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Abstract

Four studies investigated the relationship between self-compassion, health behaviors, and reactions to illness. Participants completed measures of self-compassion, health-related thoughts and feelings, reactions to actual and hypothetical illnesses, and self-regulation. Study 1 revealed that self-compassion was related to health-related cognitions and affect for healthy and unhealthy participants. In Study 2, self-compassion predicted participants' reactions to actual illnesses beyond the influence of illness severity and other predictors of health behaviors. Self-compassionate people also indicated they would seek medical attention sooner when experiencing symptoms than people lower in self-compassion. Study 3 demonstrated that self-compassion is related to health-promoting behaviors even after accounting for self-regulatory capabilities and illness cognitions. Study 4 revealed that the relationship between self-compassion and health reactions is partially explained by a proactive approach to health, benevolent self-talk, and a motivation toward self-kindness. Overall, these studies demonstrate that self-compassion has important implications for health-promoting behaviors and reactions to illness.

Keywords

self-compassion, health, self-regulation, illness, self-talk

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Maintaining physical and psychological health requires that people choose health-promoting behaviors over unhealthy ones and avoid becoming emotionally overwhelmed when health problems occur. How people approach health and illness depends on a wide array of factors, including how they think about their health, assess health risks, manage emotional reactions to health-related events, and enact behaviors to avoid, treat, and cope with illnesses and injuries. Several lines of research have examined how people manage their health and respond to health threats, but despite many theoretical advances and applied interventions, people often engage in behaviors that carry risks for health, are not optimally responsive to health threats, and have difficulties coping with illness and injury (Felton & Revenson, 1984; Goff, Mazor, Meterko, Dodd, & Sabin, 2008; Kasparian, McLoone, & Meiser, 2009; Leary, Tchividjian, & Kraxberger, 1994).

Most approaches to understanding how people deal with health and illness have focused on health-related cognitions, such as beliefs about health, attributions regarding health and illness, and expectations regarding the effectiveness of various health behaviors. For example, researchers have explored the link between self-efficacy in health behaviors and health functioning (Blittner, Goldberg, & Merbaum, 1978) and how

helplessness in response to illness is associated with difficulties in coping with disease (Evers et al., 2001).

Researchers have also investigated individual differences in health-related cognitions, behaviors, and outcomes. For example, health locus of control (HLOC; Wallston, Wallston, & DeVellis, 1978) involves the degree to which people attribute their health outcomes to their own efforts, powerful others (such as doctors), or chance factors. Although internal locus of control (LOC) predicts behavior in some studies, meta-analyses fail to find a relationship between the LOC dimensions and illness management (Hummer, Vannatta, & Thompson, 2011). Similarly, health anxiety and hypochondriasis (a persistent and severe manifestation of health anxiety; Salkovskis, Rimes, Warwick, & Clark, 2002) predict behaviors such as health reassurance seeking (Pugh & Hadjistavropoulos, 2011), but their role in predicting behaviors that promote health, such as seeking medical care or

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adhering to medical regimens, is less clear (Baumgartner & Hartmann, 2011; Pugh & Hadjistavropoulos, 2011).

The four studies in this article extend work on individual differences in health-related thoughts, emotions, and behaviors by exploring the health-related implications of being low versus high in self-compassion, a characteristic whose relationship to health has not been examined. In essence, self-compassion is analogous to how people treat loved ones who face difficult circumstances, but rather than being directed toward others, compassion is directed toward oneself. When self-compassionate people experience difficult, challenging, or painful situations, they respond with self-directed kindness and concern (Neff, 2003b). Treating oneself compassionately is conceptually and empirically distinct from evaluating oneself positively and from behaving in self-enhancing ways (Leary, Tate, Adams, Allen, & Hancock, 2007; Neff, 2003b; Neff & Vonk, 2009). In addition to examining the relationship between self-compassion and health behavior, these four studies explore mechanisms by which self-compassion may be linked to health-promoting behaviors.

Self-compassion is associated with general well-being and adaptive reactions to negative life events (Allen & Leary, 2010; Leary et al., 2007; Neff, 2003a, 2003b, 2009; Neff, Rude, & Kirkpatrick, 2007; Terry, Leary, & Mehta, 2013). Self-compassionate people are less depressed and less anxious (Neff, 2003b, 2009) and are also happier and more satisfied with their lives than people who are less self-compassionate (Neff, 2003b; Neff, Pisitsungkagarn, & Hsieh, 2008; Neff et al., 2007). When people think about negative experiences from their past, receive negative feedback, or imagine being in difficult situations, self-compassion buffers against negative affect (Leary et al., 2007). Self-compassion also predicts less emotional distress arising from difficult events that unfold over time, such as during the transition to college, especially among people who experience greater difficulties during the transition (Terry et al., 2013).

Although the relationship between self-compassion and general well-being has been extensively explored, the role of self-compassion in health-related behavior, affect, and cognitions has not. Because self-compassionate people respond to negative events with greater self-directed kindness, recognition that their problems are common aspects of human experience, and equanimity, they presumably respond to illnesses and injuries in ways that facilitate balanced emotions and health-promoting behaviors. In a discussion of self-compassion and health behaviors, Terry and Leary (2011) suggested that self-compassion promotes healthy functioning and adaptive reactions when people are ill or injured. Specifically, their tendency to take greater personal initiative and responsibility for their problems and mistakes (Leary et al., 2007; Neff, 2003b; Neff et al., 2007; Neff et al., 2008), coupled with their tendency not to be overwhelmed by emotion, should lead self-compassionate people to deal more effectively with health threats, including taking care of

themselves when ill or injured and engaging in health-promoting behaviors.

Although self-compassion has been studied as a mediator of the relationship between personality characteristics (such as attachment style) and mental health (Raque-Bogdan, Ericson, Jackson, Martin, & Bryan, 2011), less is known about the process by which self-compassion is related to various outcomes. Research that examined the relationship between self-compassion and psychological well-being found that rumination mediates the relationship between self-compassion and depression, but worry more strongly mediates the relationship between self-compassion and anxiety (Raes, 2010). This initial test of process models suggests that self-compassion may be related to various outcomes for somewhat different reasons, and the current studies explored possible paths by which self-compassion is related to health outcomes.

Study 1 explored the relationship between self-compassion and constructs that involve reactions to health and illness, including measures of health-related cognition, affect, and motivation. Study 2 examined the relationship between self-compassion and known predictors of health behavior (hypochondriasis, HLOC, and health value) and tested hypotheses about the relationship between self-compassion and responses to hypothetical and actual health threats. Studies 3 and 4 replicated and extended Study 2 by testing whether the relationship between self-compassion and reactions to health threats is accounted for by differences in self-regulation, illness-focused cognitions, benevolent self-talk, intentional kindness, or a proactive approach to health problems.

Study 1

Study 1 examined how people who differ in self-compassion think and feel about their health. Because self-compassion is associated with general anxiety, depression, and self-blame (Neff, 2003b; Neff et al., 2007), we predicted that self-compassion would be negatively related to health anxiety, health-related depression, and health-related self-blame and positively associated with satisfaction with one's health. We also explored the relationship between self-compassion, health assessment, and health-related motivations. Research has typically focused on the influence of self-compassion when things are going badly (Leary et al., 2007; Neff, 2003b; Terry et al., 2013), so we also explored whether the relationships between self-compassion and health-related affect, cognition, and motivation exist for both unhealthy and healthy people.

Method

Participants. One hundred and ninety-six participants (52 men, 144 women) recruited from the local community completed Study 1 as part of a large pretest battery of measures for another study. Participants' ages ranged from 20 to 83 ($M = 41.3$, $SD = 14.05$).¹

Table 1. Means, Standard Deviations, Cronbach's Alpha Coefficients, and Correlations (Study 1).

