Sample items include “I wish to be kind and caring towards myself when faced with difficulties” (from Steindl et al., 2021); “I want to reflect on and make sense of my feelings of distress”; “I want to avoid thinking about my distress and try to distract myself and put it out of my mind” (from Gilbert et al., 2016). Negative items were reverse scored. An exploratory principal components analysis with oblimin rotation indicated that the items loaded on three factors. The first of these factors, consisting of items 1, 2, 3, 4, 8, and 10, included items reflecting motivation to be kind and supportive towards oneself in times of distress, as well as motivation to engage with and be accepting of one’s distress. Items loading on the second and third factors were those related to distress tolerance. Because the first factor best reflected motivation to be self-compassionate, only the first factor was retained. We took the mean of these items to compute a composite score representing motivation to be self-compassionate; this composite had a reliability of $\alpha = .84$.

Outcome Measures (Administered in Part 2)

Learning of Self-Compassion Writing Task. As a behavioural measure of learning of self-compassion, participants were asked to list five “ideas of ways that students can cope with unpleasant or upsetting feelings related to their academics or coursework.” For each idea they provided, they were also asked to rate its helpfulness on a scale from 1 (*Not Helpful*) to 5 (*Very Helpful*). To provide a behavioural measure of learning of self-compassion, these responses will be coded by research assistants for the presence of self-compassionate coping strategies; coding of these data is ongoing.

Learning of Self-Compassion Self-Report Scale. To assess learning of self-compassion, participants were asked to rate the extent to which they believed it was possible for a student to cope with their academic stress in 17 ways. Eight of these items reflected self-compassionate coping; of these items, three were adapted from the Self-Compassion section of the Compassion Engagement and Action Scales (e.g., “Be accepting, non-critical, and non-judgmental of their feelings of distress”, Gilbert et al., 2016), and five were adapted from the Self-Compassion Scale (Neff, 2003b). Filler items in this scale were adapted from the Rosenberg Self-Esteem Scale (e.g., “Think about how well they do compared to other people”; Rosenberg, 1965) and the Brief COPE (e.g., “Make Jokes about it”; Carver, 1997). We conducted an exploratory principal components analysis to examine the factor structure of this scale. Items loaded on two factors. The first factor included the eight items intended to reflect self-compassionate coping, plus three items adapted from the RSES and one from the Brief COPE. The second factor included all other items, which were included in the scale as filler. Although the first factor included more than just the intended eight self-compassion items, the items from the RSES it included described behaviours that could also reflect self-compassionate coping (e.g., “Take a positive attitude towards themselves”). The item from the Brief COPE it included was a reverse-scored item, “Criticize themselves,” reflecting the opposite of self-compassionate coping. We retained all items loading on the first factor because these items were theoretically consistent with the construct of self-compassion. The final scale thus consisted of twelve items, with eight adapted from self-compassion measures, three from the RSES, and one from the Brief COPE. After reverse scoring negative items, the mean of these items provides a composite score, with higher scores reflecting greater learning of self-compassion. This composite score had good reliability, $\alpha = .90$.

Performance of Self-Compassion Writing Task. Participants were asked to “bring to mind something related to [their] academics or coursework from the past few days that has been making [them] feel upset (for example: stressed, anxious, down on [themselves], or some other unpleasant feeling(s)).” They were then asked to describe the situation, rate how distressing it was, and as a retrospective behavioural measure of self-compassion, they were asked to describe “what, if anything, [they did] to cope with those feelings” at the time of the experience as well as in the present. The purpose of this task was twofold: bringing to mind a recent academic stressor provides participants with a relevant example to focus on when completing the self-compassion scale (described below), a self-report measure of self-compassionate performance; and writing about their experience allowed for responses to be coded by research assistants to provide a behavioural measure of self-compassionate performance. Coding of these responses is ongoing; research assistants are using modified versions of the Self-Compassion Scale-Short Form (Raes et al., 2011), and the Compassion Engagement and Action Scales Self-Compassion Scale (Gilbert et al., 2017) to code.

Performance of Self-Compassion Self-Report Scale. The State Self-Compassion Scale – Short Form (Neff et al., 2021) was used as a self-report measure of performance of self-compassion. Participants responded to 6 items describing current self-compassionate behaviour by rating how well each statement reflected their feelings towards themselves, keeping in mind the experience of academic distress they described in the performance of self-compassion writing task. The scale has 3 positive items and 3 negative items, which are reverse scored. Sample items include “I’m giving myself the caring and tenderness I need” and “I feel like I’m struggling more than others right now.” This scale had acceptable reliability, $\alpha = .75$.

Exploratory Measures (Administered in Part 1)

Perceived Model Similarity. Because perceived similarity to the model can facilitate observational learning, we asked participants to rate the extent to which they felt similar to the student in the audio clip using three items (“I have had similar experiences to the student in the audio clip”, “The student in the audio clip is similar to me”, “I feel like I can relate to the student in the audio clip”), on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). Scored as a mean, these items had a good reliability ($\alpha = .85$).

Perceived Model Genuineness. As an exploratory variable, we included three items which assessed the extent to which participants perceived the student in the audio clip as being honest and genuine with the researcher in the audio clip. Participants rated their agreement on a 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) scale with the statements “The student in the audio clip was being honest with the researcher,” “The student in the audio clip was being open with the researcher,” and “The student in the audio clip comes off as very genuine.” A composite was calculated by taking the mean of all items. Together, these items had a reliability of $\alpha = .86$.

Procedure

Use of Deception

Because the goal of the current study was to investigate indirect observational learning of self-compassion (i.e., learning that occurs via observation and without conscious effort to learn on the part of the observer), participants were not told the true purpose of the study. Participants were informed that the aim of the study was to “understand the challenges that woman-identifying undergraduates experience related to their academics, and to better understand [their] perceptions of the academic challenges of their peers.” To support this cover story, participants completed one filler measure in Part 1 of the study that asked them to report the extent to which they would find six academic situations distressing (e.g., “Having two tests on the same day”);

this measure was used as filler only and was not scored or analyzed. In addition, the study was advertised as “Understanding Undergraduate Women’s Academic Distress” from July 2022 to September 2023 and was changed to “What is Academic Stress Like for Women in University?” from September 2023 onward. The name of the study was updated to promote greater interest among prospective participants.

Part 1

Audio Clip with Experimental Manipulation. Consistent with the approach taken by Miller and colleagues (2020, 2022), the experimental manipulation was presented to participants in the form of an audio clip, scripted and recorded by the researchers but presented to participants as a clip of an undergraduate peer describing their own experiences. In each condition, participants read that they would be listening to an audio clip that was a recording from a previous study, in which an undergraduate student speaks to a research assistant about recent experiences they had navigating academic challenges. In all clips, the research assistant speaks minimally throughout to ensure that the student’s experience is the focus of the clip; she interjects briefly to ask for more information or to respond conversationally (e.g., “Can you tell me more about that?”; “Mhm, interesting”). To support the believability that the audio clip was a recording from previous research, participants were informed that identifying information had been removed and were asked to listen to the audio clip in a private location or to use headphones. In truth, the audio clips were scripted by the researchers and recorded by members of our lab. Participants listened to one of three audio clips described below.

Distress Only (Control; 4 min 37 sec). Participants in the distress only condition heard the student in the audio clip student describe an experience of academic stress. A clip of a peer describing an experience of distress without coping was selected as the control condition because

the audio clips for the self-compassion conditions present self-compassion as a way of coping with distress; as such, the audio clips for all three conditions begin with the student describing an experience of academic stress. The student describes a week in which she had a midterm exam, a quiz, and a presentation; she describes these activities as stressful and overwhelming, noting that she worked hard to do well but felt disappointed by her academic performance. Below is an excerpt from this clip:

“Student: I mean, in the end I got it all done, but it was just a really hard week. I haven’t gotten grades back for everything yet, but I know I did even worse than I was expecting to on one of the assignments.

RA: Mm. And what was that like for you?

Student: I was really upset, because I felt like I worked so hard, and I still didn’t do well. I was pretty sad and, yeah, pretty frustrated. And it was hard because I had so much more to do after that week, but I just kept thinking about everything that went wrong, and I just felt like I wasn’t able to motivate myself to do everything else that was on my plate.

RA: Yeah, that makes sense. And so, how did you handle all of that?

Student: Honestly, for a while I was just really stressed, and beating myself up about it. Yeah, it felt really hard to shake the disappointment and frustration I was feeling.”

Distress plus Self-Compassion without Rewards (6 min 24 sec). In the self-compassion without rewards condition, participants heard the student describe the same stressful academic week as in the distress only condition; some details about the assignments and tests were omitted to ensure that the duration of the audio clips was as similar as possible. Unlike in the distress only condition, when asked by the research assistant how she handled her difficult week, the student explained that she came across a post about self-compassion on social media and tried to

cope in the way the post described. The self-compassion clip section of the clip was designed to reflect Neff's three components of self-compassion (self-kindness, common humanity, and mindfulness, see Neff, 2003a), and the student spoke with a warm tone of voice reflecting Gilbert's (e.g., 2009) emphasis on embodied and physiological characteristics of compassion. An excerpt from the self-compassion portion of the clip is below:

“Student: Okay, well I guess I tried to get an image of myself struggling, you know, like, sitting at my computer and doing my school work feeling really defeated...overwhelmed. Kind of like how I would try to imagine a friend in a difficult situation that they were going through. And I could really see how much I was struggling, and I really felt for myself when I pictured myself like that, from more of this outside perspective. Not sure if that really makes sense at all.

RA: Yeah, totally makes sense. I'm following.

Student: Anyways, in my head I said something to myself like, “Wow, you are really having a tough time. This situation was hard and it's clearly making you feel really down on yourself.” I tried to remind myself those feelings made sense, that they were valid, like, what I would say to any friend if they were upset.

RA: Right. And, do you remember anything else that you thought about?

Student: Um, well, I thought about how it's so natural to feel disappointed after an experience like this. I mean, anyone would probably feel sad and frustrated after working that hard and still not doing well. I tried to tell myself that I'm sure I'll feel better with time, but for now, it makes so much sense that I'd be feeling really beaten down by the whole thing. That these kinds of situations can be so deflating. And, again, it was kind of weird, and different at first, but it actually wasn't as awkward as I thought it would be.”

Distress plus Self-Compassion with Rewards (7 min 34 sec). The audio clip for the self-compassion with rewards condition builds on the audio clip from the self-compassion without rewards condition. The self-compassion section of the clip was identical; however, the research assistant then asked the student how she felt after trying to cope self-compassionately. The student replied with a description of positive outcomes she experienced:

" RA: Mhm, interesting. And so, how did you feel after you did that?

Student: I was actually really surprised. I wasn't expecting it to feel so helpful, but I really did feel better after it. Almost like I felt more reassured, if that makes sense. Um, I think when I tried to be more self-compassionate I realized that it was pretty understandable that I was feeling upset, and I would expect a friend who was in similar shoes to be feeling the same way.

RA: Uh-huh.

Student: Yeah, I guess I...it helped me see that I wouldn't feel badly forever, and I felt more accepting about what had happened. It was really helpful for me to be more compassionate with myself, just about how I was feeling. I felt a little less upset, maybe even little lighter. And I actually felt more motivated, now that I think of it, to work on my next assignment. I found that I was able to focus so much better on it, and get some work done, which helped me feel really good."

Measures. After listening to the audio clip, participants completed Part 1 measures: Perceived Rewards, Attention to the Audio Clip, Perceived Model Similarity, Perceived Model Genuineness, Outcome Expectancies for Self-Compassion, Motivation to be Self-Compassionate, Academic Contingencies of Self-Worth, Academic Distress Situations (filler measure to support cover story), and Demographics (for non-participant pool sample only).

Part 2

Measures. In Part 2 of the study, which was administered 2-4 days after participants completed Part 1, participants completed Part 2 measures: Learning of Self-Compassion (writing task and self-report scale), Performance of Self-Compassion (writing task and self-report scale), and measures of study perceptions.

Debriefing and Post-Debriefing Consent. At the end of Part 2 of the study, participants were debriefed about the true purpose of the study with a debriefing letter. Participants were then asked to provide post-debriefing consent and to indicate whether they had any concerns or questions about the use of deception in the study.

Results

Missing Data

Of the 370 participants in the combined participant pool ($n = 335$) and paid ($n = 35$) samples, 49 did not complete Part 2 of the study (13.2% attrition). Attrition rates did not differ by recruitment source, $\chi^2(1) = 1.91, p = .167$, or by condition, $\chi^2(2) = 0.37, p = .837$. A logistic regression analysis showed that attrition was also not predicted by trait self-compassion, $B = 0.20, SE = 0.33, p = .552$.

Little's MCAR test showed that data were not missing completely at random, $\chi^2(1694) = 1839.13, p = .007$; however, inspection of the missing value patterns suggested that the significant MCAR test result could be explained by attrition from Parts 1 to 2. To investigate this possibility, we ran a second Little's MCAR test excluding participants who did not complete Part 2, which indicated that the data were missing completely at random, $\chi^2(1524) = 1567.87, p = .212$. It was thus concluded that the data were missing at random. For the current analyses,

missing data was handled using listwise deletion. We plan to conduct further analyses on multiply imputed data at a later date.

Analytic Strategy

All analyses were conducted using IBM SPSS Statistics Version 27.

Hypothesis 1a predicted that observing a peer who models self-compassion would lead to greater learning of self-compassion in the observer, compared to observing a peer who does not model self-compassion. Hypothesis 1b predicted that observing a peer who models self-compassion and emphasizes self-compassion-related rewards would lead to greater learning of self-compassion compared to observing a peer who models self-compassion but does not emphasize self-compassion-related rewards. Because the current study focused on the domain of academics, we controlled for academic contingencies of self-worth (see Crocker & Wolfe, 2001; Crocker et al., 2003) when testing these hypotheses to account for likely differences in the extent to which participants value academics and potential domain-specificity in participants' self-compassion (see Zuroff et al., 2021). Hypotheses 1a and 1b were thus tested using a one-way analysis of covariance (ANCOVA). Prior to this analysis, we ran preliminary tests to ensure that the assumptions for ANCOVA were met: we used a Pearson correlation to test for a significant relationship between the covariate and the dependent variable; an analysis of variance (ANOVA) confirmed that levels of the covariate did not differ across conditions; an ANCOVA using a custom model in SPSS to test the interaction of condition and the covariate as a predictor of the dependent variable was conducted to confirm that the covariate did not moderate the effect of condition on the dependent variable; and inspection of a scatterplot indicated linearity of the relationship between the covariate and the dependent variable. Results of these tests of assumptions are reported in Appendix D. After confirming that all assumptions for ANCOVA

were met, hypotheses 1a and 1b were tested using a one-way ANCOVA with condition as the independent variable and learning of self-compassion as the dependent variable.), making it important to control for this variable in analyses. When condition effects were significant, planned contrasts were used to test for our hypothesized group differences (both self-compassion conditions vs. control; self-compassion with rewards vs. without).

Similar to our first set of hypotheses, but regarding performance of self-compassion, hypotheses 2a and 2b were that performance of self-compassion would be: (2a) greater in the self-compassion conditions (with and without rewards) compared to the control condition; and (2b) greater in the self-compassion with rewards condition compared to the self-compassion without rewards condition. As with hypotheses 1a and 1b, we controlled for academic contingencies of self-worth when testing hypotheses 2a and 2b. These hypotheses were tested using an ANCOVA, with condition as the independent variable, performance of self-compassion as the dependent variable, and academic contingencies of self-worth as the covariate.

Assumptions for ANCOVA were tested using the same procedure as for hypotheses 1a and 1b. and results of these tests are reported in Appendix D. As with hypotheses 1a and 1b, planned contrasts were conducted to test for our hypothesized group differences when there were significant condition effects.

Hypothesis 3, predicting that observing a peer who models self-compassion and emphasizes self-compassion-related rewards would promote greater performance of self-compassion in the observer, indirectly via increased positive outcome expectancies for self-compassion and motivation to be self-compassionate, was tested using a serial mediation analysis conducted using Hayes (2018) PROCESS Macro for SPSS, version 4.2, model 6, with 10,000 bootstrap samples. A dummy-coded condition variable was created (SC with rewards = 1,

SC without rewards = 0) and entered as the independent variable, outcome expectancies for self-compassion and motivation to be self-compassionate were the mediators, and state self-compassion was the dependent variable.

Preliminary Analyses

Recruitment for Study 1 began in Spring 2023; however, recruitment was low during this time ($n = 19$) and participants recruited in Spring tend to have lower academic demands relative to those recruited in Fall and Winter. Given the current study's focus on distress in the academic domain, the potential for different academic characteristics in this group of participants, and the small sample size, we considered this small group of participants to be a pilot sample.

Participants recruited before September 2023 were therefore excluded from analyses.

Data were screened for quality using several criteria. Participants who self-reported being unable to remember the Part 1 audio clip when they completed Part 2 were excluded, as were participants who self-reported low attention to the Part 1 audio clip. Repetitive responding was assessed by examining each participant's variance on all measures; participants who responded to more than two scales with a variance of 0 were excluded from analyses. Lastly, the duration that participants spent completing each part of the study was examined. Participants whose Part 1 duration was too short for them to have listened to the complete audio clip (cutoffs: self-compassion with rewards condition 450 seconds; self-compassion without rewards condition 390 seconds; control condition 280 seconds) were excluded from analyses, as were participants whose study duration was ± 2.5 SDs from the mean in each condition. Of the 474 participants who began the study, 370 (78.1%) were retained after exclusions.

Data were screened for outliers using ± 3 SDs as the cutoff. There were outliers > 3 SDs below the mean on the following variables: perceived similarity ($n = 5$), perceived genuineness

($n = 4$), outcome expectancies for self-compassion ($n = 1$), motivation to be self-compassionate ($n = 3$), academic contingencies of self-worth ($n = 1$), and learning of self-compassion ($n = 3$).

All outliers were winsorized to 3 SDs below the mean.

Testing for baseline differences by condition confirmed that trait self-compassion did not differ by condition, $F(2, 354) = 0.99, p = .374$. Academic contingencies of self-worth also did not differ by condition, $F(2, 360) = 0.03, p = .969$.

Zero-order correlations among all study variables are reported in Table 2, and descriptive statistics for all study variables are reported in Table 3.

