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Article:

Sirois, F.M., Molnar, D.S. and Hirsch, J.K. (2015) Self-Compassion, Stress, and Coping in the Context of Chronic Illness. *Self and Identity*, 14 (3). 334 - 347. ISSN 1529-8876

<https://doi.org/10.1080/15298868.2014.996249>

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Please cite as:

Sirois, F. M., Molnar, D. S., & Hirsch, J. K. (in press). Self-compassion, stress and coping in the context of chronic illness. *Self and Identity*.

Self-compassion, Stress, and Coping in the Context of Chronic Illness

Fuschia M. Sirois, BSc, PhD^{1,2}

Danielle S. Molnar, Ph.D.³

Jameson K. Hirsch, PhD⁴

¹Health and Well-being Laboratory, Department of Psychology, Bishop's University, 2600 College St., Sherbrooke, Quebec, Canada

²Centre de recherche sur le vieillissement, Sherbrooke, Quebec, Canada

³Department of Psychology, Brock University, St. Catharines, Ontario, Canada

⁴Laboratory of Rural Psychological and Physical Health, Department of Psychology, East Tennessee State University, USA

Correspondence concerning this article should be addressed to Fuschia M. Sirois, PhD, Department of Psychology, Bishop's University, 2600 College St., Sherbrooke, Quebec, Canada J1M 1Z7, Email: fsirois@ubishops.ca

Preparation of this manuscript was supported by a Canada Research Chair awarded to the first author.

Abstract

A recent review suggested that self-compassion promotes use of adaptive rather than maladaptive coping. Less is known about how self-compassion is linked to stress and coping in the context of a chronic stressor. Across two primarily female chronic illness samples, inflammatory bowel disease ($N = 155$) and arthritis ($N = 164$), a model linking self-compassion to lower stress through coping styles and coping efficacy was tested. Path analyses revealed significant indirect effects for adaptive coping styles (active, positive reframing, and acceptance), and negatively for maladaptive coping styles (behavioral disengagement and self-blame) in both samples. Findings suggest that the relative balance of adaptive and maladaptive coping strategies used by self-compassionate people is associated with better coping outcomes in the context of chronic illness.

Key words: self-compassion; coping; stress; coping efficacy; chronic illness

Introduction

Whether considered a momentary mindset or an enduring tendency, self-compassion is increasingly being recognized as an important quality for reducing stress. Self-compassion has been defined as a positive self-view that involves relating to oneself with kindness and acceptance in times of failure and difficulty (Neff, 2003b). A growing body of research has documented that self-compassion is linked to lower levels of perceived stress (Neely, Schallert, Mohammed, Roberts, & Chen, 2009; Sirois, 2014), and increased resilience in the face of stressful situations (Neff, Kirkpatrick, & Rude, 2007), including chronic illness (Brion, Leary, & Drabkin, 2014). In a recent theoretical review, Allen and Leary (2010) posited that self-compassionate people may experience lower stress because of their use of effective coping strategies, but found limited and mixed support for the hypothesis that people high in self-compassion prefer and use more adaptive, problem-focused coping styles and less maladaptive coping styles. Yet, there is little research on self-compassion, stress and coping in the context of an ongoing chronic stressor such as chronic disease. Thus, it is unknown if the coping styles identified by Allen and Leary (2010) relate to self-compassion in this context. Understanding the potential of self-compassion for adaptive coping and therefore reducing stress in individuals with chronic disease, and especially chronic inflammatory disease, is an important goal in light of recent evidence highlighting the role of stress in the progression and exacerbation of inflammatory conditions (Cohen et al., 2012). In this study we aimed to address these issues and gaps in the research by testing the relations among self-compassion, adaptive and maladaptive coping styles, coping efficacy, and stress across two chronic illness groups.

Self-compassion, Coping and Stress

Self-compassion, as conceptualized by Neff (2003b), is comprised of three key features

that may account for why self-compassionate people are able to successfully cope with stressful life circumstances. Self-kindness refers to a capacity to treat oneself with kindness and compassion rather than criticism or harsh self-judgment during challenging circumstances. Common humanity involves recognizing that painful and difficult experiences are part of the human condition rather than feeling isolated in one's suffering. Mindfulness involves taking a balanced perspective of one's emotions, particularly negative emotional states, rather than becoming over-identified and embroiled within these negative states (e.g., sadness, guilt, anger). Together, these three qualities are proposed to reduce stress by helping individuals self-regulate the negative emotions that can arise from unexpected and/or uncontrollable events (Neff et al., 2007). In such instances, blaming events on one's own actions or failings can cyclically contribute to additional stress and impede healthy adjustment (Sirois, Davis, & Morgan, 2006). Thus, self-compassion may ameliorate stress by reducing coping that fosters negative emotional responses to stressors, and by promoting coping via adaptive behavioral or appraisal-based responses to stressors.