	M (SD)	α	Self-compassion	Health anxiety	Health depression	Health satisfaction	Health self-blame	Health status	Health preoccupation	Health consciousness
Self-compassion	9.86 (3.96)	.84	—	—	—	—	—	—	—	—
Health anxiety	11.24 (4.83)	.87	-.31***	—	—	—	—	—	—	—
Health depression	10.31 (4.84)	.89	-.37***	.79**	—	—	—	—	—	—
Health satisfaction	14.30 (5.36)	.92	.35***	-.61***	-.66***	—	—	—	—	—
Health-illness self-blame	10.31 (5.22)	.93	-.13*	.30***	.33***	-.08	—	—	—	—
Health status	14.99 (4.98)	.83	.26***	-.56***	-.67***	.84***	-.18**	—	—	—
Health preoccupation	11.61 (5.04)	.88	.04	.42***	.28***	.04	.35***	-.03	—	—
Health consciousness	16.63 (4.94)	.87	.33***	.13*	-.03	.25***	.13*	.21**	.41***	—
Motivation to avoid unhealthiness	18.10 (4.50)	.81	.29***	-.22***	-.35***	.64***	.05	.63***	.35***	.53***

Note. Tests of correlations are one-tailed.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Measures

Self-compassion. The Self-Compassionate Reactions Inventory (SCRI; Leary, Terry, Allen, & Guadagno, 2011) is an eight-item measure that assesses self-compassionate reactions to potential life problems.² The SCRI lists eight common negative events (e.g., *You make a stupid mistake; You feel sad and lonely; You have a hard time doing something that most people think is easy to do*). For each event, four reactions are provided—two of which are self-compassionate and two of which are not self-compassionate. Example responses include “I would tell myself that things will get better” (high self-compassion); “I would do something to cheer myself up” (high self-compassion); “I would criticize myself for being so stupid” (low self-compassion); “I would judge myself harshly” (low self-compassion). After imagining each event, participants select the two responses that best reflect their reaction to the situation. A total score is obtained by counting the number of self-compassionate responses the respondent endorsed; scores could range from 0 to 16. Scores on the SCRI correlate between .70 and .79 with Neff's (2003a) Self-Compassion Scale and has virtually identical patterns of convergent and discriminant validity (Leary et al., 2011). For example, the SCRI correlates positively with self-esteem ($r = .48-.68$; across three studies), optimism ($r = .37$), well-being ($r = .28$), and self-forgiveness ($r = .60$), and negatively with depression ($r = -.48$) and self-criticism ($r = -.62$). Self-compassion has been found to be unrelated to social desirability (Neff, 2003a).

Health affect, cognitions, and motivations. Participants completed eight subscales from the Multidimensional Health Questionnaires (MHQ; Snell & Johnson, 1997) that assess health-related affect, cognitions, and motivations, along

with current health status. To measure health-related affect, participants completed subscales that measure health anxiety (worry about one's physical health), health depression (being depressed about the state of one's health), and health satisfaction (being satisfied with one's health). To assess health-related cognitions, participants completed the Illness Self-Blame subscale (blaming oneself for health problems) and the Health Preoccupation subscale (being obsessed with one's health). To assess health-related motivations, participants completed subscales that measured health consciousness (awareness of and reflecting on one's health) and motivation to avoid unhealthiness. Finally, participants completed the MHQ subscale that assesses current health status by asking participants to evaluate their health on items such as “I am in good physical health.” Each subscale contains five items answered on 5-point scales (1 = *not at all characteristic of me*; 5 = *very characteristic of me*); scores on each range from 5 to 25. Scores on the MHQ predict an array of health-promoting behaviors such as healthy eating, regular exercise, and getting regular dental and blood pressure checkups (Snell & Johnson, 1997).

Results and Discussion

Table 1 provides means, standard deviations, Cronbach's alpha coefficients, and correlations among all measures. As can be seen, self-compassion correlated negatively with the Health Anxiety, Health Depression, and Health-Illness Self-Blame subscales of the MHQ.³ In addition, self-compassion correlated positively with health consciousness, motivation to avoid unhealthiness, health satisfaction, and health status. Self-compassion was not related to the Health Preoccupation subscale.

The results of Study 1 support the hypotheses that self-compassion is related to adaptive health-related cognitions and positive health-related affect. These findings are consistent with what is known about the relationship between self-compassion and general measures of emotion and well-being (Leary et al., 2007; Neff, 2003b; Neff et al., 2007). In addition, the findings extend previous research by demonstrating that self-compassionate people think about their health differently than those low in self-compassion. Compared with people who are low in self-compassion, those who are high in self-compassion attend to their health more and are more motivated to avoid unhealthy behaviors.

To assess whether self-compassion is related to health-related affect, cognitions, and motivations for healthy and unhealthy participants, hierarchical multiple regression analyses were conducted in which each of the MHQ subscales was used as the outcome variable. In each analysis, self-compassion and health status scores were mean-centered and entered on Step 1, followed by the product of self-compassion and health status on Step 2.

For six of the seven health-related subscales, the interaction between self-compassion and health status was not significant, showing that self-compassion was related to each MHQ subscale similarly for participants who rated themselves as healthy and unhealthy. However, health status moderated the relationship between self-compassion and health depression, $\beta = .15$, $t(185) = 2.98$, $p = .003$. Decomposing this interaction with tests of simple slopes (Aiken & West, 1991) revealed that self-compassion was related to lower health depression for participants who rated their health as poor ($-1 SD$), simple slope = $-.40$, $t(185) = -4.60$, $p < .0001$. In contrast, for participants who rated themselves as healthy ($+1 SD$), self-compassion was not related to health depression, simple slope = $-.03$, $t(185) = -.028$, *ns*. Thus, people who view themselves as being in poorer health are less depressed if they are high rather than low in self-compassion.

Study 2

Having shown that self-compassion predicts how people think and feel about health and illnesses, the primary goal of Study 2 was to test whether self-compassion relates to behavioral and affective responses to medical problems. In addition, Study 2 measured established predictors of reactions to health and illness—such as HLOC, hypochondriasis, health meaning, and health value—to determine whether self-compassion predicts reactions to health problems when controlling for other variables. Finally, to replicate and extend the effects obtained in Study 1, we used alternate measures of self-compassion and health cognitions and affect.

Method

Participants. One hundred and seventeen participants (47 men, 70 women) were recruited from a community subject pool. Participants ranged in age from 18 to 37 ($M = 22.0$).

Measures

Self-compassion. Participants completed a 12-item version of the Self-Compassion Scale (Neff, 2003a). The 12-item version has psychometric properties comparable to the full-length measure.⁴

Hypochondriasis. The Hypochondriasis Scale (Salkovskis et al., 2002) is a 14-item measure of the degree to which people worry about their health and think about being ill.

HLOC. The Multidimensional HLOC Scale (Wallston et al., 1978) consists of three 6-item subscales that measure how much people attribute health changes and outcomes to their own efforts (Internal HLOC), other people such as doctors (Powerful Others HLOC), and random factors (Chance HLOC).

Health meaning. The 12-item Health Conception Scale (Laffrey, 1986) assesses what people believe it means to be healthy. Four subscales assess the degree to which participants believe being healthy means being free of illness or disease (clinical), being able to complete usual roles (functional), being able to adapt to life changes and stress (adaptive), and being able to complete life achievements and having a high level of well-being (eudaimonistic).

Health value. Participants completed a four-item measure of the value they place on being healthy (Lau, Hartman, & Ware, 1986). A representative item is, "If you don't have your health, you don't have anything."