Manipulation Check

To test the effectiveness of our experimental manipulation, we conducted a one-way ANOVA to examine differences in perceived rewards by condition. There was a significant effect of condition on perceived rewards, $F(2, 361) = 244.57, p < .001, \eta^2_p = .58$ (see Table 4 and Figure 1). Post-hoc comparisons revealed that not surprisingly, participants perceived significantly less rewarding outcomes in the control condition than in either self-compassion condition (self-compassion with rewards condition: $t(240) = 19.81, p < .001$; self-compassion without rewards condition: $t(241) = 17.72, p < .001$). Importantly, perceived rewards did not significantly differ in the self-compassion with rewards ($M = 5.64, SD = 0.84$) vs. without rewards ($M = 5.43, SD = 0.89$) conditions, $t(241) = 1.88, p = .071$; however, the difference between these conditions was in the expected direction. These results indicate that our manipulation of whether self-compassion-related rewards were explicitly emphasized by the model or not did not significantly affect whether participants perceived self-compassion to be beneficial for the model.

Because the test of our experimental manipulation indicated that there were no statistically significant differences in perceived rewards in the self-compassion with versus

without rewards conditions, it is unclear whether we were able to adequately test for our hypothesized effects of observing self-compassion with versus without rewarding outcomes on learning and performance of self-compassion. We decided to proceed with tests of our hypotheses because the difference in perceived rewards in the self-compassion with and without rewards conditions was in the expected direction. Furthermore, we postulated that limitations related to measurement of perceived rewards may have contributed to the nonsignificant results of the manipulation check, because our measure of perceived rewards was very brief and used broadly-phrased items; see the discussion section for further details about this possibility.

Hypotheses 1a and 1b: Learning of Self-Compassion as a Function of Condition

Hypothesis 1a was that learning of self-compassion would be greater after hearing a peer who described distress and self-compassionate coping (both with and without rewarding outcomes) compared to hearing a peer who described distress alone. Hypothesis 1b was that learning of self-compassion would be greater after hearing a peer who described distress and self-compassionate coping with rewarding outcomes, compared to hearing a peer who described distress and self-compassionate coping without describing outcomes. As both of these hypotheses had the same outcome variable (self-reported learning of self-compassion), they were tested with a single analysis of covariance (ANCOVA); we planned to conduct follow-up contrasts to test for our hypothesized differences in the self-compassion conditions versus the control condition (H1a) and in the self-compassion with versus without rewards conditions (H1b). We conducted a one-way ANCOVA with self-reported learning of self-compassion as the dependent variable, condition as the independent variable, and academic contingencies of self-worth as the covariate. Controlling for academic contingencies of self-worth, which accounted for variance in learning of self-compassion, $F(1, 315) = 5.12, p = .024, \eta^2_p = .37$, learning of self-

compassion did not vary across conditions, $F(2, 315) = 0.31, p = .736, \eta^2_p = .002^1$, contrary to hypotheses (see Table 5 and Figure 2). Due to the lack of condition effect, we did not proceed with contrasts.

Hypotheses 2a and 2b: Performance of Self-Compassion as a Function of Condition

Our hypotheses regarding performance of self-compassion paralleled our hypotheses regarding learning of self-compassion. Hypothesis 2a was that performance of self-compassion would be greater after hearing a peer who described distress and self-compassionate coping (both with and without rewarding outcomes) compared to hearing a peer who described distress alone. Hypothesis 2b was that performance of self-compassion would be greater after hearing a peer who described distress and self-compassionate coping with rewarding outcomes, compared to hearing a peer who described distress and self-compassionate coping without describing outcomes. Because these hypotheses had the same outcome variable (self-reported performance of self-compassion), they were tested with a single ANCOVA. We planned to conduct follow-up contrasts to test for our hypothesized differences in the self-compassion conditions versus the control condition (H2a) and in the self-compassion with versus without rewards conditions (H2b). We conducted a one-way ANCOVA with self-reported performance of self-compassion as the dependent variable, condition as the independent variable, and academic contingencies of self-worth as the covariate. Controlling for academic contingencies of self-worth, which accounted for variance in performance of self-compassion, $F(1, 315) = 30.75, p < .001, \eta^2_p = .42$, performance of self-compassion did not vary across conditions, $F(2, 315) = 1.76, p = .174, \eta^2_p =$

¹ Omitting the covariate, there were still no differences in learning of self-compassion as a function of condition, $F(2, 318) = 0.29, p = .746$.

.011², contrary to hypotheses (see Table 6 and Figure 3). As with hypotheses 1a and 1b, because there was no effect of condition, we did not proceed with contrasts.

Hypothesis 3: Indirect Effect of Condition on Performance of Self-Compassion via Outcome Expectancies via Motivation

Hypothesis 3 was that compared to observing a peer who models self-compassion without emphasizing outcomes, observing a peer who models self-compassion and emphasizes rewarding outcomes would lead to greater performance of self-compassion, indirectly via increased positive outcome expectancies for self-compassion and motivation to be self-compassionate. We conducted a serial mediation analysis using Hayes (2018) PROCESS Macro for SPSS, version 4.2, model 6, with 10,000 bootstrap samples. Condition (dummy-coded, 1: self-compassion with rewards, 0: self-compassion without rewards) was the independent variable, outcome expectancies for self-compassion and motivation to be self-compassion were mediators, and performance of self-compassion was the dependent variable. There were no direct or indirect effects of condition on performance of self-compassion (see Table 7). Outcome expectancies for self-compassion was a significant predictor of motivation to be self-compassionate, $\beta = .45$, $SE = .06$, $p < .001$, as well as performance of self-compassion, $\beta = .21$, $SE = .06$, $p < .001$. No other relationships in the model were significant (see Figure 4).

Exploratory Analyses

Perceived Similarity by Condition

Social cognitive theory argues that people are more likely to learn a behaviour observationally from a model whom they perceive to be similar to themselves. We controlled for perceived similarity when designing the audio clips used in the study by using a female, woman-

² Omitting the covariate, there were still no differences in performance of self-compassion as a function of condition, $F(2, 317) = 1.32$, $p = .268$.

identifying speaker and having the speaker focus on academic distress, as all participants were woman-identifying undergraduate students. Regardless, we considered that differences in perceived similarity may have arisen due to differences in the observer's level of self-compassion compared to the model in the audio clip; however, a one-way ANOVA revealed no differences in participants' perceptions that the speaker was similar to themselves across conditions, $F(2, 361) = 0.66, p = .518, \eta^2_p = .004$.

Perceived Genuineness by Condition

Although perceived model genuineness is not identified as an important factor in observational learning by social cognitive theory, we felt that it may be an important variable to assess in the context of this study given the artificially created displays of self-compassion. We presented the audio clip to participants as if it was a recording of a student sharing their experiences as part of a previous study; thus, we thought that some participants may be skeptical of the extent to which the model was being open or honest about their experiences. A one-way ANOVA revealed that participants' perceptions of the speaker's genuineness did not significantly differ across conditions, $F(2, 361) = 2.86, p = .059, \eta^2_p = .016$.

Perceived Rewards Predicting Learning and Performance of Self-Compassion

Because the test of our experimental manipulation indicated that perceived rewards did not differ by condition, as an exploratory approach to testing the relationship between perceived rewards and learning and performance of self-compassion, we used the continuous measure of perceived rewards. To test whether perceived rewards predicted learning of self-compassion, we conducted a linear regression analysis with perceived rewards and academic contingencies of self-worth (to mirror our planned hypothesis tests) as predictors, and learning of self-compassion as the dependent variable. Controlling for academic contingencies of self-worth, which

significantly predicted learning of self-compassion, $\beta = -.13, p = .017$, perceived rewards predicted learning of self-compassion with trending significance, $\beta = .11, p = .050$. To test whether perceived rewards predicted performance of self-compassion, we conducted a second linear regression analysis with perceived rewards and academic contingencies of self-worth as predictors and performance of self-compassion as the dependent variable. Controlling for academic contingencies of self-worth, which significantly predicted performance of self-compassion, $\beta = -.30, p < .001$, perceived rewards did not significantly predict performance of self-compassion, $\beta = .03, p = .537$.

Learning of Self-Compassion by Condition, Controlling for Trait Self-Compassion

Initial analyses to test assumptions for ANCOVA using the same procedure for the main analyses described above confirmed that trait self-compassion was associated with learning of self-compassion, $r(310) = .17, p = .002$, did not vary across groups, $F(2, 354) = 0.99, p = .374$, and did not moderate the effect of condition on the performance of self-compassion, $F(2, 306) = 0.66, p = .517$. Controlling for trait self-compassion, which accounted for variance in learning of self-compassion, $F(1, 308) = 9.14, p = .003, \eta^2_p = .03$, learning of self-compassion did not vary across conditions, $F(2, 308) = 0.11, p = .900, \eta^2_p = .001$.

Performance of Self-Compassion by Condition, Controlling for Trait Self-Compassion

Initial analyses to test assumptions for ANCOVA confirmed that trait self-compassion was associated with performance of self-compassion, $r(310) = .34, p < .001$, and did not vary across groups, $F(2, 354) = 0.99, p = .374$; however, a custom ANCOVA model testing the interaction of trait self-compassion and condition as a predictor of performance of self-compassion indicated that trait self-compassion moderated the effect of condition on performance of self-compassion, $F(2, 305) = 3.44, p = .033, \eta^2_p = .02$. This significant interaction

indicates a violation of the homogeneity of regression assumption, meaning ANCOVA is not an appropriate analytic approach for these variables. We instead conducted a simple moderation analysis using Hayes' PROCESS Macro for SPSS, Model 1, with 10,000 bootstrap samples. This analysis confirmed a significant interaction between condition (self-compassion with rewards vs. without) and trait self-compassion predicting performance of self-compassion, $\beta = .25$, $SE = .10$, $p = .014$. Johnson-Neyman significance testing showed that the self-compassion with rewards condition led to lower performance of self-compassion than the self-compassion without rewards condition for participants whose trait self-compassion level was 0.29 standard deviations below the mean in the present sample and lower, corresponding to a score of 2.22 and lower out of 5 on the Self-Compassion Scale-Short Form (Raes et al., 2011); no other differences were significant. It should be noted that in relation to more typical samples of undergraduate women, this subgroup of low trait self-compassion participants had trait self-compassion scores that were over one standard deviation below the mean – in previous research, typical samples of undergraduate women recruited across the full range of trait self-compassion scores have a mean level of trait self-compassion of approximately 2.87, with a standard deviation of approximately 0.55 (based on Kelly et al., 2014; Waring & Kelly, 2019), making this subgroup of participants notably low in trait self-compassion.

The Relationship between Trait Self-Compassion and Outcome Expectancies for Self-Compassion

Because our mediation analysis showed that there was no effect of condition on outcome expectancies for self-compassion, we considered the possibility that our measure of outcome expectancies reflects trait-like beliefs about self-compassion rather than momentary beliefs amenable to change through a brief experience such as listening to the audio clip in the present

study. We thus examined the correlation between trait self-compassion and outcome expectancies for self-compassion, which was small ($r = .22$), suggesting that these two variables are distinguishable.

Discussion

This study examined the effect of observing a peer cope with academic distress self-compassionately on the observer's learning and performance of self-compassion. Based on social cognitive theory, we hypothesized that among undergraduate women with below-average levels of self-compassion, hearing a peer describe academic distress and self-compassionate coping would lead to greater learning (H1a) and performance (H2a) of self-compassion than observing a peer describe academic distress without a specific description of coping. Further, we hypothesized that learning (H1b) and performance (H2b) of self-compassion would be greater when the observer heard a display of self-compassion in which the model in the audio clip also explicitly described experiencing self-compassion-related rewarding outcomes, compared to hearing a model who described self-compassionate coping without describing specific outcomes. We also tested the hypothesis (H3) that performance of self-compassion 2-4 days later would be greater for participants who heard a self-compassionate model who emphasized rewarding outcomes versus a self-compassionate model who did not, indirectly via increased positive outcome expectancies for self-compassion and motivation to be self-compassionate. Although our manipulation check indicated that the manipulation of perceived self-compassion-related rewarding outcomes for the self-compassion with versus without rewards conditions may have been ineffective, we decided to proceed with testing our hypotheses because the effect of the manipulation was in the expected direction and limitations related to measurement of perceived

rewards may have contributed to the lack of statistically significant difference in perceived rewards across these two conditions (see further discussion below).

Our findings generally failed to find support for our hypotheses. Contrary to hypotheses 1 and 2, there were no differences between the three experimental conditions in terms of their effects on the learning or performance of self-compassion 2-4 days later – there were no differences in subsequent learning or performance of self-compassion, regardless of whether participants heard a peer describe distress with self-compassionate coping and rewarding outcomes, distress with self-compassionate coping and no specific outcomes, or distress alone. Contrary to hypothesis 3, there was also no indirect effect of hearing a peer describe self-compassion with versus without rewards on subsequent performance of self-compassion via positive outcome expectancies for self-compassion and motivation to be self-compassionate; however, positive outcome expectancies for self-compassion immediately after the audio clip was found to predict motivation to be self-compassionate at the same time point and performance of self-compassion 2-4 days later. In sum, among women low in trait self-compassion, hypotheses were generally not supported regarding differing levels of self-compassion learning and performance as a function of whether and how self-compassion was modelled.

An unexpected exploratory finding in the present study was that trait self-compassion significantly moderated the effect of observing a self-compassionate peer on the observer's performance of self-compassion 2-4 days later. Specifically, the self-compassion with rewards condition led to lower performance of self-compassion than the self-compassion without rewards condition for participants who were particularly low in trait self-compassion (0.29 *SDs* below the mean of 2.36). This finding was surprising given that the two self-compassion conditions were not perceived as different from one another in terms of perceived rewards experienced by the

model; thus, it is unclear why the two conditions, which were intended to differ only in the rewards conveyed by the model, led to different levels of self-compassion performance among individuals low in the trait. It is possible that even though there were no differences in perceived rewards based on our measure, the discussion of benefits experienced by the model in the self-compassion with rewards conditions were experienced negatively by individuals low in self-compassion, who are likely to have more negative associations with self-compassion (Gilbert et al., 2011). A recent paper discussed the potential of a self-compassion “backdraft” effect – a negative effect of self-compassion practices characterized by unpleasant thoughts, emotions, sensations, or behaviours that initially arise in response to self-compassion practices when these practices are new (Cai, 2024). In the present study, perhaps for participants who were particularly low in self-compassion, hearing about positive outcomes of self-compassion led to a backdraft effect influencing subsequent performance of self-compassion. When examining this finding, it is important to note that mean trait self-compassion in the present study was already low and was restricted in range because we recruited a sample with below average trait self-compassion (present sample $M = 2.36$; typical sample $M =$ approximately 2.89, based on Kelly et al., 2014; Waring & Kelly, 2019). Until it is replicated and examined in a sample with a fuller range of trait self-compassion, this finding should be interpreted with caution.

Taken at face value, findings from the present study suggest that contrary to what social cognitive theory would predict, being exposed to a self-compassionate model may not result in greater subsequent learning or performance of self-compassion among people low in this trait. Also contrary to what social cognitive theory would predict, whether the model emphasized positive, rewarding outcomes from being self-compassionate had no bearing on whether the observer subsequently demonstrated learning or performance of self-compassion. Although these

results could be interpreted as indicating that self-compassion cannot be learned observationally, caution must be exerted in generalizing conclusions beyond the specifics of the current study methods. Given decades of research supporting social cognitive theory, it is unlikely that the results of this study are indicative of theoretical shortcomings. Although our main hypotheses were not supported, the finding that outcome expectancies for self-compassion was a significant predictor of motivation to be self-compassionate and performance of self-compassion provides partial support for the applicability of social cognitive theory to self-compassion. Considering that other studies have found support for observational learning of self-compassion (Miller & Kelly, 2020; Miller et al., 2022), more research is needed to clarify the circumstances under which observing a self-compassionate peer may be beneficial for the observer's learning and performance of self-compassion. To examine the potential reasons why our findings were inconsistent with social cognitive theory, we considered each of our hypotheses in turn.

Failure to Find that Exposure to a Self-Compassionate Model Promoted Self-Compassionate Learning and Performance

Regarding H1a and H2a, about exposure to a self-compassionate model leading to more self-compassionate learning and performance than no exposure, our findings would suggest that a brief exposure may be insufficient to result in meaningful differences between people in how much they endorse self-compassion as a coping strategy one could employ when distressed and in how much they endorse having engaged in self-compassion in the few days after the exposure (or lack of exposure). Although these results could indicate that self-compassion cannot be learned observationally, when interpreting these findings, the current study's methods and limitations should be considered.

Social cognitive theory argues that the observer's perception that the model is similar to themselves can facilitate observational learning (Bandura, 1986). Considering this possibility, because perceived similarity was not a focus of the present study, we attempted to control for perceived similarity in the present study by using a sample consisting only of undergraduate women and used a woman-identifying undergraduate peer as our model in all three conditions. We included a measure of perceived similarity in the present study, which confirmed that there were no differences in perceived similarity across conditions; furthermore, participants' perceptions that the model was similar to themselves was fairly high across conditions, with a mean of 5.83 out of a maximum possible score of 7 in the overall sample. We thus concluded that perceived similarity was unlikely to have influenced the null findings in the current study. Because the audio clips in the present study were artificially created by the researchers, we also included a measure of participants' perceived genuineness of the model. We postulated that the artificial nature of the audio clips could potentially lead participants to suspect that the speaker was not truly a peer, or to feel that the speaker was exaggerating their experience with self-compassion and its benefits; however, perceived genuineness was also found not to differ across conditions, and was generally high, with a mean of 5.75 out of 7. These results indicated that we could also rule out participants' suspicion of the model having not been a real peer or having exaggerated the benefits of self-compassion as an influence on study outcomes.

There are various reasons why the present study may have failed to find evidence that exposure to a self-compassionate model promoted learning or performance of self-compassion. First, it is possible that evidence of observational learning is unlikely to be evident 2-4 days after a brief exposure to a self-compassionate peer but might be evident following a shorter delay. Miller and colleagues (2020, 2022) found that a brief exposure to a self-compassionate peer led

to increased observer self-compassion; however, they measured the observer's state self-compassion immediately after exposure. In the present study, state self-compassion was only assessed 2-4 days later, to allow for a more rigorous test of learning. It is possible that the difference in results could be explained by the longer delay between exposure to a self-compassionate peer and measurement of learning and performance of self-compassion in the present study – any immediate benefit of observing a self-compassionate peer may have dissipated over time, especially considering that participants would have had several other interactions with their own peers during this period.

A second possibility is that the findings of the present study differed from those of Miller and colleagues because we used a different measure of performance of self-compassion, with fewer items and lower reliability. Miller and colleagues used a 16-item measure of performance of self-compassion adapted from the Self-Compassion Scale. The present study used the recently published State Self-Compassion Scale-Short Form, which has only six items. While these two measures are both based on Neff's conceptualization of self-compassion, differences in item content and overall scale reliability may have limited the precision of the measure. Miller and colleagues also used a behavioural measure of performance of self-compassion; analyses of their behavioural measure also found that observing a self-compassionate peer was beneficial for the observer's self-compassion. The behavioural measure of self-compassion performance used in this study (the Performance of Self-Compassion Writing Task) has not yet been analyzed, as coding is currently underway. In sum, although it is possible that a brief exposure to a self-compassionate peer does not influence the observer's learning and performance of self-compassion, factors including the delay between exposure and assessment and the measures used

may explain why this study failed to find evidence in support of observational learning of self-compassion.