This view is consistent with appraisal-based models of coping and stress which emphasize the transactional nature of stress. Lazarus and Folkman's (1984) cognitive transaction model of stress highlights the central role of the individuals' cognitive and behavioral responses in exacerbating or attenuating the stress response. Adaptive coping responses are those which successfully remove or reduce the stressor by cognitively changing its appraisal, or by making direct behavioral changes (Lazarus & Folkman, 1984). Thus, self-compassionate people may appraise stressors in a way that frames them as less negative and threatening, allowing them to engage in effective behavioral responses to reduce the stressor because their self-regulatory resources are not monopolized by the negative self-evaluations and mood that often arise in

response to a stressful event (Sirois, Kitner, & Hirsch, in press; Terry & Leary, 2011).

Allen and Leary's (2010) review of the evidence linking self-compassion to coping support this view. Using Skinner et al's (2003) taxonomy of coping as a conceptual lens they examined whether self-compassionate people were more likely to use adaptive coping strategies and less likely to use maladaptive coping strategies. Specific adaptive coping strategies reviewed were positive cognitive restructuring (e.g., reframing stressful events in a positive light), problem-solving (e.g., planning and taking active steps to deal with a stressor), support-seeking (e.g., turning to others for support), distraction (e.g., reading or engaging in other distracting activities), whereas escape-avoidance coping strategies (e.g., cognitively or behaviorally disengaging from the stressor) were the less adaptive coping strategies reviewed. Overall, self-compassionate people were more likely to use positive cognitive restructuring, and less likely to use escape-avoidance coping strategies. Evidence for links to problem-solving was mixed. Some studies found links between self-compassion and active coping, planning and seeking instrumental support, and others did not; further, there was little evidence for links with seeking emotional support and distraction coping (Allen & Leary, 2010). They concluded that more research was needed to better understand how self-compassionate people handle stressors.

Self-compassion and Coping with Chronic Illness

An important consideration missing from this preliminary theory and research on self-compassion and coping is whether these associations are relevant for dealing with chronic daily stressors, such as a chronic and functionally limiting illness. There is mounting evidence that ineffective management of stress in this context can negatively impact psychological and physical well-being (Evers et al., 2013; Maunder & Levenstein, 2008). This may be especially true for chronic inflammatory health conditions such as arthritis and inflammatory bowel disease

(IBD) as stress can exacerbate inflammatory processes (Cohen et al., 2012).

The coping styles linked to self-compassion, as suggested by Allen and Leary (2010), may differentially impact the stress perceived by individuals with IBD and arthritis. Among patients with IBD, problem-focused and active coping strategies such as planning and instrumental support seeking are associated with better psychological outcomes (Graff et al., 2009; McCombie, Mulder, & Gearry, 2013), whereas use of passive coping strategies are linked to worse outcomes (Jones, Wessinger, & Crowell, 2006). In patients with arthritis approach coping is linked to better psychological outcomes such as life satisfaction and lower psychological distress and depression (Treharne, Lyons, Booth, & Kitas, 2007; Vriezekolk, van Lankveld, Geenen, & van den Ende, 2011). In contrast, escape-avoidance coping is associated with poor outcomes including psychiatric distress (Jones et al., 2006), helplessness and less illness acceptance (Voth & Sirois, 2009) in patients with IBD, and psychological distress in patients with arthritis (Ramjeet, Smith, & Adams, 2008; Vriezekolk et al., 2011). Evidence is limited for positive reappraisals. Optimistic beliefs are linked to better adjustment outcomes in people with arthritis (Fournier, de Ridder, & Bensing, 2002). Similarly, acceptance, predicts better adjustment in both IBD (Voth & Sirois, 2009) and arthritis (Pinto-Gouveia, Costa, & Marôco, 2013). But, in the context of chronic illness distraction coping is not maladaptive as Allen and Leary (2010) suggest, but adaptive (Compas, Jaser, Dunn, & Rodriguez, 2012). For this reason it was not examined. Because evidence is mixed regarding whether emotion-focused coping strategies, including emotional support seeking, are associated with better or poorer adjustment in individuals with chronic illness (McCombie et al., 2013; Pellissier, Dantzer, Canini, Mathieu, & Bonaz, 2010; Schussler, 1992), we did not examine these strategies.

Self-blame is a coping strategy that may be very salient for understanding how self-

compassion relates to adjustment in people with chronic illness. In the context of chronic illness, self-blame is associated with poor adjustment to chronic tinnitus (Sirois et al., 2006), and is linked to poor psychological well-being in patients with IBD (Voth & Sirois, 2009). Given that self-compassionate individuals treat themselves with kindness rather than harsh self-judgment in the face of a stressor, we expect that self-compassion will be negatively related to self-blame coping.