Reactions to a real health problem. Participants received a list of 22 medical conditions that was modeled after the standard patient intake form used in many medical offices. Participants indicated which of the conditions (e.g., cancer, kidney disease, heart problems, diabetes, physical injury, cold or flu) they (a) are experiencing currently and (b) have experienced in the past. Of the conditions they had experienced, participants indicated the one that had most severely affected their life and answered questions with respect to that illness or condition. Participants rated the seriousness of this condition (1 = *not very*; 5 = *extremely*) and indicated how long ago they had it. Participants then rated the degree to which the condition had made them feel lonely, alone, isolated, depressed, down, sad, embarrassed, ashamed, insecure, weak, helpless, and like a failure (1 = *not at all*; 5 = *extremely*).

Seeking medical attention. Participants imagined experiencing eight medical symptoms (vomiting blood, a persistent bad headache, symptoms of a sexually transmitted disease, sexual partner testing positive for sexually transmitted disease, sore throat, severe ankle sprain, potentially cancerous mole, toothache). For each symptom, they indicated whether they would contact a doctor and, if so, how long they would wait before doing so, responding from *immediately* to listing any number of days.

Results and Discussion

Means, standard deviations, Cronbach's alpha coefficients, and correlations among all measures are shown in Table 2. As can be seen, self-compassion correlated negatively with hypochondriasis, replicating the findings of Study 1 showing that self-compassionate people worry less about their health.

HLOC. Self-compassion was positively correlated with the Powerful Others subscale of the HLOC Scale ($r = .26, p < .01$), showing that self-compassionate people are more inclined to believe that health professionals play a role in their ability to remain healthy than people who are low in self-compassion. Self-compassion was not related to the Chance or Internal LOC subscales.

Health meaning and value. The correlations between Self-Compassion and the Health Meaning subscales show that self-compassionate people associate being healthy with being able to have a high level of well-being (eudaimonic; $r = .21, p < .05$) and to adapt to changes in their life (adaptive; $r = .26, p < .01$) more strongly than people low in self-compassion. However, self-compassion was not related to the Clinical and Functional Health Meaning subscales. This pattern may reflect the fact that, whereas the clinical and functional meanings of health involve concrete, objective indicators of being healthy (not needing medical care and being able to perform one's roles), the eudaimonic and adaptive criteria are more subjective and, thus, may differ between low and high self-compassionate people. Self-compassion was also unrelated to how much people value their health. This finding is important because it shows that self-compassion is not related to various health-related constructs because self-compassionate people value their health more.

Reactions to actual illness. The most commonly reported illness or injury was the flu, which was reported by 35% of respondents. Weight and weight-related problems (9%), severe physical injury (8%), and asthma/emphysema (6%) were the next most commonly selected. The remaining 42% of participants were spread fairly evenly across the other health problems, including cancer, kidney disease, migraines/headaches, diabetes, and heart problems (each was reported by less than 5% of participants). Emotion ratings for the illness or injury that participants indicated had the greatest impact on them were averaged to create a measure of general negative affect ($M = 1.89, SD = .86; \alpha = .95$). A hierarchical multiple regression analysis was conducted to assess whether self-compassion predicted negative affect after controlling for other variables that might predict emotion. Specifically, self-reported illness severity, time since the illness or injury (with current illnesses coded as 0), health anxiety, the three HLOC subscales, the four Health Meaning subscales, and health value were entered on Step 1 of the analysis, and self-compassion was entered on Step 2. Together, illness severity,

time since the illness, health anxiety, HLOC, health meaning, and health value explained 18.4% of the variance in negative affect, and self-compassion accounted for an additional 5.4%, $F_{\text{change}}(1, 90) = 6.42, p = .013$.

Seeking medical attention. Participants indicated how long they would wait to seek medical attention in response to hypothetical medical problems. Responses to the eight problems varied greatly, with small numbers of participants calling a doctor immediately for sore throats (6.2%), toothaches (11.1%), and persistent headaches (14.5%), and much higher numbers seeking immediate attention for symptoms of STDs (90.6%) and vomiting blood (83.8%). To create an index of participants' proclivity to seek medical attention that included those who opted not to call the doctor, participants were assigned a score of 0 each time they indicated that they would *call the doctor immediately*, a score of 1 each time that they indicated that they would wait a certain number of days, and a score of 2 each time they indicated they *would not call the doctor*. Scores could range from 0 (would seek immediate attention for all eight symptoms) to 16 (would not seek attention for any symptoms). Lower scores on this composite waiting index reflect a tendency to seek medical attention more quickly.

Total scores on this measure ranged from 0 to 15 ($M = 5.5, SD = 2.42$), indicating that some participants reported they would call a doctor immediately for every symptom and some indicated they would not call the doctor at all for 7 of the 8 symptoms. Scores on this composite waiting index correlated negatively with self-compassion, indicating that participants higher in self-compassion reported across a variety of symptoms that they would wait less time before calling a doctor, $r(106) = -.23, p = .02$.

For self-compassion to be a meaningful factor in predicting reactions to illness and injury, it should predict seeking medical attention beyond other known predictors such as worry about one's health, conceptions of what it means to be healthy, the extent to which people value being healthy, and the faith one puts in doctors and oneself to control health outcomes (Brimstone, Thistlethwaite, & Quirk, 2007; Eastin & Guinsler, 2006; Frauman & Nettles-Carlson, 1991; Pullen, Walker, & Fiandt, 2001). Thus, two multiple regression analyses tested whether self-compassion predicted unique variance in seeking medical attention after the influence of hypochondriasis, health anxiety, health meaning, and the three HLOC subscales. One analysis used only data from participants who indicated that they would call a doctor (mean days wait) and the other used the composite waiting score just described.

The top half of Table 3 presents the results. For participants who indicated that they would eventually seek medical attention, self-compassion significantly predicted unique variance in how long participants (mean number of days) would wait to call the doctor, $\beta = -.21, p = .04$. In the

Table 2. Means, Standard Deviations, and Zero-Order Correlations and Cronbach's Alphas (Study 2).

Scale	M (SD)	α	Self-Compassion	Hypochondriasis	HLOC—Powerful Others	HLOC—Chance	HLOC—Internal	Health Value	HM—Clinical	HM—Functional	HM—Eudaimonistic	HM—Adaptive
Self-Compassion	35.02 (7.0)	.81	—	—	—	—	—	—	—	—	—	—
Hypochondriasis	25.23 (5.81)	.88	-.19*	—	—	—	—	—	—	—	—	—
HLOC—Powerful others	17.88 (5.09)	.72	.26**	.15	—	—	—	—	—	—	—	—
HLOC—Chance	19.83 (4.51)	.59	-.09	.13	.25**	—	—	—	—	—	—	—
HLOC—Internal	26.32 (3.95)	.70	.10	-.03	-.09	-.17	—	—	—	—	—	—
Health Value	14.79 (4.21)	.73	.09	.07	.07	-.21*	.11	—	—	—	—	—
Health Meaning—Clinical	13.62 (3.31)	.77	-.03	-.08	.01	-.13	.13	-.00	—	—	—	—
Health Meaning—Functional	13.71 (2.91)	.75	.15	-.01	.21*	-.04	.35***	.24**	.36***	—	—	—
Health Meaning—Eudaimonistic	13.49 (2.35)	.51	.21*	-.11	.17	-.08	.15	.28**	.28**	.54***	—	—
Health Meaning—Adaptive	12.80 (3.19)	.86	.26**	.05	.27	-.04	.34***	.21*	.20*	.71***	.49***	—
Seeking Medical Treatment	5.52 (2.42)	n/a	-.23*	-.14	-.38***	.06	-.16	-.12	.16	-.05	.10	-.08

Note. Tests of correlations are one-tailed. HLOC = Health Locus of Control; HM = Health Meaning.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3. Regression Analyses for Seeking Medical Attention.