Failure to Find that an Emphasis on Positive Outcomes of Self-Compassion Directly Affects Learning and Performance of Self-Compassion

Regarding the failure to find a direct effect on learning and performance of self-compassion based on whether participants heard a self-compassionate model emphasize rewards or not emphasize rewards (H1b, H2b), we entertained various possible reasons for these null results. Most importantly, participants did not report perceiving significantly different levels of rewarding outcomes in the self-compassion audio clips, regardless of whether the model explicitly described experiencing positive outcomes or not. Participants' perceptions of rewarding outcomes was significantly greater in both self-compassion audio clips compared to the control condition; however, this difference is not surprising because there was no indication in the control audio clip that the student tried to cope with her distress. The difference in perceived rewards for the self-compassion audio clips versus the control audio clip suggests that self-compassionate coping is perceived to be more beneficial than the absence of adaptive coping. That said, this finding provides limited insight into the role of perceived rewards in observational learning of self-compassion, because self-compassion was not demonstrated in the control audio clip. Regarding the lack of difference in perceived rewards for the self-compassion with versus without rewards conditions, one possibility is that the rewards manipulation was not strong enough to produce the intended effect on participants' perceptions of rewarding outcomes. In an attempt to prioritize the believability of the audio clip, the portion of the clip in which the speaker described rewarding outcomes of self-compassion was relatively brief (approximately 1 minute and 10 seconds of the audio clip, which had a total length of 7 minutes and 34 seconds).

Another consideration is that when creating the audio clips, we assumed that participants would perceive differing levels of rewards based on the speaker's explicit descriptions; however, participants may have perceived implicit rewards in both self-compassion conditions. When describing her use of self-compassion, which was identical in the self-compassion with and without rewards conditions, the speaker used a soothing tone of voice typical of self-compassion practices. This tone of voice is used in these practices to elicit soothed feelings, and thus, may have induced soothed feelings in participants and implicitly suggested that the speaker felt soothed as a positive outcome associated with self-compassion.

A third possibility is that the measure of perceived rewards was not sensitive enough to detect differences in perceived rewards between conditions. The measure was brief (four items), and the items were phrased broadly (i.e., asking whether the student in the audio clip experienced positive or negative outcomes in general). A measure that assessed participants' perceptions of the specific positive outcomes that were demonstrated in the audio clip may have more effectively detected differences between the two conditions, providing better insight into the extent to which the rewards manipulation influenced participants' perceptions. Notably, an exploratory analysis found that perceived rewards measured continuously was a positive predictor of learning of self-compassion at the trend level. This exploratory finding suggests that perceiving self-compassion to be rewarding for a peer may in fact influence learning of self-compassion, in line with social cognitive theory; however, this same effect was not found for performance of self-compassion. A stronger rewards manipulation and more precise measurement of perceived rewards would help to clarify these findings.

Overall, based on the present study's findings, whether an explicit emphasis on rewarding outcomes of self-compassion promotes observational learning of self-compassion is

inconclusive. No differences were found in learning or performance of self-compassion based on whether rewards were verbally emphasized; however, the audio clips used to manipulate perceived rewards in this study were not perceived to be significantly different by participants. The lack of differences in perceived rewards between the two self-compassion conditions may be explained by weakness of the experimental manipulation, participants' implicit perceptions of the outcomes experienced by the peer in the audio clip, or by imprecise measurement of perceived rewards. Further research is needed to disentangle these possibilities.

Failure to Find that an Emphasis on Positive Outcomes of Self-Compassion Indirectly Affects Performance of Self-Compassion via Outcome Expectancies and Motivation

Hypothesis 3, that observing a self-compassionate peer who emphasizes rewarding outcomes of self-compassion would lead indirectly via outcome expectancies and motivation to greater performance of self-compassion (2-4 days later) compared to observing a self-compassionate peer who does not emphasize rewarding outcomes, was also not supported. There was no effect of condition on outcome expectancies, thereby preventing the possibility of mediation. Interestingly, the mediation model used to test this hypothesis showed that outcome expectancies for self-compassion predicted motivation to be self-compassionate (at the same time point) and performance of self-compassion (2-4 days later). These findings are partially consistent with social cognitive theory, in that outcome expectancies are theorized to increase our motivation to engage in an observed behaviour and our performance of the behaviour; however, motivation to be self-compassionate did not significantly predict subsequent performance of self-compassion.

Regarding the lack of condition effect on outcome expectancies, it is possible that the specific way in which we attempted to manipulate perceived rewards failed to influence outcome

expectancies. This explanation is plausible, considering that participants were found to perceive no differences in rewarding outcomes between the self-compassion with and without rewards conditions. Another possibility is that outcome expectancies for self-compassion is a more trait-like rather than state-like phenomenon, meaning that it may reflect people's average or persistent outcome expectancies for self-compassion rather than momentary beliefs amenable to change through brief experiences. Although the correlation between outcome expectancies for self-compassion and trait self-compassion in the present study was small ($r = .22$), outcome expectancies for self-compassion may reflect unexplored trait-like tendencies such as fear of self-compassion. Alternatively, even if outcome expectancies for self-compassion can demonstrate state-like properties, it could be that the phrasing of the items to assess outcome expectancies in this study captured trait-like rather than state-like beliefs about the outcomes of self-compassion. The same possibilities apply to motivation to be self-compassionate and may explain why motivation was not found to be a predictor of performance of self-compassion.

Study 1 Summary

Contrary to hypotheses, Study 1 found that among women low in trait self-compassion observing a peer model describe academic distress with self-compassionate coping did not result in greater learning or performance of self-compassion 2-4 days later compared to observing a peer simply describe academic distress; this was true regardless of whether the peer model described experiencing specific rewarding outcomes of self-compassion or not. Some findings were partially consistent with social cognitive theory: post-manipulation outcome expectancies about self-compassion positively predicted motivation to be self-compassionate at the same time point, and performance of self-compassion 2-4 days later. That said, post-manipulation motivation was not a significant predictor of subsequent performance. In addition, perceived

self-compassion-related rewards was a trend-level predictor of learning, but not performance, of self-compassion 2-4 days later. Overall, the results of the present study did not support the assertion that self-compassion can be learned through observing a peer model, nor the prediction that the peer model's emphasis on self-compassion-related rewarding outcomes would facilitate observational learning. Nevertheless, the results of the current study should be interpreted with caution due to methodological limitations pertaining to the experimental manipulation and the timing and precision with which study variables were measured.

Study 2

Although previous research has found evidence in support of observational learning of self-compassion – namely, increased performance of self-compassion immediately after observing a self-compassionate peer – Study 1 failed to replicate these findings when examining self-compassionate performance 2-4 days post-observation. Contrary to social cognitive theory, Study 1 also found no evidence that observing a self-compassionate peer model led to increased learning of self-compassion 2-4 days later (i.e., knowledge that self-compassion can be used to cope with distress). It also did not find evidence that observing a peer model who emphasizes self-compassion-related rewarding outcomes vs. a model who does not emphasize outcomes leads to greater learning or performance of self-compassion, directly or indirectly via outcome expectancies and motivation to be self-compassionate. It is necessary to use caution in interpreting and generalizing from the results of Study 1 because of the study's methodological limitations; Study 2 therefore aimed to re-test our Study 1 hypotheses with methodological revisions to address some of these limitations.

Study 2 improves upon Study 1 in several ways. It includes a revised measure of performance of self-compassion, which is longer than the previous measure and similar to that used by Miller and colleagues (2020, 2022); this measure is included in both parts of the study to allow us to test for an effect of observing a self-compassionate peer on performance of self-compassion immediately after observation as well as 2-4 days later. Regarding the experimental manipulation, it was unclear from Study 1 whether the manipulation of perceived rewards in the audio clips was effective. We decided to retain the audio clips from Study 1 and used the same conditions (distress + self-compassion + rewards; distress + self-compassion only; distress only control) as we felt it was premature to change the manipulation without a clearer understanding

of its effects. To better understand the effects of the audio clips, we added a measure of soothing affect to test the possibility that the self-compassion conditions both led participants to implicitly perceive rewarding outcomes of self-compassionate coping, regardless of whether rewards were verbally described. We also revised the measures of perceived rewards and outcome expectancies for self-compassion, both of which have been updated with new items and instructions that emphasize to participants that their responses should reflect their momentary beliefs about self-compassion. Similar updates were made to the instructions for the measure of motivation to be self-compassionate. In addition to these changes, we added a measure of trait fear of self-compassion to be correlated with the measure of outcome expectancies, which allowed us to explore the extent to which outcome expectancies for self-compassion reflects trait-like beliefs.

Study 2 Objectives

Main Objectives and Hypotheses

The primary goal of Study 2 was to re-test our hypotheses from Study 1 with improved measures. Our hypotheses for Study 2 were the same as for Study 1; however, for performance of self-compassion, we tested our hypotheses with performance of self-compassion measured immediately as well as after a 2-4 day delay.

Hypothesis 1a: Observing a peer who models self-compassion would lead to greater learning of self-compassion in the observer, compared to observing a peer who does not model self-compassion.

Hypothesis 1b: Observing a peer who models self-compassion and emphasizes self-compassion-related rewards would lead to greater learning of self-compassion, compared to observing a peer who models self-compassion but does not emphasize self-compassion-related rewards.

Hypothesis 2a: Observing a peer who models self-compassion would lead to greater performance of self-compassion in the observer, immediately after observing and 2-4 days later, compared to observing a peer who does not model self-compassion.

Hypothesis 2b: Observing a peer who models self-compassion and emphasizes self-compassion-related rewards would lead to greater performance of self-compassion, immediately after observing and 2-4 days later, compared to observing a peer who models self-compassion but does not emphasize self-compassion-related rewards.

Hypothesis 3: The effects predicted in Hypothesis 2b – observing a peer who models self-compassion and emphasizes self-compassion-related rewards would promote greater performance of self-compassion in the observer 2-4 days later – would occur indirectly via greater observer positive outcome expectancies for self-compassion and motivation to be self-compassionate.

Secondary Objectives

In addition to re-testing our hypotheses from Study 1 with revised measures, Study 2 was conducted with the goal of clarifying some of the unexpected results and methodological questions raised in Study 1. Study 2 therefore had the following secondary objectives:

Clarify Between-Condition Differences in Perceived Rewards. In Study 1, the test of our experimental manipulation revealed that participants did not perceive different levels of rewarding outcomes in the self-compassion with and without rewards conditions. Possible explanations for this lack of difference include: (a) ineffectiveness of the experimental manipulation, perhaps due to its brevity; (b) imprecise measurement of perceived rewards due to the brevity and broad phrasing of the measure used in Study 1; or (c) participants perceiving implicit rewards in both self-compassion conditions, due to the soothing affect induced by the

speaker's soothing tone of voice. To better understand the difference, or lack thereof, in perceived rewards between conditions, Study 2 employed a revised measure of perceived rewards which was longer and more specific; it also included a measure of soothing affect to allow us to examine its correlation with perceived rewards and assess whether there were differences by condition in soothing affect after listening to the audio clip.

Examine the Extent to which Outcome Expectancies Reflects Trait-Like Beliefs.

Outcome expectancies for self-compassion emerged as a significant predictor of motivation to be self-compassionate and performance of self-compassion in Study 1; however, participants' outcome expectancies for self-compassion unexpectedly did not differ based on whether self-compassion-related rewards were emphasized in the audio clip or not. While it is possible that the lack of condition effect on outcome expectancies was due to ineffectiveness of the experimental manipulation, another possibility is that our measure of outcome expectancies reflected trait-like beliefs about the outcomes of self-compassion rather than state-like beliefs amenable to change through brief experiences. To ascertain the extent to which outcome expectancies reflects trait-like beliefs, we included a measure of trait fear of self-compassion to examine its correlation with outcome expectancies, in addition to the trait self-compassion measure already included. Trait self-compassion had a small correlation with outcome expectancies for self-compassion ($r = .22$) in Study 1, suggesting that outcome expectancies may be distinguishable from trait-like beliefs; however, including a second measure of self-compassion beliefs at the trait level would provide more confidence in this conclusion. Fear of self-compassion is a trait variable characterized by negative beliefs about self-compassion and its outcomes as well as negative responses to self-compassion. Based on this definition, it should be related to but distinguishable from outcome expectancies for self-compassion.

Method

We conducted a two-part online study with a sample of undergraduate women low in trait self-compassion. All participants completed a pre-screening questionnaire to determine their eligibility to participate. During the first part of the study, participants were randomly assigned to one of three conditions using the randomization function in QualtricsTM, in which they listened to one of three audio clips of an ostensible undergraduate peer: 1) describing academic distress + self-compassionate coping + self-compassion-related rewards (the “self-compassion with rewards” condition); 2) describing academic distress + self-compassionate coping (the “self-compassion without rewards” condition); or 3) describing academic distress (the “distress only” control condition). After listening to the audio clip, participants completed Part 1 measures. Participants were asked to complete the second part of the study 2-4 days after completing Part 1; in part two, they completed a second set of measures. The study was approved by the university’s Research Ethics Board. Data collection took place from July 2023 to December 2023.

Participants

Eligibility Criteria

All participants completed a pre-screening questionnaire to determine eligibility, accessed through the University of Waterloo’s SONA psychology research participation system for those recruited from the participant pool and accessed via a QR code for non-participant pool undergraduates. Eligibility criteria were the same as Study 1: eligible individuals were woman-identifying undergraduate students at the University of Waterloo, with the ability to listen to audio clips using device speakers or headphones, and a score less than 2.87 on the Self-Compassion Scale – Short Form, a measure of trait self-compassion.

Recruitment and Remuneration

As with Study 1, participants ($N = 151$) were woman-identifying undergraduate students at the University of Waterloo, recruited through the university's psychology participant pool ($n = 127$) and advertisements displayed in buildings on the University of Waterloo campus ($n = 24$). The participant pool sample received course credit as remuneration (0.5 credits for each of Part 1 and Part 2, to a possible total of 1.0 credits), and the non-participant pool sample received pay (\$5.00 CAD for each of Part 1 and Part 2, to a possible total of \$10.00 CAD).

Sample Characteristics

The current sample for Study 2 had an average trait self-compassion score of 2.32 ($SD = 0.42$), reflecting the requirement for participants to be low in self-compassion as in Study 1. Trait self-compassion did not significantly differ in the participant pool and non-participant pool samples, $F(2, 146) = 0.01, p = .992$. As with Study 1, the participant pool and non-participant pool samples were combined for all analyses. Demographics for the full sample are presented in Table 1.

Sample Size

Given that the research questions and procedure are the same, Study 2 has the same target sample size as Study 1 (300 participants). Study 2 recruitment began in January 2024 and will continue until this sample size is reached.

Measures

Measures that were newly added or revised for Study 2 are indicated in parentheses.

Eligibility Measures and Demographics

As in Study 1, the participant pool sample completed eligibility measures and provided demographic information in a pre-screening survey administered to the entire participant pool.

The non-participant pool sample completed eligibility measures in an online pre-screening survey whose link was listed on study advertisements; eligible participants provided demographic information in Part 1 of the study.

Demographics. Participants reported their current age, gender, biological sex, primary racial group, and ethnicity. Participants also reported their current year of university and their grade point average.

Trait Self-Compassion. As in Study 1, participants completed the Self-Compassion Scale – Short Form (Raes et al., 2011) as a measure of trait self-compassion. In Study 2, this measure had acceptable reliability ($\alpha = .70$).

Trait Fear of Self-Compassion (new). New for Study 2, we included a measure of trait fear of self-compassion. The Fears of Compassion Scale (Gilbert et al., 2011) includes three self-report measures of fear of compassion, one of which assesses fear of self-compassion. This fear of self-compassion scale is a 15-item measure which asks participants to rate their agreement with statements describing negative thoughts and beliefs about self-compassion on a scale from 1 (*Don't Agree At All*) to 5 (*Completely Agree*). Sample items include “I feel that I don’t deserve to be kind and forgiving to myself” and “I fear that if I am more self-compassionate I will become a weak person.” To obtain a composite score, with higher scores indicating greater trait fear of self-compassion, we computed the mean of each participant’s responses to the items of this scale. This scale had good reliability in this study ($\alpha = .93$). While this measure was completed at the same stage as other eligibility measures, participants with any level of fear of self-compassion were eligible to participate.

Covariate

Academic Contingencies of Self-Worth. This measure was not changed from Study 1 to Study 2; it provides an index of the extent to which participants view academics as important to their self-worth. The reliability of this measure in study 2 was good, $\alpha = .83$

Manipulation Check and Attention Measures

Perceived Rewards (revised; Administered in Part 1). Results from Study 1 suggested that participants did not perceive significantly more rewards in the self-compassion with rewards condition compared to the self-compassion without rewards condition; however, perceived rewards was measured using only four broad items (e.g., “In the end, I believe the outcomes the student experienced were positive”). In Study 2, we expanded this measure to assess a wider range of perceived benefits of self-compassion for the peer in the audio clip (e.g., feeling better emotionally, doing well academically) to test our manipulation and hypotheses more precisely. Our revised measure of perceived rewards consisted of nine items, three of which were reverse scored; participants rated their agreement with these items on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). Four of the nine items in the revised measure were the items used to assess perceived rewards in Study 1. The correlation between scores computed with the Study 1 items only and with all items in the new measure was $r = .95$. An exploratory principal components analysis with oblimin rotation indicated that the items loaded on a single factor; all scale items were thus retained and used to create a composite score by taking the mean of all items after reverse scoring negative items. This composite had good reliability, $\alpha = .90$.

Attention to Audio Clip (revised; Administered in Part 1). A minor revision was made to the measure of attention to the audio clip for Study 2. The item from Study 1, “I was thinking about other things while listening to the audio clip,” was separated into “I was thinking about other things (e.g., errands, plans with friends) while listening to the audio clip” and “I was

thinking about my own academic experiences while listening to the audio clip.” This change was made to ensure that participants whose mind-wandering was relevant to the audio clip (i.e., thinking about their own academic experiences) could be differentiated from those who were engaging in irrelevant mind-wandering for data quality inspection. As in Study 1, participants rated their agreement with scale items from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). The attention scale thus included four items. We computed a composite score to indicate level of attention to the audio clip by taking the mean of three items in the scale, omitting the item that assesses relevant mind-wandering as thinking about one’s own academic experiences may reflect engagement with the audio clip rather than inattention. This measure had good reliability, $\alpha = .79$

Study Perceptions (Administered in Part 2). This single-item measure was unchanged from Study 1, asking participants to report any suspicions they had about the believability of the audio clip in the study or its purpose. Participants were also asked to report if they did not remember listening to the audio clip. As in Study 1, this item was used for data quality screening; participants who reported not remembering the audio clip when they completed part 2 of the study were excluded from analyses.