Individuals with chronic illness face a variety of daily and ongoing stressors, including pain and functional limitations, which can require using different coping strategies depending on the demand (Gignac, Cott, & Badley, 2000). Successful management of stress therefore relies less on the use of a single coping strategy, and more on the effectiveness of a set of coping strategies. Coping efficacy, appraisals of how successfully one is coping with an illness-related stressor (Gignac et al., 2000), is one way to capture the degree to which a set of coping strategies are effective for managing stress in the context of chronic illness. For example, in a study of older adults with arthritis, higher coping efficacy was associated with less feelings of helplessness, dependence, and emotional reactivity (Gignac et al., 2000). In individuals with IBD, greater use of denial and behavioral disengagement coping is associated with lower coping efficacy (Voth & Sirois, 2009). Given the proposed links between self-compassion and the use of adaptive coping strategies outlined by Terry and Leary (2010), it is reasonable to expect that self-compassionate people with chronic illness would use a diverse set of coping strategies that would promote feeling that they are coping successfully with their illness, and in turn perceive less stress.

The Present Study

The current study aimed to test and extend theory and research on self-compassion,

coping and stress by examining their associations in individuals with IBD and arthritis.

Consistent with previous research with healthy samples (Allen & Leary, 2010; Sirois, 2014), we hypothesized that self-compassion would relate to using effective coping strategies and lower perceived stress. We also expected that self-compassion would be positively linked to the adaptive coping strategies, and negatively linked to the maladaptive coping strategies noted by Allen and Leary (2010). We therefore examined a select set of coping strategies theorized to be linked to self-compassion, and that research indicated a potential benefit for those with chronic illness: problem solving coping (planning, instrumental support seeking, and active coping) and positive cognitive restructuring (positive reframing and acceptance), and maladaptive coping styles including escape avoidance coping (denial and behavioral disengagement) and self-blame.

Previous research has not directly examined the role of coping strategies with respect to stress among self-compassionate people. We therefore tested the efficacy of the coping strategies used by self-compassionate individuals and their associations with lower stress by examining the relative balance of adaptive and maladaptive coping strategies across the two illness groups using path analysis (see Figure 1). We posited that self-compassionate individuals in both samples would use a more adaptive set of coping strategies, which in turn would be associated with higher coping efficacy and, subsequently, would be associated with lower levels of stress.

Method

Participants and Procedure

The data analyzed for this study was collected as a six-month follow-up to a study on self-perceptions and adjustment to illness among two chronic illness samples – individuals with any form of arthritis, and individuals with inflammatory bowel disease (IBD). Individuals who self-reported being medically diagnosed with either arthritis or IBD were eligible to participate; individuals with a IBS, a related but distinct condition, were not eligible. Following clearance

from the university research ethics board, participants were recruited via study notices placed in the community, on electronic support groups for people with arthritis and IBD, on the Arthritis Society research web page, and in the newsletter of the Crohn's and Colitis Foundation of Canada. The web page for each illness group directed participants to the corresponding online survey, housed on a secure university server. The Time 1 participation involved completing an online survey; there was no intervention involved. Participants consented to participate by clicking an "I agree" button on the online consent form, and were given the option to enter a drawing for a gift certificate to an online bookstore.

A total of 325 people (170 with arthritis and 155 with IBD) completed the online survey at Time 2. Only 39.8% of the Time 1 participants with arthritis, and 36.2% of the Time 1 participants with IBD completed the Time 2 survey. Although participants were from a variety of locations around the world, the majority in both illness groups were from North America. Table 1 presents the complete demographic characteristics of the two illness samples. Both samples were predominantly female and White. Among those with a self-reported diagnosis of any type of arthritis, rheumatoid arthritis (42.9%) and osteoarthritis (27.6%) were the most frequently reported subtypes, with fibromyalgia (7.1%), ankylosing spondylitis (5.9%), psoriatic arthritis (4.1%) and other subtypes (lupus, gout, and other arthritis types) also included. In the IBD group, 50.6% had Crohn's disease, 42.9% had ulcerative colitis, and 6.5% had unspecified colitis.

Measures

With the exception of disease-specific questions, participants completed identical surveys which included questions about demographic information, disease severity and duration, coping efficacy, coping, general perceived stress, and self-compassion. Scale means and reliabilities are presented in Table 2. Although the coping measures were completed at Time 1 and 2, the self-

compassion scale was only completed at Time 2. Accordingly, the analyses focus on the Time 2 measures only.