Predictor variable	Mean days wait			Composite waiting score		
	β	<i>t</i>	<i>p</i>	β	<i>t</i>	<i>p</i>
Predictor variable (Study 2)						
HLOC—Internal	-.06	-.59	.56	.19	2.00	.05
HLOC—Chance	.01	1.00	.32	.19	1.98	.05
HLOC—Power	-.27	-2.69	.008	-.35	-3.50	.001
Hypochondriasis	-.01	-.34	.74	-.09	-.98	.33
Health anxiety	-.07	-.73	.47	-.03	-.26	.80
Health value	-.14	-1.43	.16	-.08	-.84	.41
Health meaning—Clinical	.06	.58	.57	.11	1.17	.24
Health meaning—Functional	.11	.81	.42	-.17	-1.26	.21
Health meaning—Eudaimonistic	.11	.99	.33	.27	2.40	.02
Health meaning—Adaptive	-.22	-1.71	.09	-.01	-.06	.96
Self-compassion	-.21	-2.01	.04	-.19	-1.81	.07
Full model	$R^2 = .22, F(11, 104) = 2.71, p = .04$			$R^2 = .29, F(11, 94) = 3.49, p = .0004$		
Predictor variable (Study 3)						
Commonality	.03	.36	.72	.02	.14	.25
Personal experience	-.01	-.07	.94	.08	.95	.34
Impact/severity	-.23	-2.91	.01	-.18	-2.52	.01
Symptom self-consciousness	.17	1.96	.05	.24	2.43	.02
Self-regulation: Triggering	.08	.86	.39	.08	1.27	.21
Self-regulation: Receiving	.09	.78	.44	.12	1.02	.31
Self-regulation: Evaluating	-.03	-.34	.74	-.05	-.73	.47
Self-regulation: Searching	-.17	-1.70	.09	-.11	-1.02	.31
Self-regulation: Formulating	.19	1.53	.13	.04	.10	.92
Self-regulation: Implementing	-.26	-2.03	.04	-.03	-.22	.83
Self-regulation: Assessing	.24	2.29	.02	.15	1.36	.18
Self-compassion	-.18	-1.86	.06	-.27	-2.74	.01
Full model	$R^2 = .15, F(12, 147) = 2.21, p = .014$			$R^2 = .14, F(12, 141) = 1.91, p < .05$		

Note. HLOC = health locus of control.

analysis that included all participants (including those who indicated that they would not call the doctor), the relationship between self-compassion and the composite waiting score was marginally significant after controlling for the other 10 predictors, $\beta = -.19, p = .07$.

The results of Study 2 reinforce the conclusion that self-compassion is related to people's approaches to health and illness. Self-compassionate people conceptualize and view their health differently than those low in self-compassion, feel less distress when thinking about illnesses and injuries, and approach medical problems in a more health-promoting manner. Most importantly, these effects remain even when controlling for the influence of other known predictors of health-related emotion and behavior.

Study 3

Although participants high in self-compassion indicated that they would seek medical attention more quickly, Study 2 did not provide an indication of why self-compassionate people waited a shorter time. One possibility is that self-compassionate people are better at self-regulation (Terry &

Leary, 2011) because they are higher in conscientiousness and take more initiative (Neff et al., 2007) or because their capacity for self-kindness and self-forgiveness allows them to re-engage in self-regulation when they behave in undesired ways (Adams & Leary, 2007; Kelly, Zuroff, Foa, & Gilbert, 2010). In addition, self-compassionate people respond to problems with greater equanimity, which may allow them to direct their attentional and regulatory resources toward healthy self-regulation rather than rumination or the management of negative emotions (Neff, Hseih, & Dejjitterat, 2005; Neff et al., 2007). To test this hypothesis, Study 3 included a measure of self-regulatory capacity. We expected to find that self-compassion is related to self-regulation (Terry & Leary, 2011), but that accounting for self-regulation does not eliminate the relationship between self-compassion and medical-seeking behaviors.

Another possibility is that self-compassionate people may respond more quickly to health threats because they view them as more serious or perceive that they will have greater effect on their lives. In addition, self-compassionate people may feel less embarrassed, guilty, or ashamed of having

particular medical conditions (such as STDs) as well as less embarrassed about medical examinations. Not only is self-compassion associated with lower negative affect in general (Neff, 2003a; Leary et al., 2007), but by virtue of their sense of common humanity, people who are high in self-compassion may recognize that embarrassing illnesses and injuries are common and that most people become embarrassed during some visits to the doctor. Thus, we measured how participants perceived each symptom to test whether the relationship between self-compassion and seeking medical attention was accounted for by such perceptions.

Method

Participants. A sample of 182 participants (75 men, 107 women) was recruited from a community subject pool that included university students ($n = 76$) and community members ($n = 106$). Participants ranged in age from 19 to 73 ($M = 30.9$).¹

Measures

Self-compassion. Participants completed the 12-item version of the Self-Compassion Scale described in Study 2.

Seeking medical attention. In addition to indicating how long they would wait to see a doctor for the eight medical conditions described in Study 2, participants rated how “guilty, ashamed, or embarrassed” they would feel if (a) they had each condition, (b) they had to discuss each condition with a health care provider, and (c) their friends or family knew they had each condition (1 = *not at all*; 7 = *very much*). An index of *symptom self-consciousness* was created by summing these three ratings. Participants also rated the seriousness of each condition and how much of an impact each condition would have on their life on a scale from 1 (*not at all*) to 7 (*very much*). Participants indicated whether they ever had each condition (*yes* or *no*) and estimated the percentage of people of their age and gender who had experienced each condition.

Self-regulation. The Self-Regulation Questionnaire (SRQ; Brown, Miller, & Lawendowski, 1999) is a 63-item scale that measures seven facets of self-regulation—receiving information, evaluating information, triggering change, searching through options, formulating a plan, implementing the plan, and assessing the effectiveness of the plan. Example items include “I usually keep track of my progress toward my goals” (receiving) and “Once I have a goal, I can usually plan how to reach it” (planning). Items are answered on a 5-point scale (1 = *strongly disagree*; 5 = *strongly agree*).

Results and Discussion

As in Study 2, two variables were created to reflect how long participants would wait to seek medical attention. The first variable reflected the mean number of days that participants

who would call a doctor would wait to do so, and the second variable was the composite waiting score described earlier (in which participants received 0 when they would *call the doctor immediately*, 1 when they *would wait a certain number of days*, and 2 when they indicated they *would not call the doctor*). Scores on the composite waiting measure ranged from 0 to 12 ($M = 5.2$, $SD = 2.12$). Both indices correlated negatively with self-compassion, $r_s = -.18$ and $-.21$, for the mean waiting time and composite waiting score, respectively, $p_s < .05$ (one-tailed). As in Study 2, participants higher in self-compassion reported across a variety of illnesses that they would wait less time before calling a doctor.

Symptom characteristics. Four variables were created to reflect participants’ perceptions of the eight symptoms. An index of *perceived severity* was calculated by summing ratings of the perceived seriousness and impact of the eight conditions. Variables were also created to reflect whether participants had personally experienced the eight problems (*personal experience*) and their estimate of the percentage of people of their age and gender who had experienced the health problems (*commonality*). The measure of *symptom self-consciousness* was described earlier. Of these four ratings of the medical conditions, self-compassion correlated only with the degree to which participants reported that they would feel guilty, embarrassed, and ashamed about the symptoms ($r = -.16$, $p = .02$).