Mediating Variables (Administered in Part 1)

Outcome Expectancies for Self-Compassion (revised). Several changes to this scale were made for Study 2. The instructions were updated so that all participants were provided with a brief definition of self-compassion. In addition, all items were rephrased to focus specifically on the academic domain, and to begin with “Right now...” to ensure that participants’ responses reflected their momentary beliefs about possible outcomes of self-compassion. Items based on the Fear of Self-Compassion Scale (Gilbert et al., 2011) were removed, because we included this scale as a trait measure in Study 2; four new negative items were replaced with items based on

qualitative research that investigated people's perceived pros and cons of self-compassion (e.g., "Right now, I think that others would judge me negatively if I was self-compassionate when I am stressed out about school," based on Campion & Glover (2016)). Positive items were based on positive outcomes of self-compassion that have been identified in meta-analyses and systematic reviews (Ewert et al., 2021) or adapted from a measure of self-compassion with items assessing intentions to be self-compassionate (e.g., "Being compassionate to myself will improve my overall wellbeing," from the Self-Compassion Intention subscale of the Compassion Motivation and Action Self-Compassion Scale, Steindl et al., 2021). The final revised scale included 11 items (one of which was an attention check item). After reverse-scoring negative items, the mean of this scale provides a composite score with higher scores indicating greater positive outcome expectancies for self-compassion. As with Study 1, a principal components analysis with oblimin rotation indicated that the items loaded on two factors: one corresponding to high positive outcome expectancies and one corresponding to low negative outcome expectancies. For consistency with Study 1, both factors were retained. After reverse-scoring negative items, the mean of this scale provides a composite score with higher scores indicating more positive and less negative outcome expectancies for self-compassion. This reliability of this scale in Study 2 was $\alpha = .78$

Motivation to be Self-Compassionate (revised). This measure used the same items as in Study 1; however, scale instructions were updated to emphasize to participants that their responses should reflect their in-the-moment agreement with the statements provided. As in Study 1, participants rated their agreement with statements describing a desire to treat oneself with compassion in times of distress on a scale from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). We conducted a principal components analysis with oblimin rotation to examine the factor

structure of this scale in Study 2. The results of this analysis mirrored those from Study 1, with the same items as Study 1 loading on one factor representing motivation to be self-compassionate. The mean of these items was used as a composite score with higher values representing greater motivation to be self-compassionate, which had good reliability ($\alpha = .87$).

Outcome Measures

Performance of Self-Compassion (revised; administered in Part 1 and Part 2). New for Study 2, we assessed performance of self-compassion immediately after the audio clip (i.e., in Part 1 of the study) as well as 2-4 days later (i.e., in Part 2 of the study). In addition to adding our self-report measure of performance of self-compassion to the first part of the study, we revised it to improve its reliability and specificity for Study 2. Although our measure of performance of self-compassion (the State Self-Compassion Scale – Short Form, Neff et al. 2021) had acceptable reliability, previous research has used other measures of state self-compassion with higher reliability (e.g., Miller & Kelly, 2020; Breines & Chen, 2013). These studies created a measure of state self-compassion by adjusting the phrasing of items in the Self-Compassion Scale (Neff, 2003b) to ask about self-compassion in the present moment rather than one's general tendency to be self-compassionate. To improve the reliability of our measure of performance of self-compassion, we revised our scale using this approach. Moreover, and as with other measures in Study 2, we wanted our measure of performance of self-compassion to orient participants to focus on the academic domain in their responses because academics were the focus of the audio clips. Our revised measure of performance of self-compassion included the 6 items from the State Self-Compassion Scale – Short Form in Study 1 and added six items adapted from the Self-Compassion Scale – Short Form. The correlation between scores computed with the six items included in Study 1 and the full scale used in part 1 of Study 2 was r

= .96. To orient participants to both the present moment and the academic domain, all items were phrased beginning with “Right now...” and were written with a focus on academics (e.g., “Right now, I’m remembering that there are lots of other students feeling like I am”; “Right now, I’m being understanding towards myself and my school stress”). After reverse scoring six negative items, we took the mean of each participant’s responses to compute a composite score with higher scores indicating greater performance of self-compassion. In Part 1 of the study, the reliability of this measure was $\alpha = .89$. In Part 2, performance of self-compassion had a reliability of $\alpha = .91$; the correlation between scores computed with the six items used in Study 1 and the full scale used in Part 2 of Study 2 was $r = .97$.

Learning of Self-Compassion Writing Task and Self-Report Scale (administered in Part 2). This measure was not changed in Study 2. As with Study 1, we conducted a principal components analysis with oblimin rotation to examine the factor structure of these items. In Study 2, the items loaded on 4 factors; however, items loading on the first factor were the same as in Study 1. As in Study 1, the first factor consisted of items reflecting learning of self-compassion, including items adapted from self-compassion measures and items from other measures consistent with the definition of self-compassion. For consistency across studies, this first factor was retained. These items were used to create a composite score by taking their mean, with a reliability of $\alpha = .89$. For the learning of self-compassion writing task, no changes were made from Study 1 – participants were asked to list five ideas of ways that a student could cope with academic distress. Coding of these responses will be conducted at a later date.

Performance of Self-Compassion Writing Task (administered in Part 2). This task was the same as in Study 1 – participants were asked to describe a recent experience of academic

distress and how they coped with it. As with Study 1, coding of these responses is ongoing, to provide a behavioural measure of performance of self-compassion.

Exploratory Measures (Administered in Part 1)

Soothing Affect (new). This measure was adapted from Shaw and Kelly's (2024) study; and included 10 items which asked participants to rate the extent to which they felt different feelings and emotions on a scale from 1 (*Very Slightly or Not at All*) to 5 (*Extremely*). Three items described socially soothed feelings (e.g., "Cared for", "Reassured"), and seven items described more general soothed feelings (e.g., "Relaxed", "Safe", "Warm"). A principal components analysis with oblimin rotation indicated that the items formed two factors: one consisting of the three items describing social soothing, and one consisting of the remaining items. Because only the general soothed feelings factor was relevant to this study, only this factor was retained and scored. The mean of the seven soothing affect items provides a composite score with good reliability ($\alpha = .90$), with higher levels indicating greater soothing affect.

Procedure

The procedure for Study 2 was the same as for Study 1. Participants were informed that the aim of the study was to "understand the challenges that woman-identifying undergraduates experience related to their academics, and to better understand [their] perceptions of the academic challenges of their peers." The study was advertised as "What is Academic Stress Like for Women in University?". Participants listened to their randomly assigned audio clip in Part 1 of the study; audio clips were not changed. They then completed Part 1 measures (Soothing Affect, Performance of Self-Compassion, Academic Distress Situations (filler measure to support deception about the study's purpose, not scored or analyzed), Attention to Audio Clip, Perceived Rewards, Outcome Expectancies for Self-Compassion, Motivation to be Self-Compassionate,

Academic Contingencies of Self-Worth, and Demographics (for non-participant pool sample). Part 2 was administered 2-4 days later. At this time, participants completed Part 2 measures (Learning of Self-Compassion Writing Task and Self-Report Scale, Performance of Self-Compassion Writing Task and Self-Report Scale, and measure of study perceptions), were debriefed about the use of deception in the study, and provided post-debriefing consent.

Results

Study 2 recruitment is ongoing; the results presented here are preliminary. Recruitment will continue until our target sample size is reached ($N = 300$).

Missing Data

Study 2 currently has a sample size of $N = 151$, with 127 participants from the participant pool and 24 paid participants. The rate of attrition was similar to Study 1, with 129 participants completing both parts of the study (14.5% attrition). Attrition rates did not differ by recruitment source ($\chi^2(1) = 0.10, p = .750$), condition ($\chi^2(2) = 4.69, p = .096$), or trait self-compassion ($B = -0.14, SE = 0.354, p = .794$). Provided that the assumptions for multiple imputation are met, missing data will be imputed after data collection is complete.

Analytic Strategy

Study 2 tests the same hypotheses as Study 1 with the same models; they are briefly restated here. As in Study 1, hypotheses 1a and 1b predicted that learning of self-compassion would be: (1a) greater in the self-compassion conditions (with and without rewards) than in the control condition; and (1b) greater in the self-compassion with rewards condition than in the self-compassion without rewards condition. Likewise, hypotheses 2a and 2b were that performance of self-compassion would be (2a) greater in the self-compassion conditions (with and without rewards) than in the control condition; and (2b) greater in the self-compassion with rewards

condition than in the self-compassion without rewards condition. Because we measured performance of self-compassion in both parts of the study, we tested hypotheses 2a and 2b twice, with performance of self-compassion at each time as the dependent variable. Hypotheses 1a-2b were tested using one-way ANCOVAs followed by planned contrasts testing for the hypothesized group differences. Tests of assumptions for ANCOVA were conducted using the same procedure as Study 1, and results of these analyses are reported in Appendix D. Hypothesis 3 predicted that the effect of condition (self-compassion with rewards vs. without) on performance of self-compassion would be mediated by outcome expectancies for self-compassion and motivation to be self-compassionate. Hypothesis 3 was not tested with immediate performance of self-compassion as the outcome because immediate performance of self-compassion was assessed prior to the mediators in Study 2. The measure of state self-compassion was placed immediately after the audio clip to most closely mirror the approach taken by Miller and colleagues, and to ensure that completion of measures of outcome expectancies and motivation to be self-compassionate did not influence immediate performance of self-compassion. This hypothesis was tested with a serial mediation analysis in Hayes PROCESS Macro for SPSS, version 4.2, model 6, with 10,000 bootstrap samples.

Preliminary Analyses

Data were screened using the same process as Study 1. Participants were excluded if they: self-reported being unable to remember the Part 1 audio clip in Part 2; self-reported low attention to the Part 1 audio clip; responded repetitively (0 variance on more than 3 scales on Part 1, increased from 2 because more measures were added; 0 variance on more than 2 scales in Part 2); and had an excessively short or long survey duration (± 2.5 SDs or too short to listen to

the complete audio clip in Part 1) for either part of the study. After screening, of the 191 participants who began the study, 151 (79.1%) were retained for analyses.

As with Study 1, data were screened for outliers using ± 3 SDs as the cutoff. There were outliers > 3 SDs below the mean on the following variables: perceived similarity ($n = 2$), perceived genuineness ($n = 1$), outcome expectancies for self-compassion ($n = 1$), motivation to be self-compassionate ($n = 1$), and academic contingencies of self-worth ($n = 1$). All outliers were winsorized to 3 SDs below the mean.

Testing for baseline differences by condition confirmed that trait self-compassion did not differ by condition, $F(2, 146) = 0.01, p = .992$, nor did trait fear of self-compassion, $F(2, 144) = 0.25, p = .779$. Academic contingencies of self-worth also did not differ by condition, $F(2, 146) = 1.30, p = .878$.

Zero-order correlations among all study variables are presented in Table 8, and descriptive statistics for all study variables are presented in Table 9.

Manipulation Check

To test the effectiveness of our experimental manipulation, we conducted a one-way ANOVA to examine differences in perceived rewards by condition. There was a significant effect of condition on perceived rewards, $F(2, 361) = 244.57, p < .001, \eta^2_p = .58$ (see Table 10 and Figure 5). Post-hoc comparisons revealed that unlike in Study 1, in the present study, perceived rewards were significantly greater in the self-compassion with rewards ($M = 5.622, SD = 0.74$) versus the self-compassion without rewards condition ($M = 4.96, SD = 0.74$), $t(91) = 2.38, p = .019$. As expected, and as in Study 1, participants also perceived significantly less rewarding outcomes in the control condition ($M = 3.27, SD = 0.80$) compared to the self-compassion with rewards condition, $t(103) = 12.92, p < .001$, and the self-compassion without rewards condition,

$t(98) = 10.15, p < .001$. Unlike in Study 1, these results suggest that our manipulation of whether self-compassion-related rewards were emphasized in the audio clip was effective. It should be noted again that we used a revised measure of perceived rewards in Study 2, with more items and more specific language than the measure used in Study 1. Nevertheless, when comparing perceived rewards across conditions in the present study using only the items that we used in Study 1, the between-condition differences still emerge as significant, $F(2, 146) = 87.785, p < .001, \eta^2_p = .55$. Post-hoc comparisons show that perceived rewards was significantly greater in the self-compassion with versus without rewards conditions, $t(91) = 2.36, p = .020$, and in each self-compassion versus the control condition, $ps < .001$.

Hypotheses 1a and 1b: Learning of Self-Compassion in Self-Compassion as a Function of Condition

In study 2, testing the assumptions for ANCOVA revealed that academic contingencies of self-worth was not significantly related to learning of self-compassion, $r(127) = -.03, p = .703$. We therefore omitted academic contingencies of self-worth as a covariate and conducted an ANOVA testing for differences in learning of self-compassion by condition. As in Study 1, learning of self-compassion did not differ by condition, $F(2, 126) = 0.54, p = .587, \eta^2_p = .008$ (see Table 11 and Figure 6)..

Hypotheses 2a and 2b: Performance of Self-Compassion as a Function of Condition

Performance of Self-Compassion Assessed Immediately

New for Study 2, we examined whether there were differences in the self-reported performance of self-compassion by condition immediately after participants listened to the audio clip. After confirming that the assumptions for ANCOVA were met, we conducted a one-way ANCOVA with performance of self-compassion in Part 1 of the study as the dependent variable,

condition as the independent variable, and academic contingencies of self-worth as the covariate. Controlling for academic contingencies of self-worth, which accounted for variance in performance of self-compassion immediately after the audio clip, $F(1, 145) = 12.44, p < .001$, $\eta^2_p = .41$, performance of self-compassion immediately after the audio clip did not differ across conditions, $F(2, 145) = 0.14, p = .868$, $\eta^2_p = .002^3$, contrary to hypotheses (see Table 12 and Figure 7).

Performance of Self-Compassion Assessed 2-4 Days Later

For performance of self-compassion assessed in Part 2 (2-4 days post-manipulation), which was our only performance DV in Study 1, preliminary analyses confirmed that assumptions for ANCOVA were met. An ANCOVA revealed that academic contingencies of self-worth accounted for variance in performance of self-compassion 2-4 days later, $F(1, 123) = 7.12, p = .009$, $\eta^2_p = .06$; however, as in Study 1, and contrary to hypotheses, there were no differences in performance of self-compassion 2-4 days later across conditions, $F(2, 123) = 0.01, p = .999$, $\eta^2_p = .004$ (see Table 13 and Figure 8).

Hypothesis 3: Indirect Effect of Condition on Performance of Self-Compassion via Outcome Expectancies via Motivation

A serial mediation analysis using Hayes (2018) PROCESS Macro for SPSS, version 4.2, model 6, with 10,000 bootstrap samples was conducted with condition (dummy-coded, 1: self-compassion with rewards, 0: self-compassion without rewards) as the independent variable, outcome expectancies for self-compassion and motivation to be self-compassionate as mediators,

³ Omitting the covariate, there were still no differences in performance of self-compassion immediately after the audio clip as a function of condition, $F(2, 146) = 0.18, p = .829$.

⁴ Omitting the covariate, there were still no differences in performance of self-compassion 2-4 days later as a function of condition, $F(2, 124) = 0.01, p = .995$.

and performance of self-compassion 2-4 days later as the dependent variable. There were no direct or indirect effects of condition on performance of self-compassion (see Table 14). As in Study 1, outcome expectancies for self-compassion significantly predicted motivation to be self-compassionate, $\beta = .39$, $SE = .09$, $p < .001$, as well as performance of self-compassion, $\beta = .50$, $SE = .08$, $p < .001$. No other relationships in the model were significant (see Figure 9).

Secondary Analyses

Clarifying Between-Condition Differences in Perceived Rewards by Exploring Soothing Affect

As described in the manipulation check section above, in the present study with a sample to date of $N = 151$ (compared to Study 1's sample of $N = 370$), we found that unlike in Study 1, perceived rewards was significantly greater in the self-compassion with rewards condition than in the self-compassion without rewards condition. In addition, as in Study 1, perceived rewards was significantly greater in both self-compassion conditions than in the control condition. The difference in perceived rewards in the self-compassion with and without rewards conditions in the present study is surprising, because although this was the intended effect of our experimental manipulation, this difference was not significant in Study 1. Following up on the non-significant effect of the manipulation in Study 1, we added a measure of soothing affect to Study 2 to explore whether soothing affect as an implicitly perceived rewarding outcome could explain the lack of difference in perceived rewards as a function of whether rewards were explicitly emphasized in Study 1. If soothing affect was significantly greater in the self-compassion conditions versus the control condition, but equal in the two self-compassion conditions, it would indicate that perhaps soothing affect was indeed perceived as an implicit reward of self-compassion. We also planned to examine the correlation between soothing affect and perceived rewards, to see if these two variables were related. We first conducted an analysis of variance to

test for differences in soothing affect by condition, with condition as the independent variable and soothing affect as the dependent variable. There were no differences in soothing affect as a function of condition, $F(2, 146) = 0.51, p = .60$. Furthermore, the correlation between soothing affect and perceived rewards was very small, $r = .11$. These findings demonstrate that participants did not perceive soothing affect as an implicit reward of self-compassion in the self-compassion conditions relative to the other conditions, suggesting that implicit rewards do not explain Study 1's ineffective experimental manipulation of rewarding outcomes.

Examining the Extent to Which Outcome Expectancies Reflect Trait-Like Beliefs

Studies 1 and 2 both found no effect of condition on outcome expectancies for self-compassion. Following Study 1, we considered that our measure of outcome expectancies for self-compassion may have reflected participants' trait-like beliefs about self-compassion, rather than more flexible state-like beliefs that could be influenced by observing a self-compassionate peer model. To better understand this possibility, we included a measure of trait fear of self-compassion in Study 2 to examine its correlation with outcome expectancies for self-compassion in addition to examining the correlation between outcome expectancies and trait self-compassion. Trait self-compassion was moderately correlated with outcome expectancies for self-compassion ($r = .40$), and the correlation between fear of self-compassion and outcome expectancies for self-compassion was $r = -.43$. While these trait variables are moderately related to outcome expectancies, these results suggest that they represent distinguishable constructs. Because we used different measures of outcome expectancies in Studies 1 and 2, our ability to make inferences about outcome expectancies in Study 1 is limited; however, Study 2 indicates that outcome expectancies for self-compassion and trait-like beliefs about self-compassion are distinguishable.