Self-compassion. Both samples completed the 26-item Self-Compassion Scale (SCS; Neff, 2003a). The SCS assesses the three main components of self-compassion and their negative counterparts, Self-Kindness (Self-judgment), Common Humanity (Isolation), and Mindfulness (Over-identification). It includes both positively (“I try to be loving toward myself when I’m feeling emotional pain”) and negatively (“I’m disapproving and judgmental about my own flaws and inadequacies”) worded items reflecting the six components of self-compassion. Research indicates that the subscales are best explained by a single higher order factor of self-compassion as they are highly inter-correlated (Neff, 2003a). All items are prefaced with the statement “how I typically act towards myself during difficult times” and respondents indicate how often they behave in the described way using response options ranging from 1 (Almost Never) to 5 (Almost Always). Averaging the mean subscale scores after reverse coding the negative items yields a total self-compassion score. This scale has been successfully used in both student and community samples, demonstrating good validity, both convergent and discriminant, and excellent test-retest reliability previously ($\alpha = .93$) (Neff, 2003a; Neff & Pommier, 2013).

Disease-related variables. Participants indicated when they had been diagnosed with their IBD or arthritis. These dates were then transformed into years to create a time-since-diagnosis variable that was covaried in the main analyses. To assess the impact of their disease on daily living, participants rated the question “To what extent has arthritis affected your daily activities?” on a 4-point scale from 1 (not at all) to 4 (a lot). This item was chosen as a proxy for disease severity in both samples so that disease impact could be measured on a comparable scale.

Coping strategies. The Brief COPE (Carver, 1997) is a well-validated, 30-item measure

of the full COPE scale, that assesses how frequently functional and dysfunctional coping strategies are used. Each subscales is comprised of two items rated on a 4-point scale ranging from 1 (I usually don't do this at all) to 4 (I usually do this a lot). We examined eight subscales that previous theory and research suggest may be linked to both self-compassion and adjustment to chronic illness, including five adaptive coping strategies (instrumental support seeking, active coping, planning, positive reframing, and acceptance) and three maladaptive coping strategies (denial, behavioral disengagement, and self-blame)(Allen & Leary, 2010; Voth & Sirois, 2009). Participants reported their use of the coping strategies for dealing with their illness-related stress.

Coping-efficacy. The three-item coping efficacy scale developed by Gignac and colleagues (Gignac et al., 2000) assessed appraisals of efficacy in coping with the chronic stressors associated with chronic illness. The scale focuses on three common challenges associated with chronic illness: symptoms, emotional aspects, and day-to-day problems. Items such as “I am successfully coping with the symptoms of my arthritis” are scored on a 5-point Likert type scale with responses ranging from 1 (strongly disagree) to 5 (strongly agree); higher scores reflect greater coping efficacy. For the IBD sample, the word “arthritis” in all items was replaced with “IBD.”

Perceived stress. Each sample completed the 10-item version of the Perceived Stress Scale (PSS; Cohen & Williamson, 1988), a widely used, empirically established index of general stress. The perceived stressfulness of events experienced within the past month is assessed with items such as “In the last month, how often have you felt nervous and stressed” rated on a 5-point scale with response options ranging from “never” to very “often.” The PSS has demonstrated good internal consistency in previous studies (Cohen & Williamson, 1988), and in the current samples (see Table 2).

Statistical Analyses

Differences between the two samples were evaluated using t-tests. With correlation analyses, we tested the proposed links between self-compassion, coping strategies, self-efficacy and stress. In multivariate analyses, we also tested the hypothesis that self-compassion was associated with a relative balance of more adaptive coping strategies and less maladaptive coping strategies and, in turn, to better coping efficacy and lower stress across both chronic illness samples (Figure 1), using path analysis via Mplus 7.11 (Muthén & Muthén, 2013). First, we examined the overall model combining both the arthritis and IBD samples (see Table 2 top panel for summary). Full-information maximum likelihood (FIML; Arbuckle, 1996) estimation procedures were employed and standardized estimates are presented. Model fit was assessed using the comparative fit index (CFI), the root-mean-square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Indirect effects were tested using the biased-corrected bootstrap method with 1,000 resamples and the 95% bias-corrected confidence intervals (CIs). This method provides a more accurate balance between Type 1 and Type 2 errors compared to other methods used to test indirect effects (MacKinnon, Lockwood, & Williams, 2004). Finally, the consistency of the path model results across sample (arthritis versus IBD) was assessed using multiple group analysis: model fit indices were compared between a path model in which all predictive paths were freely estimated within the two samples, and a constrained model, in which corresponding predictive paths were set equal across samples. Small, non-significant changes in the model fit indices indicate that the assumption of equality in corresponding predictive paths across samples was tenable (Kline, 2005).

Results

Descriptive Information

Descriptive information along with correlations between all study variables, for each sample, is presented in Table 2. All variables were normally distributed except for denial (skewness = 1.96, SE = .14), and behavioural disengagement coping (skewness = 1.47, SE = .14), which were positively skewed. Across both samples, self-compassion was positively associated with all adaptive coping styles and coping efficacy, and negatively associated with the maladaptive coping styles and perceived stress. Results from independent sample *t*-tests revealed that there were no sample-related differences in scores on model variables, except with respect to age $t(315) = 6.41, p < .001$; individuals with arthritis were significantly older than those with IBD (see Table 1). Consequently, age was included in the analyses as a covariate. Given the heterogeneity of symptoms across the two samples, we used effects coding and included a set of seven variables in the analyses to account for differences in symptoms across samples. This allowed us to determine the effect of being in a particular subgroup (i.e., rheumatoid arthritis, osteoarthritis, fibromyalgia, ankylosing spondylitis, other arthritic conditions, Crohn's disease, and ulcerative colitis) relative to the remaining sample with respect to the model variables.