Self-regulation. Self-compassion correlated positively with total scores on the SRQ, $r(166) = .50$, $p = .001$. The developers of the SRQ initially recommended treating the scale as a unitary measure as opposed to using its separate subscales. However, to determine whether self-compassion is differentially related to components of self-regulation, correlations were calculated between self-compassion and each SRQ subscale. Self-compassion scores correlated positively with six of the subscales—receiving information ($r = .48$), triggering change ($r = .30$), searching options ($r = .43$), formulating a plan ($r = .43$), implementing the plan ($r = .45$), and assessing the effectiveness of the plan ($r = .41$)—and negatively with the seventh—evaluating information ($r = -.32$), all $p_s < .001$. The multiple correlation between self-compassion and the set of seven Self-Regulation subscale scores was $.39$, $p < .00001$.

Seeking medical attention. Two regression analyses were conducted in which symptom self-consciousness, perceived severity, personal experience, commonality of the conditions, the seven subscales of the SRQ, and self-compassion were entered as predictors. Table 3 (bottom half) presents the results for mean number of days waited and the composite waiting score. For both analyses, self-compassion uniquely predicted how long participants would wait to contact a doctor with variance due to all other variables removed ($\beta = -.27$, $p = .01$ for the composite scores; $\beta = -.18$, $p = .06$ for the

mean number of days). As in Study 2, people who scored higher in self-compassion reported seeking attention more quickly than those lower in self-compassion, although the effect for mean number of days was marginal.

In sum, Study 3 demonstrated that people who are high in self-compassion respond more quickly to potential health threats. Furthermore, although self-compassionate people appear to be better at self-regulation, self-regulation cannot account for the relationship between self-compassion and seeking medical attention. Likewise, various illness cognitions do not explain the relationship between self-compassion and medical seeking. Self-compassionate people are not more prone to call a doctor simply because they have experienced the illness, view it as more common or more serious, or would feel less guilty or embarrassed if they had the illness.

Study 4

Studies 2 and 3 demonstrated that self-compassion predicts emotional reactions to participants' actual illnesses and the amount of time that participants would wait before seeking medical care for hypothetical illnesses. Furthermore, self-compassion predicts these outcomes even when accounting for a variety of measures of health-related cognition and emotion (HLOC, hypochondriasis and health anxiety, health value, and health meaning), self-regulation, and ratings of the hypothetical medical problems (severity and commonality). Study 4 was designed to investigate the process by which self-compassion may influence reactions to health and illness, keeping in mind that the variables that explain the relationship between self-compassion and emotional reactions may not be the same as those that explain the relationship between self-compassion and behavioral outcomes such as calling the doctor (cf. Raes, 2010). Thus, three potential mediators were tested to examine possible reasons that self-compassion is related to affective and behavioral outcomes.

First, self-compassionate people may take a more proactive approach to their health (Terry & Leary, 2011). Proactive people seek out opportunities to make needed changes and are relatively undeterred by situational impediments (Bateman & Crant, 1993; Kirby & Kirby, 2006). Applied to the context of health, a proactive approach involves behaving in ways that maintain or improve good health, even in the absence of illness or injury. Second, because self-compassionate people are motivated to be kind to themselves (Neff, 2003a), they may be more likely to behave in ways that enhance their physical and emotional well-being than people who are low in self-compassion. A third possibility is that self-compassionate people tend to engage in more benevolent self-talk (Leary et al., 2007), which may promote less negative affect and more effective reactions to health threats. To test these potential mediators, Study 4 included a measure of proactive approach to health, the motivation to treat

oneself kindly, and the extent to which people engage in benevolent self-talk. We expected to find that one or more of these variables accounts, at least in part, for the relationship between self-compassion and health outcomes.

Method

Participants. A sample of 241 participants (169 women, 71 men, 1 refused to answer) was recruited through Amazon's Mechanical Turk and received \$0.75 for participating. Participants ranged in age from 18 to 75 ($M = 36.4$, $SD = 12.71$) and were mostly Caucasian (87%).¹ Study requirements indicated that participants must be currently experiencing a serious medical condition.

Measures

Self-compassion. Participants completed the 12-item version of the Self-Compassion Scale described in Study 2.

Proactive health focus. Participants completed a 10-item adaptation of the Proactive Personality Scale (Seibert, Crant, & Kraimer, 1999) that described a proactive approach to health. Sample items (rated from 1 = *not at all* to 7 = *very much*) included, "If I notice something about my health that I don't like, I work to fix it" and "I'm very assertive when it comes to my physical health."

Motive for self-kindness. Participants completed a 10-item measure created for this study designed to measure the frequency with which participants' thoughts about their illness or injury reflect self-kindness (1 = *I never think this*; 2 = *I think this occasionally*; 3 = *I think this a lot*). Items included, "I think I should do something nice for myself" and "I get down on myself about my health problems" (reverse-scored).

Benevolent self-talk. A 10-item measure was created to measure participants' self-compassionate thoughts when they think about their illness or injury (1 = *I never think this*; 2 = *I think this occasionally*; 3 = *I think this a lot*). Sample items included, "I think that I deserve to be sick (reverse-scored)" and "I remind myself that almost everyone has medical problems."

Current health problem. Participants chose their current medical problem from a list or wrote in a medical condition if theirs was not listed. Participants rated how serious their medical condition was on a scale from 1 (*not very*) to 5 (*extremely*). On the same scale, participants rated how much their illness or injury affected six aspects of their life: (a) performance in work, school, or daily activities; (b) enjoyment of leisure activities; (c) enjoyment of social activities; (d) their ability to do things they want to do; (e) their relationships with family and friends, and (f) their romantic relationships. Participants completed the same emotional rating measures used in Study 2. Participants also rated how hard

Table 4. Means, Standard Deviations, Cronbach's Alpha Coefficients, and Correlations (Study 4).

	M (SD)	α	Self-compassion	Proactive health	Thoughts	Kindness motives	Emotions	Impact
Self-compassion	35.53 (8.29)	.86	—	—	—	—	—	—
Proactive health	32.65 (9.15)	.93	.38***	—	—	—	—	—
Thoughts	25.58 (4.15)	.70	.54***	.23***	—	—	—	—
Self-kindness motivation	26.36 (4.48)	.79	.64***	.36***	.63***	—	—	—
Emotions	2.70 (1.17)	.95	-.56***	-.14*	-.66***	-.53***	—	—
Impact	19.61 (6.23)	.90	-.39***	-.10	-.46***	-.38***	.74***	—
Doctors' orders	3.83 (.95)	—	.14*	.36***	.07	.22***	-.02	.05

Note. Tests of correlations are one-tailed.

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

they were trying to follow their doctors' recommendations vis-à-vis their illness or injury on a scale from 1 (*not very*) to 5 (*extremely*) or indicated they had not received recommendations or instructions from their doctor.

Results and Discussion

Means, standard deviations, Cronbach's alpha coefficients, and correlations among all measures are shown in Table 4. Self-compassion correlated positively with proactive approaches to health, kindness motivation, and benevolent self-talk, and correlated negatively with negative affect and perceived impact of the illness.

A bootstrapping technique was used to test a multiple mediator model (Preacher & Hayes, 2004, 2008). Bootstrapping takes samples of the data multiple times to generate an approximation of the sampling distribution from which confidence intervals (CIs) are generated to test for indirect mediation effects. Bootstrapping allows multiple mediators to be tested, calculates the magnitude and direction of effects to be calculated independently, provides the unique effect of each mediator while controlling for other mediators, and provides contrasts tests of the mediators to compare the relative strength of the mediators (Preacher & Hayes, 2004, 2008).

These analyses tested whether self-compassion had an indirect (mediated) effect on the three health-related outcomes through a proactive approach to health, benevolent self-thoughts, and self-kindness motivation using 5,000 bootstrapped samples. Models were analyzed separately for emotional reactions to health, perceived impact of illness, and following doctors' orders. In bootstrapping analyses, a meditational effect is significant if the bias corrected CI for the indirect effect does not contain 0 (Preacher & Hayes, 2004, 2008) so the CI will be presented, along with the p value.