Exploratory Analyses

Performance of Self-Compassion by Condition, Controlling for Trait Self-Compassion

In Study 1, an exploratory analysis revealed that trait self-compassion significantly moderated the effect of condition on performance of self-compassion. Following up on this finding, we decided to test the same analysis in Study 2. We conducted a simple moderation analysis using Hayes' PROCESS Macro for SPSS, Model 1, with 10,000 bootstrap samples. This analysis indicated that unlike in Study 1, trait self-compassion did not moderate the effect of condition on performance of self-compassion in Study 2, $\beta = .03$, $SE = .13$, $p = .843$.

Discussion

With methodological revisions following Study 1, Study 2 re-examined the effect of hearing a peer describe academic distress and self-compassionate coping, with or without an emphasis on self-compassion-related positive outcomes, on the listener's learning and performance of self-compassion. Key revisions were made to our measures of outcome expectancies for self-compassion, motivation to be self-compassionate, and performance of self-compassion, all of which were updated to ensure that they assessed momentary (i.e., state-like) self-compassion beliefs and performance in the academic domain. In addition, our measures of perceived rewards and performance of self-compassion were extended to improve their accuracy and reliability. Building on Study 1, we measured performance of self-compassion immediately after participants listened to the audio clip as well as 2-4 days later to ascertain whether decay over time may have contributed to Study 1's null findings; in Study 1, self-reported performance of self-compassion was only measured after a 2-4-day delay. With these changes, we tested the same hypotheses as Study 1. The results presented here are preliminary, as Study 2 recruitment is

ongoing and will continue until our target sample size is reached. Our current sample size is approximately half of our target size.

We tested the hypotheses that among undergraduate women with below-average levels of trait self-compassion, hearing a peer describe academic distress and self-compassionate coping would lead to greater learning (2-4 days later; H1a) and performance (immediately and 2-4 days later; H2a) of self-compassion, compared to hearing a peer describe academic distress without describing coping. We also predicted that hearing a display of self-compassion in which the model explicitly described experiencing rewarding outcomes of self-compassion would lead to greater learning (2-4 days later, H1b) and performance (immediately and 2-4 days later; H2b) of self-compassion, compared to when they heard a display of self-compassion in which the model did not explicitly describe specific outcomes.

Contrary to hypotheses but consistent with Study 1, among undergraduate women low in trait self-compassion, none of these hypotheses were supported. Expanding on Study 1, Study 2 found no differences in self-reported performance of self-compassion as a function of condition immediately after the manipulation was presented. This finding does not replicate previous research, which found that observing a self-compassionate peer led to immediately greater self-compassion in the observer (Miller & Kelly, 2020; Miller et al., 2022). These results indicate that contrary to social cognitive theory, exposure to a self-compassionate peer via a brief audio clip does not facilitate learning or performance of self-compassion. The lack of immediate effect on performance of self-compassion in the present study also suggests that decay over time was not the reason for Study 1's null findings or Study 2's null findings regarding performance of self-compassion 2-4 days later. We also tested the hypothesis that hearing a self-compassionate peer who emphasized self-compassion-related rewards would lead to greater performance of self-

compassion 2-4 days later, indirectly via more positive outcome expectancies for self-compassion and motivation to be self-compassionate (H3). Replicating Study 1, this hypothesis was not supported, but positive outcome expectancies for self-compassion immediately after listening to the audio clip emerged as a predictor of motivation to be self-compassionate at the same time point and performance of self-compassion 2-4 days later.

Because an exploratory analysis in Study 1 indicated that trait self-compassion moderated the effect of observing a self-compassionate peer who emphasized versus did not emphasize rewarding outcomes on subsequent performance of self-compassion, we repeated this analysis in Study 2. Failing to replicate Study 1, trait self-compassion did not moderate the effect of condition on performance of self-compassion in this study. Because this effect was inconsistent in Studies 1 and 2, it is unclear whether it is a reliable finding; future research should continue to examine the influence of trait self-compassion on observational learning of self-compassion.

Overall, despite methodological changes that allowed for more precise and reliable measurement of key study variables, Study 2 did not find evidence that hearing a peer's display of self-compassion with or without an emphasis on rewarding outcomes leads to greater learning (2-4 days later) or performance (immediately and 2-4 days later) of self-compassion, compared to hearing a peer who does not display self-compassion.

Clarifying Between-Condition Differences in Perceived Rewards

One of Study 2's secondary goals was to clarify the between-condition differences in perceived rewards in the present studies. In Study 1, although participants perceived more rewarding outcomes in the self-compassion conditions than in the control condition, they did not perceive differing levels of rewarding outcomes in the self-compassion with and without rewards conditions. In Study 2, we used a longer measure of perceived rewards with more specific items,

to ensure that the measure reflected the specific content of the audio clips and would be able capture any differences in perceived rewards by condition. With this new measure, unlike in Study 1, participants in the current study reported perceiving significantly more rewarding outcomes in the self-compassion with rewards condition than in the self-compassion without rewards condition. Like in Study 1, participants also perceived greater rewards in both self-compassion conditions compared to the control condition. A follow-up analysis revealed that even when only the items used to assess perceived rewards in Study 1 (which were contained in the Study 2 measure) were used to compute a perceived rewards score in Study 2, results still differed from Study 1 – participants perceived significantly more rewarding outcomes in the self-compassion with versus without rewards conditions. These results suggest that our experimental manipulation of perceived rewards in the self-compassion with versus without rewards conditions had its intended effect in Study 2, despite it appearing to be unexpectedly ineffective in Study 1. The effectiveness of the manipulation in Study 2 makes its lack of intended effect in Study 1 even more surprising; however, it should be emphasized again that Study 2 currently has only half of its target sample size, so these results may change when the full sample is reached. At this point, the incongruent results across Studies 1 and 2 leave the effectiveness of the rewards manipulation inconclusive. With these findings, it is unclear whether the null findings of Studies 1 and 2 are attributable to the ineffectiveness of the experimental manipulation. We also explored the possibility that perceived rewards in Study 1 did not differ in the self-compassion with and without rewards conditions because participants may have implicitly perceived rewarding outcomes in both conditions in the form of soothing affect. There were no differences in soothing affect by condition, and soothing affect was found to be unrelated to perceived rewards,

suggesting that soothing affect as an implicitly perceived reward does not account for the failure of Study 1's experimental manipulation.

Examining the Extent to Which Outcome Expectancies Reflects Trait-Like Beliefs

As in Study 1, our mediation analysis showed that outcome expectancies for self-compassion significantly predicted motivation to be self-compassionate at the same time point and performance of self-compassion 2-4 days later; however, there was no effect of condition (self-compassion with versus without rewards) on outcome expectancies for self-compassion. Due to the lack of condition effect, we wondered whether outcome expectancies reflected trait-like beliefs about self-compassion rather than more short-term beliefs that were amenable to change through a brief experience such as the experimental manipulation. Our measure of outcome expectancies, revised for Study 2, asked participants to report their in-the-moment beliefs about using self-compassion to cope with academic distress; the Study 1 measure did not specify that participants should respond to indicate their momentary beliefs and was not specific to the academic domain. In Study 2, outcome expectancies for self-compassion and trait fear of self-compassion had a moderate correlation ($r = -.43$), sharing only approximately 16% of their variance. In addition, though larger than the correlation in Study 1, trait self-compassion was moderately correlated with outcome expectancies ($r = .40$). These findings suggest that outcome expectancies in Study 2, though related to trait-like beliefs about self-compassion, was distinguishable from trait fear of self-compassion. Because the current study used a revised measure of outcome expectancies with limited overlap with Study 1's measure, we can only draw limited inferences from this finding about outcome expectancies in Study 1; however, given that outcome expectancies had small to moderate correlations with trait variables in both

studies, it appears that outcome expectancies does not only reflect trait-like beliefs about self-compassion and is measurable at the state level.

Study 2 Summary

Contrary to hypotheses but consistent with Study 1 results, Study 2 found that in a sample of undergraduate women low in trait self-compassion, hearing a peer describe academic distress and self-compassionate coping, with or without an emphasis on rewarding outcomes, did not lead to greater learning or performance of self-compassion 2-4 days later compared to hearing a peer describe academic distress without coping. Failing to replicate previous research, Study 2 also found that observing a peer who does versus does not model self-compassion did not lead to greater performance of self-compassion immediately after observation. Though there was no indirect effect of condition on performance of self-compassion 2-4 days later, outcome expectancies for self-compassion was a significant predictor of motivation to be self-compassionate and subsequent performance of self-compassion. Overall, results were consistent across Studies 1 and 2: it appears that brief exposure to a self-compassionate peer in the form of the audio clips used in the present studies does not lead to observational learning of self-compassion. Nevertheless, providing some support for the applicability of social cognitive theory to self-compassion, both studies found that outcome expectancies for self-compassion predicts motivation to be self-compassionate and performance of self-compassion. The effect of the experimental manipulation used in the present studies remains unclear, as results suggested it was ineffective in Study 1 but effective in Study 2. As with Study 1, generalizing outside the methods of the current study should be approached with caution. Further discussion and interpretation of the results of the present studies is presented in the general discussion below.

General Discussion

The present studies sought to examine the influence of exposure to self-compassionate others on people's own learning of self-compassion and performance of self-compassionate coping behaviour. Social cognitive theory (Bandura, 1986) asserts that observing others is an effective approach to learning new behaviours – by observing a similar other perform a behaviour, people come to learn about when and how to employ that behaviour and can begin to engage in the behaviour themselves. The theory further states that people are more likely to learn and perform a behaviour that they have observed in a peer model if the behaviour leads to a rewarding outcome for the peer, because the observer develops positive outcome expectancies for that behaviour and thus motivation to engage in it themselves. Applying this theory to self-compassion, we hypothesized that observing a peer describe an experience of distress with self-compassionate coping would promote learning and performance of self-compassion in the observer. We expected that if the peer also described experiencing rewarding outcomes as a result of being self-compassionate, the observer would experience even greater learning and performance of self-compassion. We further hypothesized that observing rewarding outcomes would have an indirect effect on performance of self-compassion, by increasing the observer's positive outcome expectancies and motivation to be self-compassionate. To test these predictions, we conducted two studies, each with a sample of undergraduate women low in trait self-compassion. In both studies, we tested the relative effects of three conditions on learning and performance of self-compassion: listening to a peer describe academic distress with self-compassionate coping and rewarding outcomes; listening to a peer describe academic distress with self-compassionate coping and no specific outcomes; and listening to a peer describe academic distress with no coping (as a control condition). Participants reported their learning and

performance of self-compassion 2-4 days later (Studies 1 and 2) and immediately after listening to the audio clip (Study 2 only). Contrary to hypotheses, there were no differences in learning or performance of self-compassion as a function of condition in either study, nor was there an indirect effect of condition on performance of self-compassion via outcome expectancies and motivation.

Taken at face value, the results of the present studies suggest that self-compassion cannot be learned observationally; however, prior research and the design of the studies should be considered when interpreting these findings. In both studies, self-compassion was modelled in the form of a brief audio clip, by an alleged peer who was unnamed and unknown to participants. It is possible that a different approach to modelling self-compassion would more effectively facilitate observational learning. First, while the present studies focused on using observational learning as an indirect approach to learning self-compassion (i.e., without requiring the observer to make a conscious effort to learn), observational learning can also be employed as a direct learning strategy (i.e., with the observer intentionally trying to learn the behaviour they are observing). For example, direct use of observational learning is employed by athletes at levels ranging from novice to elite to learn how to execute physical skills, develop and understand competitive strategies, and learn to regulate their psychological state (e.g., coping with anxiety, focusing during challenging situations) strategically for athletic performance (Cumming et al., 2005). A more direct approach to observational learning of self-compassion, requiring the observer to make a conscious effort to learn, would be more similar to current self-compassion interventions which have demonstrated effectiveness (e.g., Ferrari et al., 2019). A direct approach to observational learning may therefore result in better outcomes than the indirect approach used in the present study.

Observational learning of self-compassion may also be strengthened by using models with different characteristics. Social cognitive theory emphasizes that model characteristics such as similarity to the observer, status, and credibility increase the effectiveness of observational learning because they increase the extent to which the observer will attend to and remember the model's behaviour (e.g., Bandura, 1998; Schunk & DiBenedetto, 2020). Instead of controlling for perceived similarity and model status as we did in the present study, by using a sample of undergraduate women and an undergraduate woman model, manipulating or strengthening these factors could lead to greater learning and performance of self-compassion. For example, using a model with established credibility related to self-compassion (e.g., a therapist or an experienced meditation practitioner) or a model with high status, such as someone whom the observer admires (e.g., a mentor or celebrity), may promote observational learning of self-compassion more effectively than using an unknown peer model. Another approach to strengthening perceptions of the model's credibility, that would also enhance perceived similarity to the model, may be to use a model who has a close relationship with the observer. Using a model to whom the observer feels close, such as a friend or romantic partner, would likely increase the observer's perceptions of the model as likeable, trustworthy, and similar to themselves. These variables could also be measured effectively, given the observer's familiarity with the model, allowing the role of these variables to be quantified. Because it has the potential to strengthen these factors and measure them to evaluate their impact, using a model to whom the observer feels close may be an especially fruitful approach to studying observational learning of self-compassion.

A third possibility is that rather than using a single exposure, as in the present study, repeated exposure to a self-compassionate peer may more strongly promote learning and performance of self-compassion. Observing a self-compassionate peer multiple times would

allow more opportunities for the observer to attend to and remember what they have learned – it is well-established that repetition is beneficial for learning. Self-compassion is a complex skill with multiple components – Gilbert (2009) identifies several skills of compassion (e.g., focusing on what is helpful, compassionate reasoning, and taking action to alleviate distress) and Neff (2003a) defines self-compassion as consisting of three components (self-kindness, common humanity, and mindfulness). Providing an observer with multiple opportunities to observe a self-compassionate peer could help the observer to notice and retain more skills and behaviours. In addition, repeated exposure to a self-compassionate peer would allow for more opportunities for the observer’s hesitations about self-compassion to be challenged. For example, a qualitative study found that people express concerns about self-compassion being contrary to social norms (Campion & Glover, 2019). Biskas and colleagues (2022) also found that people report less willingness to be self-compassionate when they perceive self-compassion to be less normative. A single exposure to a self-compassionate peer could be dismissed by the observer as an unusual occurrence, but multiple exposures to a self-compassionate peer (perhaps also with multiple models) could challenge this belief, promoting greater change in the observer’s perceptions of self-compassion. In summary, although the results of the current study indicate that observational learning of self-compassion via a brief audio clip of an unknown peer is not effective, other approaches to observational learning of self-compassion that promote greater attention in the observer and provide more opportunities for the observer to consolidate their learning may be more effective.

Considering differences between the present studies and those by Miller and colleagues (2020, 2022) provides further insight into possible reasons why the present studies failed to find evidence in support of observational learning of self-compassion. First, the present studies both

used samples of participants who were low in trait self-compassion – to be eligible to participate, participants had to have a score below 2.87 out of 5, the mean in a typical sample of undergraduate women (Kelly et al., 2014; Waring & Kelly, 2019), on the Self-Compassion Scale – Short Form (Raes et al., 2011). Conversely, participants in Miller and colleagues’ (2020, 2022) research were eligible regardless of their level of trait self-compassion. It is therefore likely that for at least some participants in Miller and colleagues’ studies, self-compassion was already somewhat familiar. For participants already relatively high in trait self-compassion, observing a self-compassionate peer may have served as a reminder to participants of how to engage in self-compassionate coping, rather than introducing a relatively new way of coping which would be more demanding to learn. In the present studies, because participants were all relatively low in trait self-compassion, a substantial amount of learning would need to occur for participants to successfully employ self-compassionate coping. Although we conducted exploratory analyses controlling for trait self-compassion when examining outcomes of our studies, trait self-compassion was restricted in range because all participants were low in trait self-compassion, limiting our ability to draw conclusions about how outcomes may differ for people who are higher and lower in trait self-compassion.

A second important difference between the present research and that of Miller and colleagues was the length and complexity of the experimental manipulation. While both studies used audio clips, Miller and colleagues used audio clips of approximately 2.5 minutes in Miller and Kelly (2020) and 3.5 minutes in Miller et al. (2022) which were shorter than those used in the present studies, where audio clips ranged from 4.5-7 minutes in length, depending on condition. The length of the audio clips in the present studies required participants to attend to the audio for much longer, meaning that their attention may have waned over time, reducing the

effectiveness of the experimental manipulation. A simpler manipulation, with a shorter and less complex audio clip, may have thus had a greater impact on learning and performance of self-compassion. The manipulation could also be further simplified by using a text-based model of self-compassion.

Another important difference in the audio clips in the present study is that we had the model note that she initially found self-compassion to be unfamiliar and somewhat awkward, but persisted with trying it and eventually became more comfortable. A model who experiences initial challenges in executing a new behaviour is known as a “coping model” in social cognitive theory (Schunk, 1987). We chose to use a coping model because some research shows that observing a coping model is more effective for learning than observing a model who is an expert at the modelled behaviour (a “mastery model”); observing a coping model is thought to be beneficial because they are perceived as similar to the observer and they provide the observer an example of how to navigate learning challenges (e.g., Schunk & Hanson, 1985). Other literature in social cognitive theory asserts that it is important that the model is perceived as credible in executing the modelled behaviour (e.g., Schunk & DiBenedetto, 2020), so using a coping model may have inadvertently undermined the model’s credibility. Another possibility is that using a coping model could have evoked some of participants’ reservations about or fears of self-compassion because she described self-compassion as awkward and unfamiliar, potentially introducing an unintended barrier to participants’ learning.

An interesting finding from Studies 1 and 2 was that although there was no indirect effect of condition on subsequent performance of self-compassion via outcome expectancies and motivation, outcome expectancies significantly predicted motivation to be self-compassionate at the same time point and performance of self-compassion 2-4 days later. This finding partially

supports the application of social cognitive theory to self-compassion, by demonstrating the influence of outcome expectancies for self-compassion on people's desire to be self-compassionate (regardless of whether they actually engage in self-compassionate coping), and performance of self-compassion. Recognizing the role of outcome expectancies in motivation and performance of self-compassion provides insight into a factor that may promote or hinder the learning and performance of self-compassion that should be explored in further research. Our second study found evidence that outcome expectancies for self-compassion, while related to trait self-compassion and fear of self-compassion, is a distinguishable construct. While researchers recognize the importance of studying beliefs about self-compassion in the form of fear of self-compassion, little research to date has examined the role of positive outcome expectancies for self-compassion. Investigating the influence of positive outcome expectancies for self-compassion and ways to develop them could provide a novel avenue for understanding the predictors of self-compassion and promoting engagement in self-compassionate coping.