Path Analyses

The conceptual model depicted in Figure 1, accounting for age and heterogeneity of symptoms across samples, was tested. Goodness of fit indices revealed that the structure of the hypothesized model did not provide an acceptable explanation of the data ($i\chi^2_{(10)} = 68.35, p < .001, CFI = .95, RMSEA = .14, p_{close} < .001, SRMR = .03$). Modification indices indicated that adding a direct path from self-compassion to stress would significantly improve model fit. The addition of this path greatly improved model fit ($\chi^2_{\text{diff}(1)} = 56.05, p < .001, \Delta CFI = .05, \Delta RMSEA = .11$) and resulted in a model that fit the data well ($\chi^2_{(9)} = 12.30, p = .20, CFI = 1.00, RMSEA = .03, p_{close} = .68, SRMR = .01$). The results from the final model, accounting for 43% of the

variance in stress, are presented in Figure 2. As expected, coping self-efficacy was negatively associated with stress. Active coping, positive reframing, and acceptance were positively associated with coping self-efficacy, while behavioral disengagement and self-blame were negatively associated with coping self-efficacy. Self-compassion was positively associated with instrumental coping, active coping, planning, positive reframing, and acceptance, and negatively associated with denial, behavioral disengagement, and self-blame. The illness subtype comparisons revealed that fibromyalgia was associated with less coping self-efficacy, while ulcerative colitis and Crohn's disease were associated with higher levels of coping self-efficacy relative to others. Individuals with ankylosing spondylitis used less planning relative to others. Those with fibromyalgia were more likely to use positive re-framing, and those with ulcerative colitis were less likely to use behavioral disengagement compared to the rest of the sample.

In addition to the direct negative association between self-compassion and stress, self-compassion also shared significant and negative indirect associations with stress via active coping and coping self-efficacy [$b = -.030$; 95% CI = (-.060; -.005)], positive reframing and coping self-efficacy [$b = -.033$; 95% CI = (-.062; -.016)], acceptance and coping self-efficacy [$b = -.020$; 95% CI = (-.041; -.006)], behavioral disengagement and coping self-efficacy [$b = -.038$; 95% CI = (-.077; -.018)], and through self-blame and coping self-efficacy [$b = -.048$; 95% CI = (-.084; -.025)]. Concerning the consistency of results across samples, the assumption of equality across illness groups was tenable ($\Delta\chi^2 = 55.11$, $df = 56$, $p = .50$; $\Delta\text{CFI} = .001$; $\Delta\text{RMSEA} = .019$).

Discussion

Across two chronic illness samples we found that self-compassion was associated with greater use of adaptive coping and less use of maladaptive coping which, in turn, were linked to coping efficacy and subsequently less stress. After accounting for indirect relationships, the

direct relationship between self-compassion and stress remained significant, indicating that self-compassion is linked to lower stress through routes beyond coping. The model did not differ across the two illness samples, suggesting that self-compassion is a quality associated with adjustment to stressors in the context of IBD and arthritis.

Our findings replicate and extend previous research on self-compassion and coping in several important ways. Whereas past research has demonstrated mixed findings with respect to self-compassion and problem-solving coping styles (Allen & Leary, 2010), we found associations with three coping styles in this category at the bivariate level: instrumental support-seeking, active coping and planning, all of which are cognitive or behavioral in nature. However, only active coping linked self-compassion to coping efficacy, indicating that this problem-focused coping strategy may be more effective for coping with IBD and arthritis. Findings regarding the use of positive cognitive restructuring strategies (positive reframing and acceptance) were consistent with previous research (Allen & Leary, 2010); however, we found that these strategies linked self-compassion to better coping efficacy and, in turn, to less stress. In the context of chronic inflammatory illness, research suggests that acceptance – a cognitive appraisal process - may be especially important for managing day-to-day stress and promoting adjustment (Pinto-Gouveia et al., 2013; Ramjeet, Koutantji, Barrett, & Scott, 2005; Voth & Sirois, 2009). Thus, self-compassionate people may have a coping advantage that promotes adjustment to illness because they reframe how they view illness-related challenges and, therefore, engage in appropriate, rather than unrealistic, problem-solving strategies to minimize stress.