Emotional reactions to illness. Self-compassion and the three mediators accounted for 53% of the variance in emotional

reactions to one's own illnesses and injuries (Figure 1). The total effect of self-compassion on emotional reactions to illness through all mediators together was significant ($b = -.04$, $SE_b = .00$, $z = -5.21$, $p < .0001$, $CI = [-.056, -.026]$). Taken together, the three (proactive health focus, benevolent self-talk, and motivated self-kindness) mediated the relationship between self-compassion and emotional reactions to one's illness or injury.

Examining each of the mediators individually while controlling for the effects of the other mediators, benevolent self-talk ($b = -.033$, $SE_b = .006$, $z = -5.36$, $p < .0001$, $CI = [-.046, -.0216]$) and motivated self-kindness ($b = -.012$, $SE_b = .007$, $z = -1.97$, $p = .05$, $CI = [-.023, .000]$) were each unique mediators of the relationship between self-compassion and emotional reactions to illnesses. In addition, a proactive health personality ($b = -.005$, $SE_b = .003$, $z = 1.81$, $p = .07$, $CI = [.000, .012]$) approached significance as a unique mediator. According to these analyses, self-compassion is associated with lower negative affect regarding one's illnesses and injuries through the effects of benevolent self-talk, a motivation toward self-kindness, and a tendency toward proactivity in regard to one's health.

Perceived impact. Self-compassion and the three mediators accounted for 29% of the variance in ratings of the impact of the illness or injury on one's life (Figure 2). The total effect of self-compassion on the perceived impact of the illness through all mediators together was significant ($b = -.18$, $SE_b = .05$, $z = -3.83$, $p < .0001$, $CI = [-.27, -.08]$). Taken together, the three mediators (proactive health focus, benevolent self-talk, motivated self-kindness) mediated the relationship between self-compassion and the perceived impact of the illness.

Examining each of the mediators individually while controlling for the others, only benevolent self-talk mediated the relationship between self-compassion and perceived impact ($b = -.15$, $SE_b = .04$, $z = -4.22$, $p < .0001$, $CI = [-.238, -.081]$). Neither proactive health focus ($b = .01$, $SE_b = .019$, $z = .64$, $p = .52$, $CI = [-.027, .051]$) nor motivated

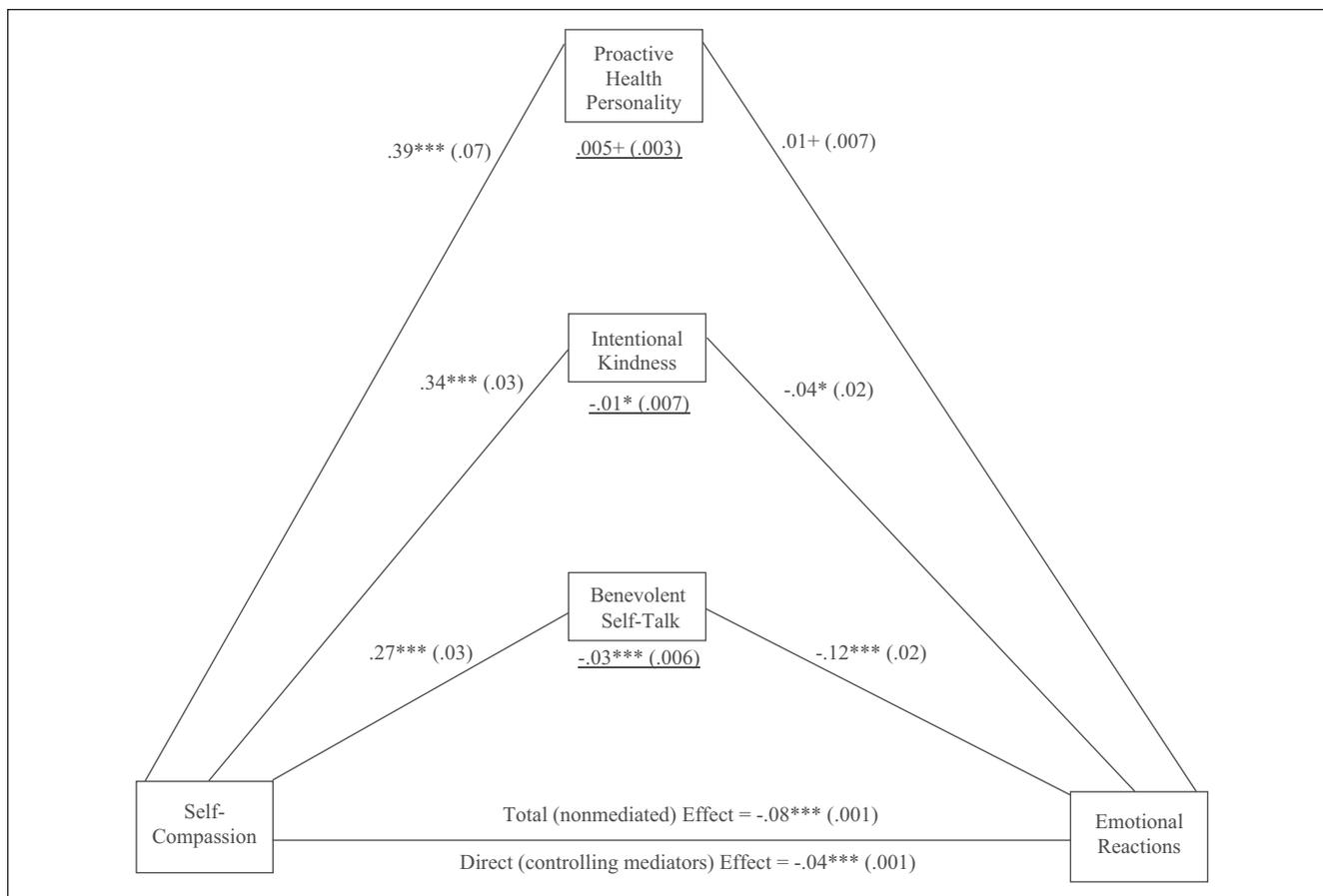


Figure 1. Model showing the path coefficients and standard errors for (a) the relationships between self-compassion and the three mediators, (b) the direct effect relationship between the three mediators and emotional reactions, and (c) the indirect effects of self-compassion on emotional reactions through each of the three mediators (path coefficients and standard errors located below each mediator).

$^{+}p < .10$. $^{*}p < .05$. $^{***}p < .001$.

self-kindness ($b = -.03$, $SE_b = .048$, $z = -.794$, $p = .43$, $CI = [-.126, .060]$) mediated the relationship.

Following doctors' recommendations. Self-compassion and the three mediators accounted for 16% of the variance in people's efforts to follow doctors' orders (Figure 3). The total effect of self-compassion on the degree to which participants reported following doctors' recommendations through all mediators together was significant ($b = .02$, $SE_b = .0078$, $z = 2.99$, $p = .03$, $CI = [.008, .039]$). Taken together, proactive health focus, benevolent self-talk, and motivated self-kindness mediated the relationship between self-compassion and adherence to doctors' recommendations.

Examining each of the mediators individually while controlling for the effects of the other mediators showed that motivated kindness ($b = .01$, $SE_b = .005$, $z = 1.67$, $p = .09$, $CI = [.004, .035]$) and proactive health focus ($b = .0148$, $SE_b = .0044$, $z = 3.82$, $p < .0001$, $CI = [.008, .026]$) mediated the relationship between self-compassion and following doctors'

orders. Benevolent self-talk did not uniquely mediate the relationship ($b = -.004$, $SE_b = .007$, $z = -.68$, $p = .50$, $CI = [-.017, .009]$).