Limitations and Future Directions

Limitations of the present studies should be acknowledged when interpreting their results and drawing conclusions. Sample characteristics including the age range, racial diversity, and gender of the samples should all be considered. All participants were young adults, with a mean age of 21 years old in both studies; both samples were also predominantly white. Studies with a more diverse sample would provide insight into whether observational learning of self-compassion is effective in a wider range of populations. In addition, both studies examined observational learning of self-compassion using samples of undergraduate women. This decision was made to control for the similarity of the participants and the model in the audio clip; previous research has also used samples of only women. The present studies therefore do not

provide insight into how observational learning of self-compassion may differ across gender identities, and there is reason to believe that differences may exist. There is some evidence of gender differences in self-compassion, such that men have slightly higher levels of self-compassion than women (Yarnell et al., 2015; 2019); gender role orientation may play a larger role (Yarnell et al., 2019). More research is needed to understand the influence of gender and gender role orientation on self-compassion and how self-compassion is learned. The influence of gender role orientation suggests that social norms play a role in shaping self-compassion as a function of gender. Because social cognitive theory provides a framework for understanding learning of self-compassion in social contexts, it may be a fruitful framework for investigating the relationships between social norms, social interactions, gender, and self-compassion.

Some additional limitations in the present studies are those related to measurement of study variables, including our reliance on self-report measures and our first-time use of researcher-generated measures. Regarding the use of self-report measures, while we included behavioural measures of learning and performance of self-compassion, coding of these measures is underway, and they have not yet been analyzed. All other measures in the study were self-report measures, including those used for the present analyses concerning learning and performance of self-compassion. Participants' responses to self-report measures may be influenced by their interpretations of scale items, their insight into and understanding of the constructs being measured, and potential motivation to respond in a particular way (e.g., social desirability); using objective measures in conjunction with self-report measures would provide more reliability. Regarding the use of researcher-generated measures, key study variables including learning of self-compassion, outcome expectancies for self-compassion, and motivation to be self-compassionate were measured using researcher-generated scales that were

used for the first time in the current research. While these measures were largely based on well-established literature and existing measures, and the factor structure of the scales was generally as expected, using new measures for the first time limits the extent to which we can be confident in their reliability and validity. Validating these measures with further research would provide more trustworthy measures of learning of self-compassion, outcome expectancies for self-compassion, and motivation to be self-compassionate. Prioritizing the validation of the measure of outcome expectancies may be advisable, as outcome expectancies emerged as a significant predictor of motivation to be self-compassionate and performance of self-compassion in both studies.

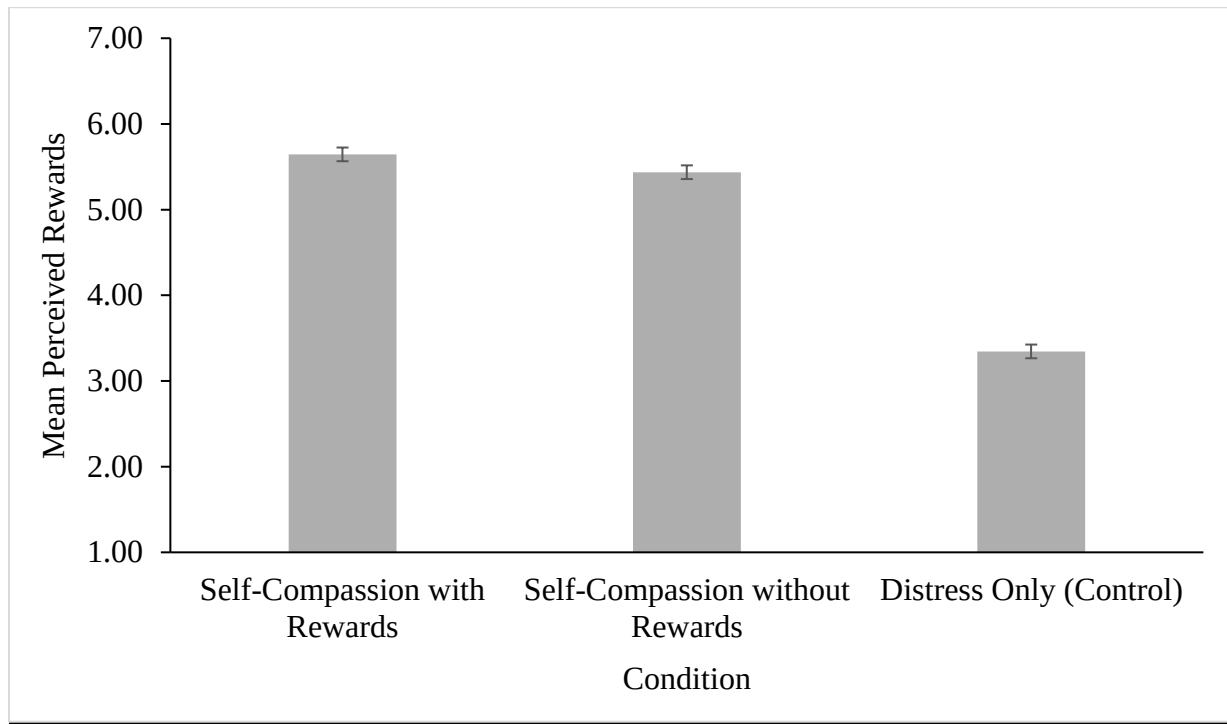
These studies also focused on a narrow domain – namely, academics – in examining observational learning of self-compassion. This focus on academics allowed us to ensure that the content of the audio clip would be focused on an experience that was familiar to the undergraduates participating in the study; however, the focus on academics may have influenced our findings. One study has found that self-compassion varies by domain (Zuroff et al., 2021), indicating that people’s self-compassion in the academic domain may differ from in other areas of their lives. Consistent with this idea, in the present studies, ANCOVAs showed that the extent to which participants reported that academics were important for their self-worth (i.e., academic contingencies of self-worth) accounted for variance in learning of self-compassion in Study 1 and performance of self-compassion in both studies. Future research should therefore consider investigating observational learning of self-compassion in other domains, because people may display differing levels of self-compassion in different contexts.

Conclusion

The present studies examined observational learning of self-compassion, aiming to understand social influences on within-person variability in self-compassion and the potential for peer interactions to support learning of self-compassion. Although the present studies failed to find evidence in support of observational learning of self-compassion via a brief exposure to a self-compassionate peer in the academic domain, there is still a need to investigate factors that influence within-person variability in self-compassion and novel ways of learning self-compassion, and social cognitive theory still provides an avenue through which to explore these topics. Several social cognitive variables with the potential to influence self-compassion were not explored in the present study, including other approaches to modelling self-compassion and other observer characteristics that may influence the ways that exposure to self-compassionate others shapes people's own knowledge and performance of self-compassion. Potentially fruitful directions for future research include examining whether observational learning of self-compassion is effective when the observer has multiple opportunities to observe a self-compassionate model, or when the model has a close relationship with the observer. In addition, to better understand the role of observing rewarding outcomes on observational learning of self-compassion, researchers should ensure that rewarding outcomes are modelled clearly and perceived strongly by the observer. Another direction for future research in this area is examining the effects of observing self-compassionate others in different life domains – as some evidence shows that self-compassion varies within individuals across life domains (Zuroff et al., 2021), social influences on self-compassion may also differ across domains.

Figure 1.

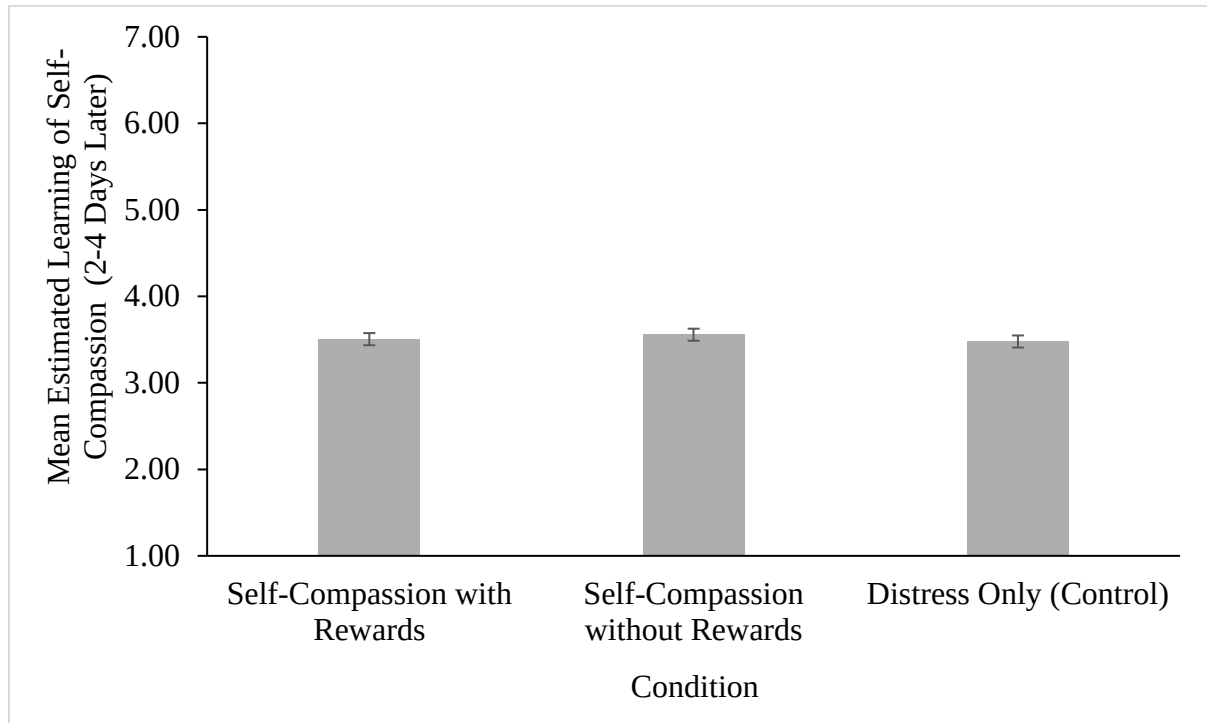
Study 1 Manipulation Check: Mean Perceived Rewards by Condition



Note. Error bars represent one standard error above and below the mean.

Figure 2.

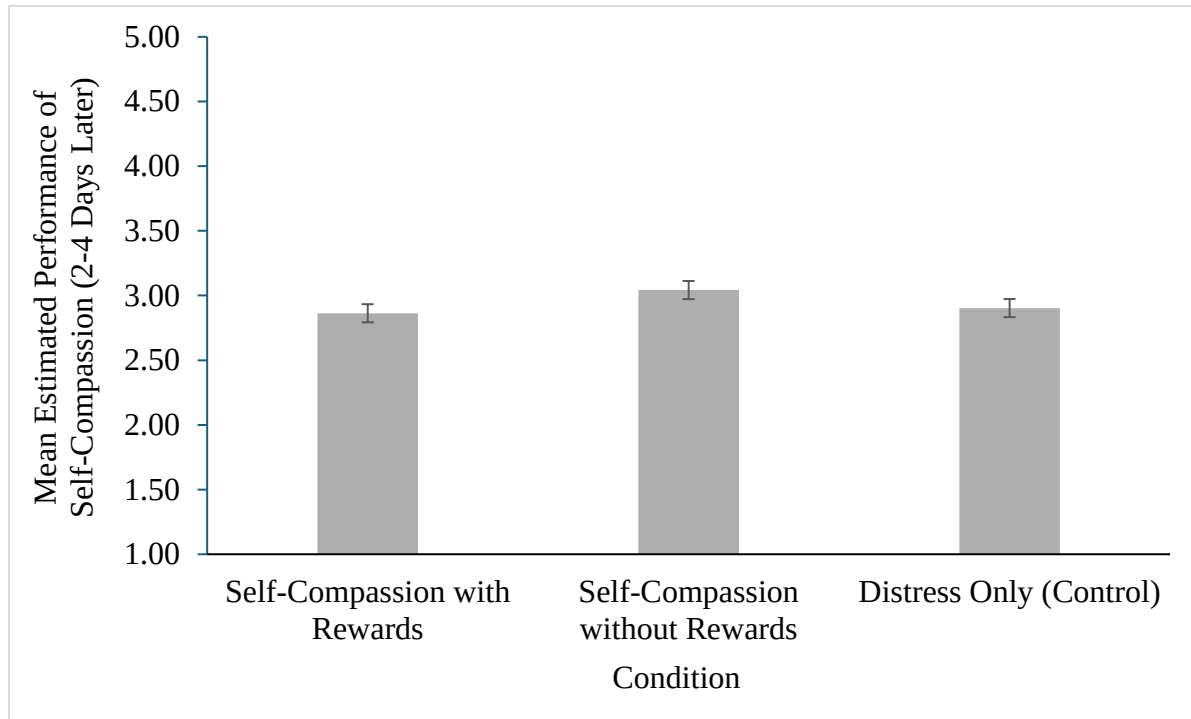
Study 1 Test of Hypotheses 1a and 1b: Mean Estimated Learning of Self-Compassion 2-4 Days Later by Condition, Controlling for Academic Contingencies of Self-Worth



Note. Error bars represent one standard error above and below the mean. Values for learning of self-compassion are estimated at the mean value of the covariate in the model, academic contingencies of self-worth (Academic Contingencies of Self-Worth $M = 5.95$. Estimated Learning of Self-Compassion Means: Self-Compassion with Rewards $M = 3.51$, Self-Compassion without Rewards $M = 3.56$, Control $M = 3.48$).

Figure 3.

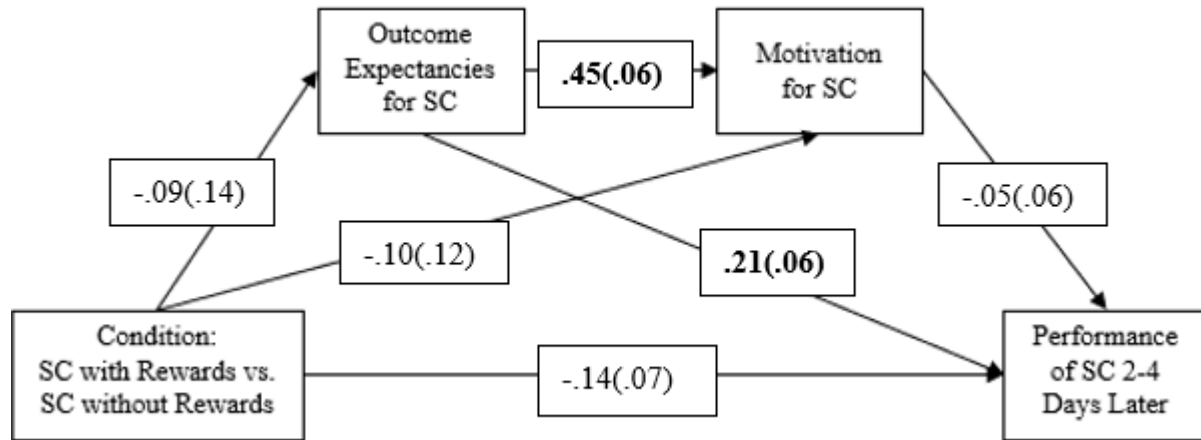
Study 2 Test of Hypotheses 2a and 2b: Mean Estimated Performance of Self-Compassion 2-4 Days Later by Condition, Controlling for Academic Contingencies of Self-Worth



Note. Error bars represent one standard error above and below the mean. Values for learning of self-compassion are estimated at the mean value of the covariate in the model, academic contingencies of self-worth (Academic Contingencies of Self-Worth $M = 5.95$. Estimated Performance of Self-Compassion Means: Self-Compassion with Rewards $M = 2.86$, Self-Compassion without Rewards $M = 3.04$, Control $M = 2.90$).

Figure 4.

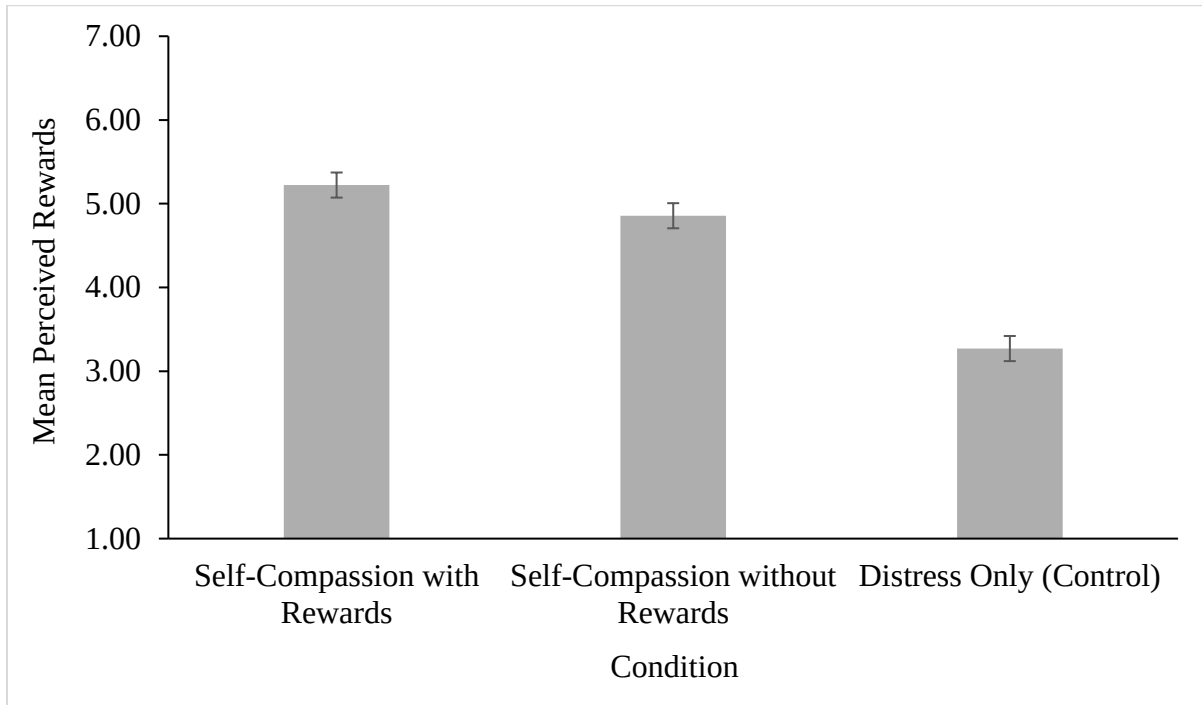
*Study 1 Test of Hypothesis 3: Indirect Effect of Condition on Performance of Self-Compassion
2-4 Days Later, via Outcome Expectancies and Motivation for Self-Compassion*



Note. Path coefficients are reported with standard errors in parentheses, and are also reported in Table 7. Significant paths ($p < .001$) are indicated with boldface.