As expected, self-compassion was negatively related to each of the escape avoidant coping strategies, denial and behavioral disengagement. Previous research has noted a negative

association between self-compassion and trait procrastination, a form of behavioral disengagement and avoidant coping (Sirois, 2014). Consistent with this, we found that less use of behavioral disengagement was linked to successful coping and less stress. The negative association with self-blame coping is unique to this study and highlights the importance of the self-kindness dimension of self-compassion (Neff, 2003b) for minimizing harsh and self-critical thoughts when dealing with illness-related stressors. In low control circumstances such as chronic illness, it is not uncommon for individuals to try to regain control by retrospectively attributing uncontrollable illness-related changes to their own behavior (Thompson, Sobolew-Shubin, Galbraith, Schwankovsky, & Cruzen, 1993) and view these changes as personal failures. This self-blaming response is linked to poor adjustment in other chronic conditions (Sirois et al., 2006; Thompson, Cheek, & Graham, 1988), and poor coping efficacy in IBD (Voth & Sirois, 2009). Our findings provide preliminary and suggestive evidence that self-compassion may be a protective factor against this form of maladaptive coping.

The current findings also demonstrate, for the first time, that it is the relative balance of the greater use of adaptive and less use of maladaptive coping strategies that links self-compassion to better coping outcomes. In their review of current research, Allen and Leary (2010) posited that this may be the case. By using a path analysis model that allowed for simultaneous testing of the associations of self-compassion with several adaptive and maladaptive coping strategies, we were able to provide more direct empirical support for this proposition and were also able to examine how the coping styles were linked to coping efficacy and lower stress in our health-compromised samples. Although cross-sectional, our analyses suggest that self-compassionate individuals with chronic illness may have a repertoire of adaptive coping styles that they call upon to deal with different stressors associated with their

illness. This view of self-compassionate individuals is consistent with theory and research on coping flexibility which highlights the benefits of being able to shift among different coping strategies to find the most effective response for psychological health and well-being (Kato, 2012). Examining how self-compassion relates to flexible coping may, therefore, be a fruitful area for future research.

When considered in light of the predominantly female sample, the links between self-compassion and coping in the current study both parallel and contrast research on how women cope with stress in comparison to men. For example, a meta-analysis of sex differences in coping found that women in comparison to men tend to use positive self-talk to cope with stressors (Tamres, Janicki, & Helgeson, 2002). As noted previously, this positive reappraisal style of coping reflects the tendency of self-compassionate people to reframe stressors as less threatening. However, this meta-analysis and other research found that women tend to use more emotion-focused strategies, including rumination, as well as more avoidant coping strategies, than men (Matud, 2004; Tamres et al., 2002). In the current study self-compassionate individuals with IBD and arthritis tended to use less avoidant coping, and less self-blame coping, a strategy akin to rumination in that it involves repetitive, unproductive thinking that is associated with greater feelings of distress and less self-compassion (Filip, 2010). Taken together, the current findings and research highlighting how women cope with stress provides suggestive evidence that self-compassion may be especially beneficial for women coping with the stressors of chronic illness because it promotes the use of adaptive coping strategies while minimizing the use of maladaptive coping strategies.

Despite being novel, the results from this study should be considered in light of several limitations. Although, the proposed links among self-compassion, coping, coping efficacy and

stress are informed by theory and experimental research (Allen & Leary, 2010; Neff, 2003b), the cross-sectional nature of our data precludes any strong conclusions about causality. To determine the temporal precedence of the model it should be tested within the framework of a prospective longitudinal study. We tested a limited number of coping styles as suggested by theory and research; however, future research could provide a more comprehensive portrait of the repertoire of coping styles used by self-compassionate individuals in the context of chronic illness. It should also be noted that the direct association from self-compassion to stress remained significant, highlighting the role of factors, coping-related or otherwise, not tested in the current study that might explain why self-compassionate people perceive less stress. For example, the mindfulness component of self-compassion, with its emphasis on not becoming embroiled in negative mood states, may account for this link. Further research on understanding the direct link between self-compassion and stress would bring clarity to this issue.

Although our findings are generally consistent with previous research in both healthy and health-compromised individuals, the coping styles associated with self-compassion in the current study may not apply to other samples. Indeed, the diversity of sub-types within each illness group makes it difficult to determine if the results apply more or less to any one sub-type. Moreover, IBD and arthritis, though both forms of chronic inflammatory disease, are also very distinct in many ways, despite the results suggesting that the relations among the study variables did not differ significantly between the two groups, or as a function of any one subtype. Both samples were primarily White and female also limiting the applicability of the findings to more diverse samples. The results may also be specific to chronic inflammatory conditions and may not generalize to other chronic illness groups or to general medical populations. Collectively, these limitations indicate that more work with other illness populations would clarify the extent

to which the findings can be generalized to other samples. Nonetheless, the current study is the first that we are aware of to examine self-compassion and coping with IBD and arthritis.