These findings suggest that the relationships between self-compassion and affective, behavioral, and cognitive health-related outcomes are mediated by combined influence of the characteristic way people talk to themselves, a motivation toward treating oneself kindly, and a tendency to be proactive in one's approach to health.

General Discussion

These four studies show that self-compassion affects people's health behaviors, cognitions, and affect in important ways, and it does so in ways that differ from previously studied predictors of health-related cognitions, affect, and behavior. Just as people who treat others compassionately look out for their best interests, encourage them to take care of themselves, and help them manage emotional distress, people

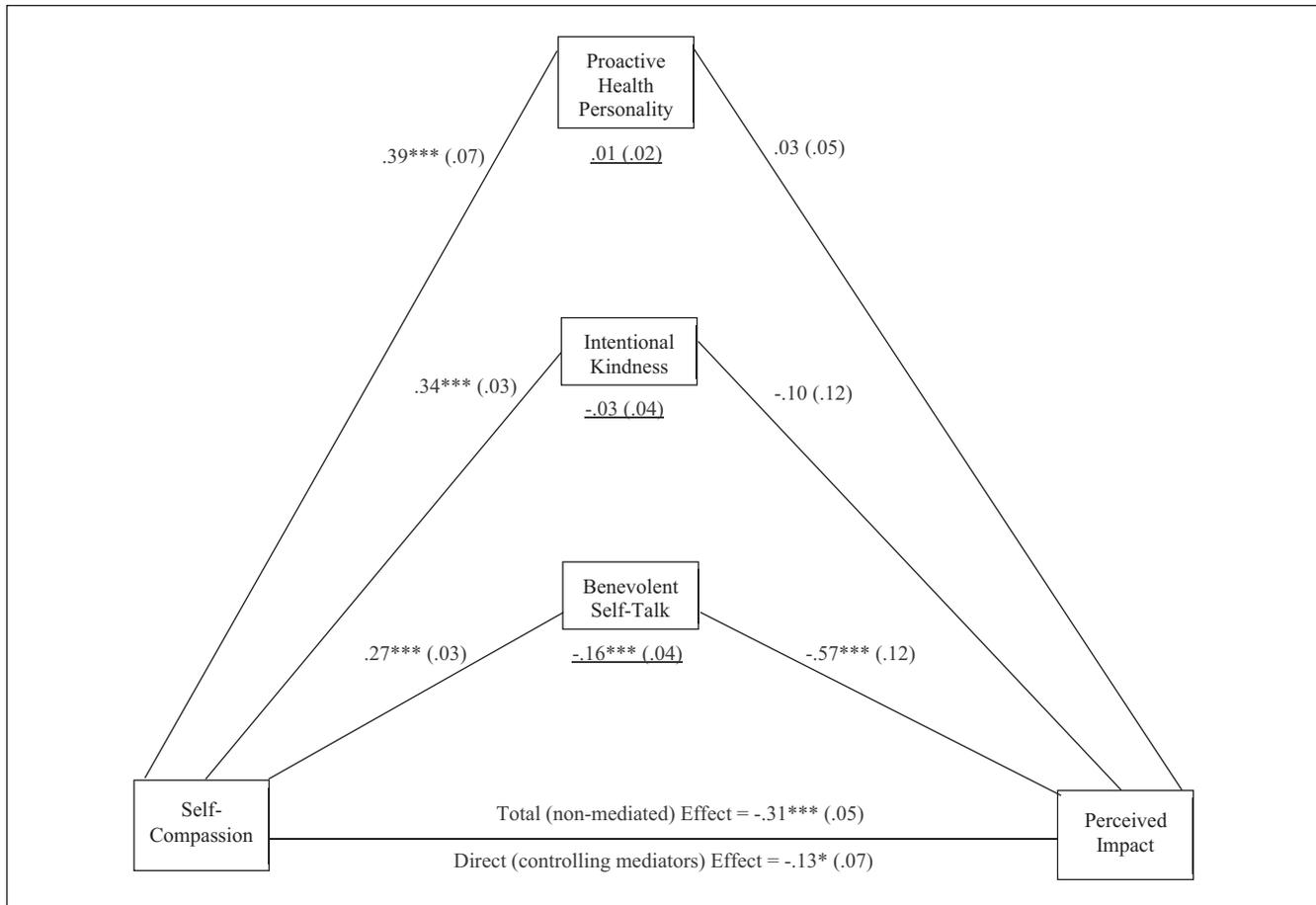


Figure 2. Model showing the path coefficients and standard errors for (a) the relationships between self-compassion and the three mediators, (b) the direct effect relationship between the three mediators and perceived impact, and (c) the indirect effects of self-compassion on perceived impact through each of the three mediators (path coefficients and standard errors located below each mediator).

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

who are high in self-directed compassion similarly treat themselves in a kind and supportive manner. As a result, they respond more effectively to health threats and are better at managing emotional distress about their illnesses and injuries. In addition, these studies extend self-compassion research beyond mental health and general well-being to explore the relationships between self-compassion and physical health.

Using two different measures of self-compassion, these four studies offer several broad conclusions regarding the relationship between self-compassion and health-related behavior and emotion. First, and least surprisingly, these studies demonstrate that people who are higher in self-compassion experience less negative affect with respect to their health than those lower in self-compassion. In Study 1, self-compassionate participants reported less anxiety, depression, and self-blame about their health and greater satisfaction with their health. In addition, Study 2 found that, when thinking about actual health problems, self-compassionate people

experienced less negative affect (e.g., alone, sad, weak, and embarrassed), and self-compassion predicted these emotional reactions while controlling for the influence of illness severity, health anxiety, HLOC, health meaning, and health value. Although many participants in Study 2 were rating their reactions to a relatively mild illness, participants in Study 4 were all suffering a relatively serious medical problem, and the same pattern emerged: Self-compassionate people experienced less negative affect about their illness and injuries. Furthermore, Study 4 demonstrated that this relationship between self-compassion and negative emotions was mediated primarily by the benevolent content of one's thoughts and by the desire or motivation to be kind to oneself when ill or injured.

These findings are consistent with a wealth of data showing that people who are high in self-compassion cope with a wide array of undesired events more effectively than people low in self-compassion (Allen, Goldwasser, & Leary, 2012; Leary et al., 2007; Neff, 2003a, 2003b; Neff et al., 2007;