Figure 5.

Study 2 Manipulation Check: Perceived Rewards by Condition



Note. Error bars represent one standard error above and below the mean.

Figure 6.

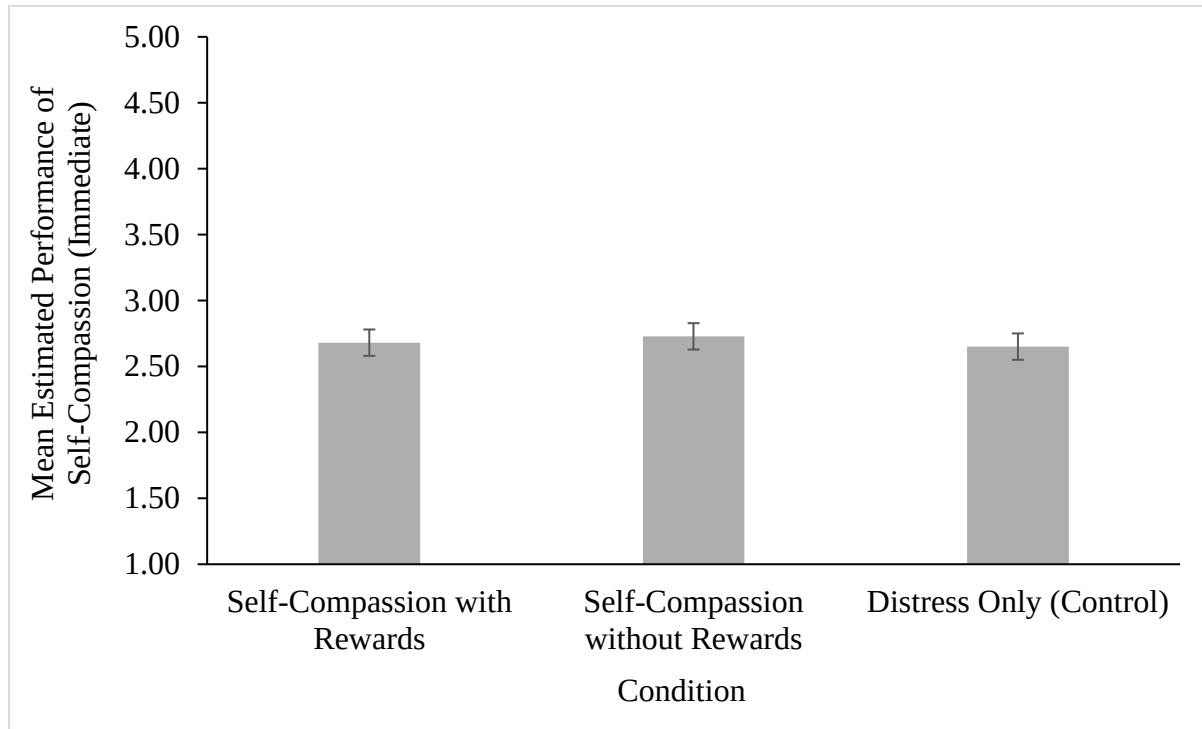
Study 2 Test of Hypotheses 1a and 1b: Mean Learning of Self-Compassion 2-4 Days Later by Condition



Note. Error bars represent one standard error above and below the mean.

Figure 7.

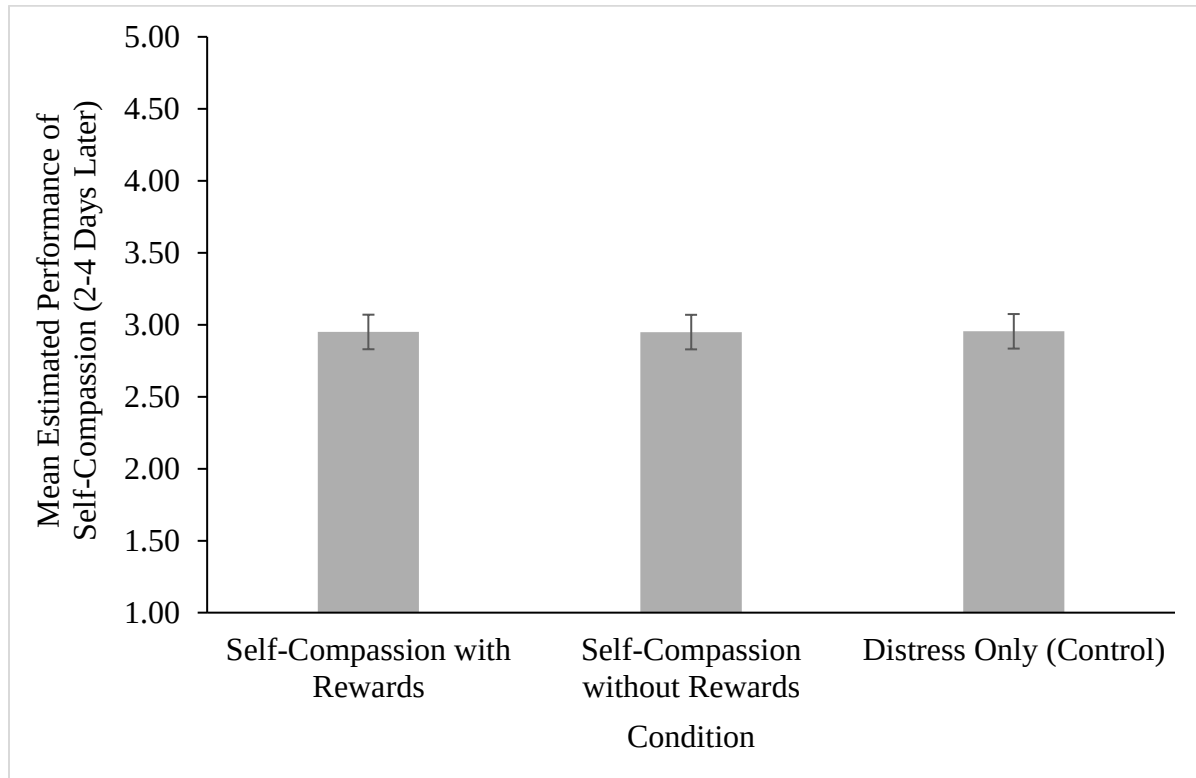
Study 2 Test of Hypotheses 2a and 2b, Immediate: Mean Estimated Performance of Self-Compassion (Immediate) by Condition, Controlling for Academic Contingencies of Self-Worth



Note. Error bars represent one standard error above and below the mean. Values for learning of self-compassion are estimated at the mean value of the covariate in the model, academic contingencies of self-worth (Academic Contingencies of Self-Worth $M = 5.93$. Estimated Performance of Self-Compassion Means: Self-Compassion with Rewards $M = 2.68$, Self-Compassion without Rewards $M = 2.73$, Control $M = 2.65$).

Figure 8.

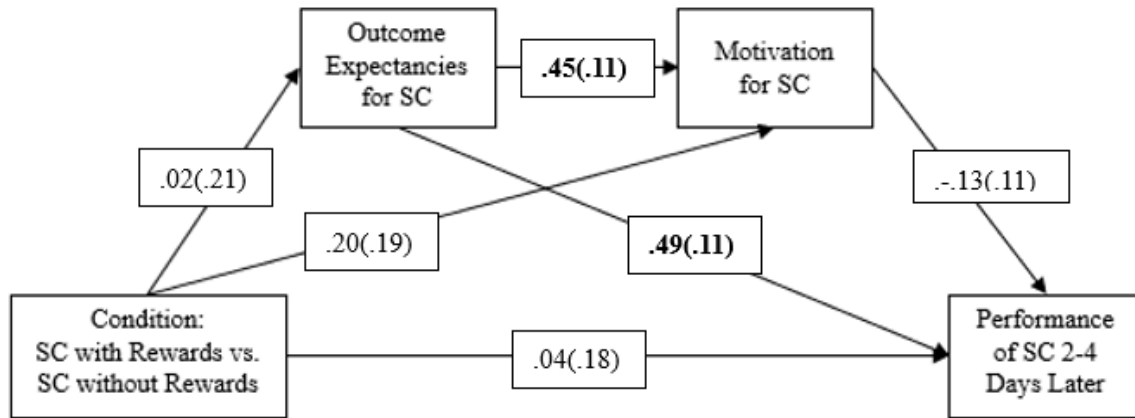
Study 2 Test of Hypotheses 2a and 2b, 2-4 Days Later: Mean Estimated Performance of Self-Compassion (2-4 Days Later) Controlling for Academic Contingencies of Self-Worth



Note. Error bars represent one standard error above and below the mean. Values for learning of self-compassion are estimated at the mean value of the covariate in the model, academic contingencies of self-worth (Academic Contingencies of Self-Worth $M = 5.93$. Estimated Performance of Self-Compassion Means: Self-Compassion with Rewards $M = 2.95$, Self-Compassion without Rewards $M = 2.95$, Control $M = 2.95$).

Figure 9.

Study 2 Test of Hypothesis 3: Indirect of Condition on Performance of Self-Compassion 2-4 Days Later, via Outcome Expectancies and Motivation



Note. Path coefficients are reported with standard errors in parentheses, and are also reported in Table 7. Significant paths ($p < .001$) are indicated with boldface.

Table 1.

Demographics for Studies 1 and 2

	Study 1	Study 2
Age in Years	21.0(3.4)	21.35 (4.16)
Race		
Black/African	1.9%	3.8%
East Asian	15.6%	21.5%
Hispanic	1.6%	<1%
Indigenous (First Nations, Inuit, or Metis)	<1%	0%
Middle Eastern	3.6%	3.8%
Mixed	2.7%	6.1%
South Asian	24.1%	16.1%
Southeast Asian	3.5%	4.6%
West Indian/Caribbean	1.4%	<1%
White/European	44%	41.5%
Decline to Answer	<1%	<1%

Table 2.

Study 1 Zero-Order Correlations

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Perceived Similarity to Model	--	--	--	--	--	--	--	--	--
2. Perceived Genuineness of Model	.48**	--	--	--	--	--	--	--	--
3. Perceived Rewards of Coping Approach	.08	.14**	--	--	--	--	--	--	--
4. Outcome Expectancies for Self-Compassion	.19**	.22**	.11*	--	--	--	--	--	--
5. Motivation to be Self-Compassionate	.36**	.09	.09	.45**	--	--	--	--	--
6. Academic Contingencies of Self-Worth	.24**	.07	.07	-.06	.22**	--	--	--	--
7. Learning of Self-Compassion	.04	.11	.11	.31**	.20**	-.13*	--	--	--
8. Performance of Self-Compassion	-.18**	.02	.02	.29**	.20**	-.29**	.23**	--	--
9. Trait Self-Compassion	-.06	-.03	-.04	.22**	.22**	-.37**	.17**	.34**	--

* $p < .05$; ** $p < .001$.

Table 3.

Study 1 Means and SDs of Study Variables

Measure	Self-Compassion with Rewards (<i>n</i> = 122)		Self-Compassion without Rewards (<i>n</i> = 123)		Control (<i>n</i> = 122)		Full Sample	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Perceived Similarity to Model	5.78	1.00	5.79	0.99	5.92	1.02	5.83	1.00
Perceived Genuineness of Model	5.58	1.03	5.81	0.92	5.85	0.90	5.75	0.96
Perceived Rewards	5.64	0.84	5.44	0.89	3.35	0.96	4.81	1.37
Outcome Expectancies for SC	4.86	0.82	4.90	0.79	4.87	0.78	4.88	0.80
Motivation for SC	5.02	0.79	5.17	0.71	5.07	0.66	5.09	0.72
Academic CSW	5.93	0.87	5.95	0.72	5.93	0.82	5.94	0.80
Learning of SC	3.52	0.78	3.55	0.63	3.48	0.82	3.52	0.75
Performance of SC (State SC)	2.89	0.78	3.04	0.74	2.90	0.78	2.94	0.77
Trait SC	2.36	0.49	2.45	0.45	2.41	0.47	2.41	0.47
Academic CSW	5.93	0.87	5.95	0.72	5.93	0.82	5.94	0.80

Note. SC = Self-Compassion; CSW = Contingencies of Self-Worth

Table 4.

Study 1 ANOVA Testing Experimental Manipulation: Perceived Rewards by Condition

Predictor	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	η^2_p
(Intercept)	8416.91	1	8416.91	10506.73	<.001	.97
Condition	391.89	2	195.92	244.57	<.001	.58
Error	289.20	361	0.80			

Table 5.

Study 1 ANCOVA Testing Hypotheses 1a and 1b: Learning of Self-Compassion 2-4 days later by Condition, Controlling for Academic Contingencies of Self-Worth

Predictor	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	η^2_p
(Intercept)	100.26	1	100.26	181.74	<.001	.37
Academic Contingencies of Self-Worth	2.82	1	2.82	5.12	.024	.02
Condition	0.34	2	0.17	0.31	.736	.00
Error	173.76	315	0.55			

Table 6.

Study 1 ANCOVA Testing Hypotheses 2a and 2b: Performance of Self-Compassion 2-4 Days

Later by Condition, Controlling for Academic Contingencies of Self-Worth

Predictor	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	η^2_p
(Intercept)	121.51	1	121.51	224.23	<.001	.10
Academic Contingencies of Self-Worth	16.67	1	16.67	30.75	<.001	.09
Condition	1.91	2	0.95	1.76	.174	.01
Error	170.69	315	0.54			

Table 7.

Study 1 Test of Hypothesis 3: Path Estimates and 99% Confidence Intervals for the Serial Mediation Effect of Condition on Performance of Self-Compassion 2-4 Days Later Through Outcome Expectancies and Motivation

	<i>B(SE)</i>	<i>t</i>	<i>p</i>	LLCI	ULCI
Effect of Condition (SC with Rewards vs. SC without Rewards) on Outcome Expectancies	-.09(.14)	-0.69	.494	-.12	.18
Effect of Outcome Expectancies on Motivation	.45(.06)	7.28	<.001	.33	.57
Effect of Outcome Expectancies on Performance of Self-Compassion	.21(.06)	3.75	<.001	.10	.32
Effect of Condition on Motivation	-.10(.12)	-0.80	.437	-.34	.14
Effect of Motivation on Performance of Self-Compassion	-.05(.06)	-.88	.381	-.16	.06
Direct Effect of Condition on Performance of Self-Compassion	-.14(.07)	-1.41	.159	-.34	.06

Note. Estimates of indirect effect are based on 10,000 bootstrapped sample estimates. Upper limit (ULCI) and lower limits (LLCI) of the direct and indirect effects are based on 95% confidence intervals (CIs). Significant paths are indicated in boldface.

Table 8.

Study 2 Zero-Order Correlations

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Perceived Similarity to Model	--	--	--	--	--	--	--	--	--	--	--	--
2. Perceived Genuineness of Model	.51**	--	--	--	--	--	--	--	--	--	--	--
3. Perceived Rewards of Coping Approach	-.01	.10	--	--	--	--	--	--	--	--	--	--
4. Outcome Expectancies for Self-Compassion	.07	.17*	.28**	--	--	--	--	--	--	--	--	--
5. Motivation to be Self-Compassionate	.22**	.14	.31**	.51**	--	--	--	--	--	--	--	--
6. Academic Contingencies of Self-Worth	.30**	.20*	.02	-.17*	.06	--	--	--	--	--	--	--
7. Learning of Self-Compassion	.19*	.21*	.24**	.34**	.38**	-.03	--	--	--	--	--	--
8. Soothing Affect	-.03	.20*	.11	.28**	.04	-.09	.27**	--	--	--	--	--
9. Performance of Self-Compassion (Immediate)	-.05	.15	.18*	.52**	.14	-.28**	.24**	.48**	--	--	--	--
10. Performance of Self-Compassion (2-4 days later)	-.06	.22*	.07	.48**	.18	-.23**	.30**	.50**	.74**	--	--	--
11. Trait Self-Compassion	.15	.08	.12	.40**	.33**	-.22**	.22*	.27**	.41**	.46**	--	--
12. Trait Fear of Self-Compassion	-.02	-.15	-.05	-.43**	-.16	.16*	-.13	-.42**	-.50**	-.45**	-.44**	--

* $p < .05$; ** $p < .001$.

Table 9.

Study 2 Means and SDs of Study Variables

Measure	Self-Compassion with Rewards (<i>n</i> = 122)		Self-Compassion without Rewards (<i>n</i> = 123)		Control (<i>n</i> = 122)		Full Sample	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Perceived Similarity to Model	5.52	1.00	5.60	1.06	5.89	1.07	5.69	1.05
Perceived Genuineness of Model	5.68	1.10	5.75	0.89	5.86	0.91	5.77	0.97
Perceived Rewards	5.22	0.74	4.86	0.74	3.27	0.80	4.38	1.16
Outcome Expectancies for Self-Compassion	4.35	0.84	4.37	0.76	4.04	0.89	4.24	0.85
Motivation to be Self- Compassionate	5.70	0.88	5.62	0.90	5.26	1.06	5.51	0.97
Learning of Self- Compassion	3.64	0.78	3.62	0.66	3.50	0.67	3.58	0.72
Performance of Self-Compassion (Immediate)	2.67	0.80	2.74	0.80	2.65	0.67	2.68	0.75
Performance of Self-Compassion (2-4 days later)	2.96	0.88	2.94	0.87	2.95	0.76	2.95	0.83
Soothing Affect	2.94	0.85	2.80	0.82	2.95	0.78	2.91	0.81
Trait Self- Compassion	2.32	0.44	2.33	0.42	2.32	0.41	2.32	0.42
Academic Contingencies of Self-Worth	5.98	0.94	5.88	0.92	5.93	0.80	5.93	0.88
Trait Fear of Self-Compassion	2.63	1.00	2.77	0.84	2.71	0.95	2.70	0.93

Table 10.

Study 2 ANOVA Testing Experimental Manipulation: Perceived Rewards by Condition

Predictor	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	η^2_p
(Intercept)	2921.34	1	2921.34	5003.74	<.001	.97
Condition	113.77	2	56.89	97.43	<.001	.57
Error	85.24	146	56.89			

Table 11.

Study 2 ANOVA Testing Hypotheses 1a and 1b: Learning of Self-Compassion by Condition

Predictor	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	η^2_p
(Intercept)	1614.64	1	1614.64	3185.87	<.001	.96
Condition	0.54	2	0.27	0.54	.587	.01
Error	63.86	126	0.51			

Table 12.