The current study replicated and extended previous theory and research, finding that in women with IBD and arthritis, self-compassion is linked to greater use of adaptive coping and less use of maladaptive coping for illness-related stressors, which, in turn, was linked to successful coping and less stress. The healthy repertoire of coping styles associated with self-compassion found in this study provides suggestive evidence that cultivating a tendency to relate to oneself with kindness, compassion and acceptance in times of failure and difficulty may be valuable for reducing stress for those coping with chronic inflammatory disease.

Acknowledgements

Gratitude is expressed to all the participants who took the time to complete the surveys.

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Table 1.

Demographic characteristics of each illness sample.

	Illness group	
	Arthritis	IBD
<i>N</i>	170	155
Sex (% female)	91.5	83.1
Age	47.44 (11.6)	38.84 (12.8)
Mean (SD)	18-75	18-72
Range		
Ethnicity (% Caucasian)	92.1	93.6
Country (%)	49.1	48.7
Canada	44.2	31.2
United States	4.12	14.3
United Kingdom	1.2	1.3
Australia/New Zealand	1.2	4.5
Europe	36.4	43.6
	21.0	20.8
Employment status (%)	18.5	25.5
Full-time	24.1	10.1
Part-time		
Unemployed/retired	13.3	13.6
Disabled	66.1	65.6
Education (%)	20.6	20.8
High school or less		
University or college	57.0	67.5
Graduate school	20.6	7.9
Relationship status (%)	22.4	24.5
Married		
Separated/Divorced/Widowed		
Never married		

Note: IBD = Inflammatory bowel disease; SD = standard deviation;

Table 2.

Descriptive Information and Correlations of the Model Variables in the Arthritis and Inflammatory Bowel disease (IBD) Samples.

Variable	1	2	3	4	5	6	7	8	9	10	11
1. SC	-	.19*	.41*	.33*	-.28*	.32*	.37*	-.35*	-.46*	.43*	-.56*
2. IN	.18*	-	.25*	.40*	.05	.28*	.21*	-.12	.15	.09	-.07
3. ACT	.48*	.33*	-	.71*	-.16	.37*	.45*	-.34*	-.07	.40*	-.31*
4. PLAN	.41*	.35*	.63*	-	-.12	.51*	.60*	-.29*	.01	.36*	-.24*
5. DEN	-.17*	.01	-.09	-.02	-	-.06	-.39*	.37*	.43*	-.35*	.31*
6. PRF	.52*	.34*	.45*	.42*	.01	-	.36*	-.25*	.02	.35*	-.20*
7. ACC	.28*	.12	.29*	.38*	-.26*	.29*	-	-.32*	-.21*	.48*	-.35*
8. BDIS	-.42*	.03	-.31*	-.16*	.32*	-.20*	-.17*	-	.37*	-.46*	.37*
9. SB	-.50*	.17*	-.13	.03	.32*	.00	-.14	.51*	-	-.47*	.47*
10. CSE	.47*	-.06	.38*	.23*	-.22*	.31*	.29*	-.56*	-.39*	-	-.54*
11. PSS	-.56*	.02	-.35*	-.23*	.15	-.26*	-.10	.48*	.38*	-.57*	-
12. TDIAG	.16*	.04	.17*	.14	-.09	.10	.22*	-.24*	-.13	.25*	-.10
13. AGE	.29*	-.01	.06	.14	.06	.20*	.17*	-.13	-.15	.23*	-.26*
Mean (Arthritis)	2.98	2.26	2.75	2.66	1.31	2.28	3.08	1.55	3.66	3.58	2.83
SD (Arthritis)	.69	.81	.75	.83	.55	.87	.78	.74	1.70	.94	.84
Mean (IBD)	2.87	2.41	2.77	2.69	1.34	2.22	3.03	1.54	3.77	3.72	2.87
SD (IBD)	.71	.95	.88	.89	.56	.92	.80	.75	1.61	.91	.74
α (Arthritis)	.94	.79	.60	.69	.44	.77	.75	.70	.71	.92	.90
α (IBD)	.94	.89	.81	.81	.53	.83	.80	.77	.67	.91	.91

Note. Bivariate associations for the Arthritis sample are presented in the lower diagonal and bivariate associations for the IBD sample are presented in the upper diagonal of the table.

Note. SC = self-compassion; IN = instrumental support coping; ACT = active coping; PLAN = planning coping; DEN = denial coping; PRF = positive reframing coping; ACC = acceptance coping; BDIS = behavioral disengagement coping; SB = self-blame coping; CSE = coping efficacy; PSS = perceived stress; TDIAG = time since diagnosis.

Note. * $p < .05$.

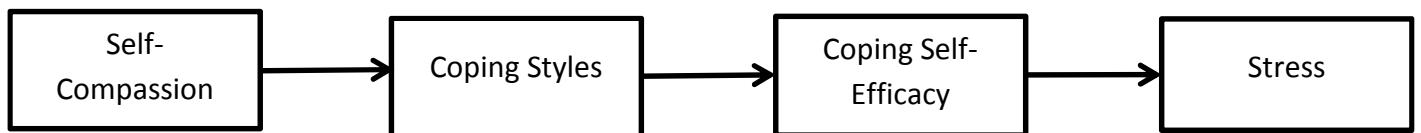


Figure 1. Conceptual model linking self-compassion to stress via coping styles and coping self-efficacy.

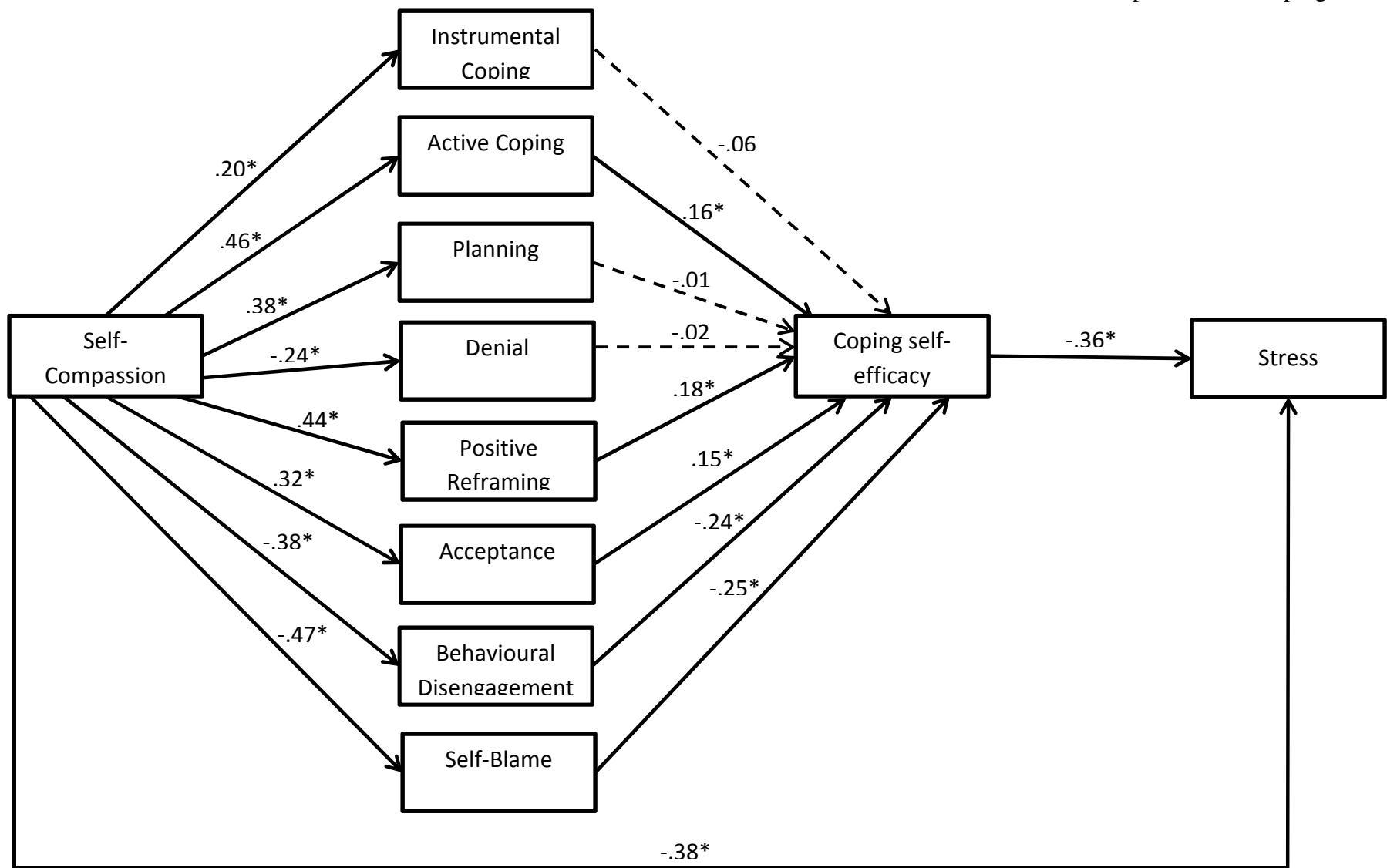


Figure 2. Final model linking self-compassion to stress via coping styles and coping self-efficacy.

Note. Statistically significant paths are shown via solid lines, while the dashed lines represent paths that were estimated in the model, but were not statistically significant.

Note. A set of seven variables that were created using effects coding were included in the analyses to account for differences in symptoms among the different samples, but not shown for ease of presentation. Respondent's age was also accounted for in the analyses, but not shown for ease of presentation.

Note. Covariances between disturbances associated with coping styles were estimated, but not shown for ease of presentation.

Note. Standardized path coefficients are displayed.

Note. * $p < .05$