Study 2 ANCOVA Testing Hypotheses 2a and 2b, Immediate: Performance of Self-Compassion

(Immediate) by Condition, Controlling for Academic Contingencies of Self-Worth

Predictor	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	η^2_p
(Intercept)	54.55	1	54.55	101.24	<.001	.41
Academic Contingencies of Self-Worth	6.58	1	6.58	12.44	<.001	.08
Condition	0.15	2	0.08	0.14	.868	.00
Error	76.69	145	0.53			

Table 13.

Study 2 ANCOVA Testing Hypotheses 2a and 2b, 2-4 Days Later: Performance of Self-Compassion (2-4 Days Later) by Condition, Controlling for Academic Contingencies of Self-Worth

Predictor	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>	η^2_p
(Intercept)	45.77	1	45.77	69.09	<.001	.36
Academic Contingencies of Self-Worth	4.72	1	4.72	7.12	.009	.06
Condition	.00	2	.00	.00	.999	.00
Error	81.49	123	0.66			

Table 14.

Study 2: Path Estimates and 99% Confidence Intervals for the Serial Mediation Effect of Condition on Performance of Self-Compassion 2-4 Days Later Through Outcome Expectancies and Motivation

	<i>B(SE)</i>	<i>t</i>	<i>p</i>	LLCI	ULCI
Effect of Condition (SC with Rewards vs. SC without Rewards) on Outcome Expectancies	.02(.21)	0.08	.938	-.40	.38
Effect of Outcome Expectancies on Motivation	.45(.11)	4.15	<.001	.20	.57
Effect of Outcome Expectancies on Performance of Self-Compassion	.49(.11)	4.41	<.001	.33	.66
Effect of Condition on Motivation	.20(.19)	-.050	.617	-.26	.44
Effect of Motivation on Performance of Self-Compassion	.13(.11)	-1.22	.225	-.34	.00
Direct Effect of Condition on Performance of Self-Compassion	.04(.18)	0.21	.835	-.33	.23

Note. Estimates of indirect effect are based on 10,000 bootstrapped sample estimates. Upper limit (ULCI) and lower limits (LLCI) of the direct and indirect effects are based on 95% confidence intervals (CIs). Significant paths are indicated in boldface.

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Appendices

Appendix A: Self-Compassion with Rewards Condition Audio Clip Script

RA: Okay, so, we're recording now. Are you ready to get started?

Student: Um, yeah, I think so.

RA: Okay, great! So, maybe we could start with you just telling me about a recent experience related to your academics or coursework that has been making you feel upset. So like, it could be something that made you feel stressed, anxious, down on yourself, or, just some other unpleasant feeling.

Student: Hmm, let me think. [Pause] Well, a couple weeks ago, I had a really busy week. I had two assignments that were due, plus one of my classes has weekly quizzes, and, actually, in another class I also had a midterm.

RA: Mhm. Alright. So, tell me more about that.

Student: There was just so much to do, I was feeling so overwhelmed. I tried to get everything done, but I just felt like I didn't have enough time for everything. I just felt like I was being pulled in so many different directions.

RA: Right. How did that week go?

Student: Well, I was really tired, and stressed from everything going on. I mean, I got it all done, but I think I guessed on most of the questions on the quiz, and I definitely didn't end up studying much for the midterm. I haven't gotten grades back for everything yet, but I know I did even worse than I was expecting on one of the assignments.

RA: Okay. And what was all that like for you?

Student: Well, I was really upset, because...yeah, I felt like I worked so hard and I still didn't do well. Um, I guess I was pretty sad...frustrated. And it was hard, because I had more work to do

after that week, but I just felt like I kept thinking about everything that went wrong, and I wasn't able to feel motivated to get to anything else on my plate.

RA: Mmm. So, how did you manage all of that?

Student: Mmm...honestly, for a while I was just stressing, um, I was really beating myself up about how things went.

RA: Mm.

Student: It was really hard to get past the disappointment and frustration I was feeling, and then, feeling that way made it so much harder to do my other work, which made me feel even more anxious and even more overwhelmed.

RA: Uh-huh.

Student: And usually, I would be pretty stuck with those feelings for a while, you know, feeling really down on myself. But it was interesting. I had actually just seen an Instagram post about how we tend to be so much harder on ourselves than we are on other people.

RA: Mhm, that's interesting. Can you tell me more about that?

Student: Okay, so it might sound kind of weird, but I had a bit of an "Aha" moment and I realized that I think that's what was happening for me. I realized I was giving myself a really hard time, and was being so much more critical with myself than I think I would be with anyone, like a friend for example.

RA: Right. Was there anything else you noticed?

Student: Yeah, so, the person on the post was talking about self-compassion, and I ended up going down this rabbit hole of posts about self-compassion – very productive. I had actually never heard that phrase before, but it sort of stuck with me, I guess. The posts were saying that when we're feeling upset or being hard on ourselves, it can help to think about how we would

treat a friend going through the same kind of challenge or struggle. They said we can imagine ourselves trying to support our friend, you know, trying to empathize with them, what they're going through, help them know that we care about them, and we're there for them. And honestly, at first first I thought it sounded so cheesy, um, and so awkward, and so unnatural to do it by yourself. I definitely didn't think that I would be able to do it. Like, I didn't know if I was supposed to talk to myself, or what. But I was really upset, so, yeah, I just tried it.

RA: Right. What did you do, exactly?

Student: Uhh, um, well [humor in voice], it kind of feels embarrassing, to talk about this out loud to someone, but I guess this is what you're interested in, right? For the study, how we manage challenges, whatever.

RA: Yeah, totally. And I totally get that it probably feels personal to share, so, you know, just share whatever feels comfortable.

Student: Okay, well I guess I tried to get an image of myself struggling, you know, like, sitting at my computer and doing my school work feeling really defeated...overwhelmed. Kind of like how I would try to imagine a friend in a difficult situation that they were going through. And I could really see how much I was struggling, and I really felt for myself when I pictured myself like that, from more of this outside perspective. Not sure if that really makes sense at all.

RA: Yeah, totally makes sense. I'm following.

Student: Anyways, in my head I said something to myself like, "Wow, you are really having a tough time. This situation was hard and it's clearly making you feel really down on yourself." I tried to remind myself those feelings made sense, that they were valid, like, what I would say to any friend if they were upset.

RA: Right. And, do you remember anything else that you thought about?

Student: Um, well, I thought about how It's so natural to feel disappointed after an experience like this. I mean, anyone would probably feel sad and frustrated after working that hard and still not doing well. I tried to tell myself that I'm sure I'll feel better with time, but for now, it makes so much sense that I'd be feeling really beaten down by the whole thing. That these kinds of situations can be so deflating. And, again, it was kind of weird, and different at first, but it actually wasn't as awkward as I thought it would be.

RA: Mhm, interesting. And so, how did you feel after you did that? [*Note: this is where the audio clip diverges from the self-compassion without rewards condition*]

Student: I was actually really surprised. I wasn't expecting it to feel so helpful, but I really did feel better after it. Almost like I felt more reassured, if that makes sense. Um, I think when I tried to be more self-compassionate I realized that it was pretty understandable that I was feeling upset, and I would expect a friend who was in similar shoes to be feeling the same way.

RA: Uh-huh.

Student: Yeah, I guess I...it helped me see that I wouldn't feel badly forever, and I felt more accepting about what had happened. It was really helpful for me to be more compassionate with myself, just about how I was feeling. I felt a little less upset, maybe even little lighter. And I actually felt more motivated, now that I think of it, to work on my next assignment. I found that I was able to focus so much better on it, and get some work done, which helped me feel really good.

RA: That's really interesting. Thanks so much for sharing that.

Appendix B: Self-Compassion without Rewards Condition Audio Clip Script

Note. This audio clip is identical to the Self-Compassion with Rewards Condition audio clip, but the clip ends before the student describes experiencing positive outcomes of self-compassion.

RA: Okay, so, we're recording now. Are you ready to get started?

Student: Um, yeah, I think so.

RA: Okay, great! So, maybe we could start with you just telling me about a recent experience related to your academics or coursework that has been making you feel upset. So like, it could be something that made you feel stressed, anxious, down on yourself, or, just some other unpleasant feeling.

Student: Hmm, let me think. [Pause] Well, a couple weeks ago, I had a really busy week. I had two assignments that were due, plus one of my classes has weekly quizzes, and, actually, in another class I also had a midterm.

RA: Mhm. Alright. So, tell me more about that.

Student: There was just so much to do, I was feeling so overwhelmed. I tried to get everything done, but I just felt like I didn't have enough time for everything. I just felt like I was being pulled in so many different directions.

RA: Right. How did that week go?

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RA: Okay. And what was all that like for you?

Student: Well, I was really upset, because...yeah, I felt like I worked so hard and I still didn't do well. Um, I guess I was pretty sad...frustrated. And it was hard, because I had more work to do after that week, but I just felt like I kept thinking about everything that went wrong, and I wasn't able to feel motivated to get to anything else on my plate.

RA: Mmm. So, how did you manage all of that?

Student: Mmm...honestly, for a while I was just stressing, um, I was really beating myself up about how things went.

RA: Mm.

Student: It was really hard to get past the disappointment and frustration I was feeling, and then, feeling that way made it so much harder to do my other work, which made me feel even more anxious and even more overwhelmed.

RA: Uh-huh.

Student: And usually, I would be pretty stuck with those feelings for a while, you know, feeling really down on myself. But it was interesting. I had actually just seen an Instagram post about how we tend to be so much harder on ourselves than we are on other people.

RA: Mhm, that's interesting. Can you tell me more about that?

Student: Okay, so it might sound kind of weird, but I had a bit of an "Aha" moment and I realized that I think that's what was happening for me. I realized I was giving myself a really hard time, and was being so much more critical with myself than I think I would be with anyone, like a friend for example.

RA: Right. Was there anything else you noticed?

Student: Yeah, so, the person on the post was talking about self-compassion, and I ended up going down this rabbit hole of posts about self-compassion – very productive. I had actually

never heard that phrase before, but it sort of stuck with me, I guess. The posts were saying that when we're feeling upset or being hard on ourselves, it can help to think about how we would treat a friend going through the same kind of challenge or struggle. They said we can imagine ourselves trying to support our friend, you know, trying to empathize with them, what they're going through, help them know that we care about them, and we're there for them. And honestly, at first first I thought it sounded so cheesy, um, and so awkward, and so unnatural to do it by yourself. I definitely didn't think that I would be able to do it. Like, I didn't know if I was supposed to talk to myself, or what. But I was really upset, so, yeah, I just tried it.

RA: Right. What did you do, exactly?

Student: Uhh, um, well [humor in voice], it kind of feels embarrassing, to talk about this out loud to someone, but I guess this is what you're interested in, right? For the study, how we manage challenges, whatever.

RA: Yeah, totally. And I totally get that it probably feels personal to share, so, you know, just share whatever feels comfortable.

Student: Okay, well I guess I tried to get an image of myself struggling, you know, like, sitting at my computer and doing my school work feeling really defeated...overwhelmed. Kind of like how I would try to imagine a friend in a difficult situation that they were going through. And I could really see how much I was struggling, and I really felt for myself when I pictured myself like that, from more of this outside perspective. Not sure if that really makes sense at all.

RA: Yeah, totally makes sense. I'm following.

Student: Anyways, in my head I said something to myself like, "Wow, you are really having a tough time. This situation was hard and it's clearly making you feel really down on yourself." I

tried to remind myself those feelings made sense, that they were valid, like, what I would say to any friend if they were upset.

RA: Right. And, do you remember anything else that you thought about?

Student: Um, well, I thought about how It's so natural to feel disappointed after an experience like this. I mean, anyone would probably feel sad and frustrated after working that hard and still not doing well. I tried to tell myself that I'm sure I'll feel better with time, but for now, it makes so much sense that I'd be feeling really beaten down by the whole thing. That these kinds of situations can be so deflating. And, again, it was kind of weird, and different at first, but it actually wasn't as awkward as I thought it would be.

RA: That's really interesting, thanks so much for sharing that.

Appendix C: Distress Only (Control) Condition Audio Clip Script

RA: Okay, so, we're recording now. Are you ready to get started?

Student: Um, yep, I think so.

RA: Great! Okay, so, maybe we could start with you telling me about a recent experience related to your academics or coursework that's been making you feel upset. So, like, it could be something that made you feel stressed, anxious, down on yourself, or some other unpleasant feeling.

Student: Okay. Let me just think...well, a couple weeks ago, I had a really busy week. I had two assignments that were due, plus one of my classes had weekly quizzes, and, actually in another class I also had a midterm. And there was so much to do, and I was so overwhelmed by it. I mean, I tried to get everything done but I felt like I just didn't even have time for everything that I had on my plate.

RA: Right. Tell me a bit more about what happened that week. What were those assignments like?

Student: Umm...well, one was a research paper. It had a limit of 5 pages, which I know sounds short, but that made it hard so hard to stay under the limit, and they would actually take off marks if it wasn't long enough, too.

RA: And, what was the topic on?

Student: Gosh, I can't even remember what I picked. We had to write about one of the topics that we had learned in the class so far, but it took me forever to even pick a topic...they all sounded boring, so I ended up just writing the whole thing in one night.

RA: Mhm. And then, what was the other assignment?

Student: That one was a group thing, it was a presentation in my archaeology class. I think it was maybe 10 minutes long. I don't know. The class is an elective, and I thought it would be more interesting than it is.

RA: Okay. It sounds like you didn't really like that class.

Student: Yeah. I hate when you end up picking electives, and they're not what you expected, like, way more work than you thought, or way less interesting, like this class is.

RA: Yeah.

Student: Anyways, it was just kind of a boring and time-consuming project to work on. The presentation was on the same day that I had a quiz for another class, so I ended up not even having time to study for that quiz.

RA: Mm. And how did that go?

Student: Well it's online, and they're open book, but there's just so much content that you have to look at your notes ahead of time so you can actually find what you need when you're doing the quiz. So I used my notes during the quiz, but I basically just guessed on at least half of the questions that were there. I just felt really stressed doing it that way, like I didn't know what I was doing when I was going through it.

RA: Yeah, that makes sense. And you mentioned you also had a midterm?

Student: Yeah, I had a midterm in my stats class. I didn't end up studying much for that one at all. Um, I was just so tired from everything else, and there just wasn't a lot of time left to sit down and study. I mean, I studied a bit...like, I definitely needed to because stats is a really hard class. But I didn't study as much as I had planned to at all, so I felt really disappointed in myself for that.

RA: Right. Overall, how would you say that week went?

Student: Well, I was really tired and stressed from everything.

RA: Mhm.

Student: I mean, in the end I got it all done, but it was just a really hard week. I haven't gotten grades back for everything yet, but I know I did even worse than I was expecting to on one of the assignments.

RA: Mm. And what was that like for you?

Student: I was really upset, because I felt like I worked so hard, and I still didn't do well. I was pretty sad and, yeah, pretty frustrated. And it was hard because I had so much more to do after that week, but I just kept thinking about everything that went wrong, and I just felt like I wasn't able to motivate myself to do everything else that was on my plate.

RA: Yeah, that makes sense. And so, how did you handle all of that?

Student: Honestly, for a while I was just really stressed, and beating myself up about it. Yeah, it felt really hard to shake the disappointment and frustration I was feeling.

RA: Yeah, that makes sense. Well, thank you for sharing all of that.

Appendix D: Results of Tests of Assumptions for ANCOVA Analyses

Study 1

Hypotheses 1a and 1b: Learning of Self-Compassion as a Function of Condition

A Pearson correlation confirmed that academic contingencies of self-worth was associated with learning of self-compassion, $r(317) = -.13, p = .024$, and inspection of a scatterplot suggested that these variables had a linear relationship. A one-way ANOVA indicated that academic contingencies of self-worth did not differ across conditions, $F(2, 360) = 0.03, p = .969$, and a custom ANCOVA model including the interaction of condition and academic contingencies of self-worth as a predictor indicated that academic contingencies of self-worth did not moderate the effect of condition on the learning of self-compassion, $F(2, 313) = 1.65, p = .194$.

Hypotheses 2a and 2b: Performance of Self-Compassion as a Function of Condition

A Pearson correlation confirmed that academic contingencies of self-worth was associated with performance of self-compassion, $r(317) = -.29, p < .001$, and inspection of a scatterplot suggested that these variables had a linear relationship. As noted for hypotheses 1a and 1b, a one-way ANOVA indicated that academic contingencies of self-worth did not differ across conditions, $F(2, 360) = 0.03, p = .969$. A custom ANCOVA model including the interaction of condition and academic contingencies of self-worth as a predictor indicated that academic contingencies of self-worth did not moderate the effect of condition on performance of self-compassion, $F(2, 313) = 0.94, p = .393$.

Study 2

Hypotheses 1a and 1b: Learning of Self-Compassion as a Function of Condition

The Pearson correlation between academic contingencies of self-worth and learning of self-compassion was not significant in Study 2, $r = -.03$, $p = .703$, suggesting that academic contingencies of self-worth was not a suitable covariate for this analysis. We therefore did not proceed with an ANCOVA and instead tested hypotheses 1a and 1b using an ANOVA without the covariate.

Hypotheses 2a and 2b: Performance of Self-Compassion as a Function of Condition

Performance of Self-Compassion Immediately After the Audio Clip. A Pearson correlation confirmed that academic contingencies of self-worth was associated with performance of self-compassion immediately after the audio clip, $r(144) = -.28$, $p < .001$, and inspection of a scatterplot suggested that these variables had a linear relationship. A one-way ANOVA indicated that academic contingencies of self-worth did not differ across conditions, $F(2, 146) = 0.13$, $p = .878$, and a custom ANCOVA model including the interaction of condition and academic contingencies of self-worth as a predictor indicated that academic contingencies of self-worth did not moderate the effect of condition on immediate performance of self-compassion, $F(2, 143) = 0.01$, $p = .989$.

Performance of Self-Compassion 2-4 Days Later. A Pearson correlation confirmed that academic contingencies of self-worth was associated with performance of self-compassion, $r(317) = -.23$, $p < .001$, and inspection of a scatterplot suggested that these variables had a linear relationship. As noted for performance of self-compassion immediately after the audio clip, a one-way ANOVA indicated that academic contingencies of self-worth did not differ across conditions, $F(2, 146) = 0.13$, $p = .878$. A custom ANCOVA model including the interaction of condition and academic contingencies of self-worth as a predictor indicated that academic

contingencies of self-worth did not moderate the effect of condition on performance of self-compassion 2-4 days later, $F(2, 121) = 0.63, p = .532$.