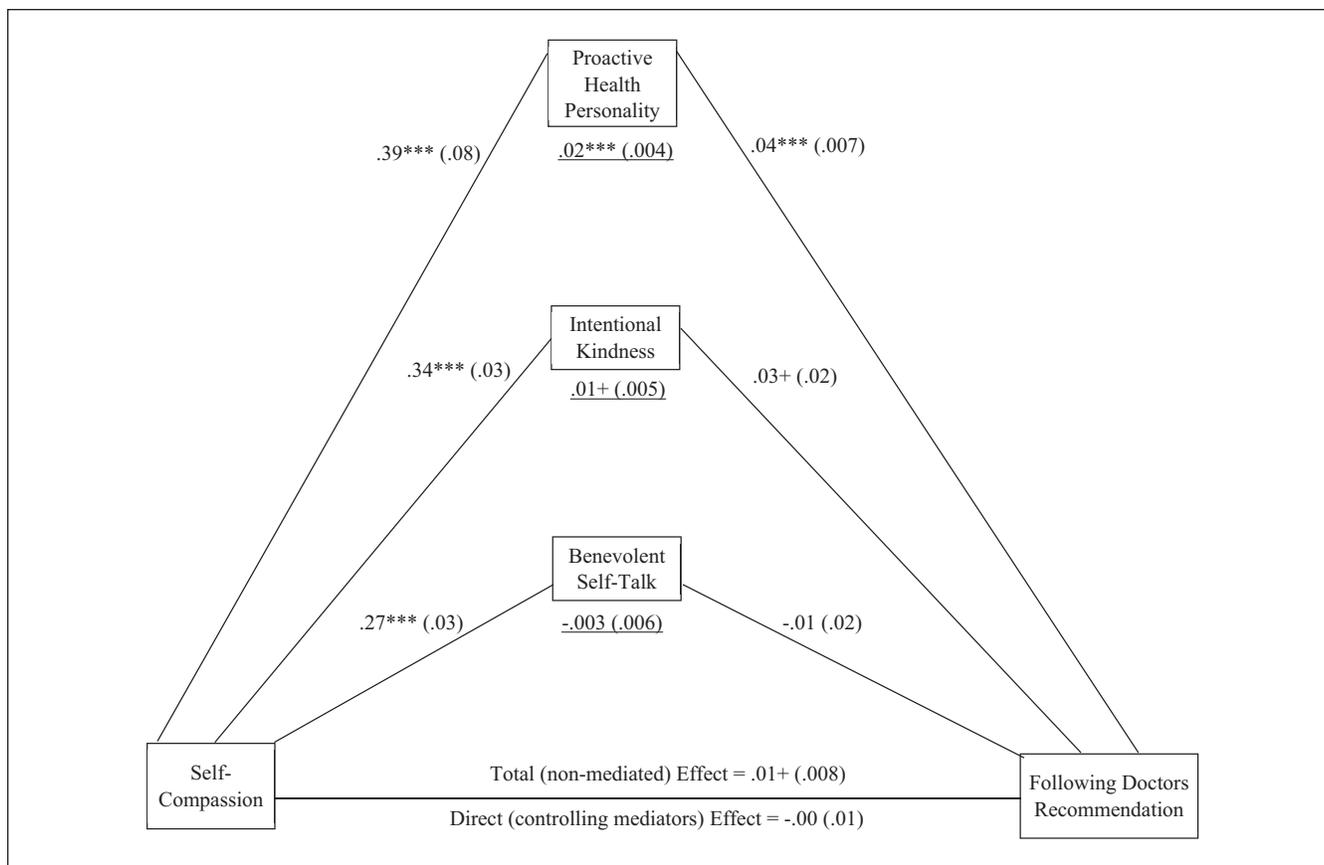


Figure 3. Model showing the path coefficients and standard errors for (a) the relationships between self-compassion and the three mediators, (b) the direct effect relationship between the three mediators and effort at following doctors' recommendations, and (c) the indirect effects of self-compassion on effort at following doctors' recommendations through each of the three mediators (path coefficients and standard errors located below each mediator). Note: $^{+}p < .10$. $^{***}p < .001$.

Terry et al., 2013), but are among the first to demonstrate these effects with respect to medical problems (see, however, Brion, Leary, & Drabkin, 2012). Health problems are inherently upsetting, but people who are high in self-compassion approach such problems in a way that minimizes their distress.

Although reducing stress and negative emotions is obviously valuable in its own right, these effects may be particularly important when people are ill because negative emotions can influence the progression of certain diseases, including cancer (Denollet, 1999; O'Leary, 1990). Given that emotional regulation in the face of illness and injury is an important factor in health promotion (Gross, 2002), future research should directly explore the hypothesis that being high in self-compassion is associated not only with lower distress when people are ill but also with more positive disease outcomes.

The second conclusion from these four studies is that self-compassion may be beneficial when things are going well—for example, when people are healthy. Most research has examined self-compassion in contexts that are difficult or

challenging (Leary et al., 2007; Neff, 2003b; Terry et al., 2013), and the relationship between self-compassion and well-being when people are faring well has received little attention (see, Allen et al., 2012). The current results offer evidence that being high in self-compassion is associated with positive outcomes even when people are not experiencing negative events. The reason for this effect is unclear, but one possibility is that self-compassionate people generally assume that they will cope successfully with difficult situations should they arise, leading to a lower general level of stress (for a comparable finding regarding mindfulness, see Chiesa & Serretti, 2009). The relevance of self-compassion to health outcomes among healthy people suggests that self-compassion should be associated with behaviors that promote good health, such as eating a balanced diet and getting proper exercise. Along these lines, Allen (2011) found that older adults who were high in self-compassion were more likely to take daily vitamins.

A third general conclusion is that self-compassion is associated with how quickly people seek medical attention when

they detect signs of an illness or injury and how conscientiously they follow doctors' recommendations. Importantly, the relationship between self-compassion and seeking medical attention was obtained after removing variance associated with hypochondriasis, health anxiety, health meaning, and HLOC (Study 2) and self-regulatory capabilities, illness cognitions (such as expected guilt, perceived severity, perceived commonality), and personal experience with the health threats (Study 3). Just as people compassionately urge their loved ones to go to the doctor when they display symptoms of being ill or injured, highly self-compassionate people likewise prompt themselves to seek medical attention when needed. Of course, our findings regarding participants' decisions about seeking medical attention relied on hypothetical symptoms, and the ecological validity of this measure is unknown. Also, although the hypothetical symptoms varied in important ways (e.g., seriousness, commonality, prognosis), they were not representative of all medical problems, and self-compassion might play a larger role in seeking attention for some conditions than for others.

In addition to seeking medical attention when health threats appear, people must also put into practice the recommendations of physicians and other health care professionals. Study 4 demonstrated that self-compassionate people who were currently experiencing a serious illness or injury reported greater effort in following their doctors' recommendations than people low in self-compassion, and this effect was mediated by a tendency to be proactive in approaching one's health but not by the benevolent content of their self-talk.

The fourth contribution of these studies is the identification of mechanisms by which self-compassion is related to important health outcomes and behaviors. Study 4 demonstrated that self-compassionate people perceive that their illnesses and injuries disrupt their daily life less than people low in self-compassion and that this effect is mediated by the benevolent nature of their self-talk. As expected, the variables that mediated the relationship between self-compassion and affective outcomes were different from those that mediated the relationship between self-compassion and behavioral or cognitive outcomes. Future research should continue to explore the mechanisms by which self-compassion plays a role in life outcomes and behaviors.

Importantly, these effects may partly explain why self-esteem has been found to be associated with physical health and people's reactions to health and illness. Although several studies have documented a link between trait self-esteem and health (e.g., Antonucci & Jackson, 1983; Antonucci, Peggs, & Marquez, 1989; Trzesniewski et al., 2006), no one has adequately explained why simply feeling good about oneself causes these effects. Given the statistical overlap between self-esteem and self-compassion, our findings raise the possibility that the previously unexplained link between self-esteem and health-related outcomes is spurious. In other words, the health effects typically thought of as associated with high self-esteem may be due, instead, to

self-compassionate cognitions rather than self-esteem. Along these lines, research has demonstrated that self-compassion is associated with positive emotional outcomes when controlling for self-esteem but that many ostensible effects of self-esteem disappear when self-compassion is controlled (Neff, 2003a; Leary et al., 2007). Research should thoroughly investigate the separate effects of self-compassion and self-esteem on health-related outcomes to test whether effects that have been attributed to self-esteem are explained by its link to self-compassion.

The fifth contribution of this research lies in revealing the relationship between self-compassion and other constructs that involve health-related cognitions, emotions, and motives. Self-compassion was associated with lower hypochondriasis, higher satisfaction with one's health, and a stronger motivation to remain healthy. Self-compassion was also associated with viewing being healthy as important for adapting to life changes and stress, achieving one's goals, and fostering a high level of well-being (Laffrey, 1986). Apparently, people high in self-compassion view health in terms of being well rather than in terms of avoiding illness.

The relationships between self-compassion and the subscales of the HLOC Scale (Wallston et al., 1978) were unexpected. Specifically, self-compassion was not related to internal HLOC but was related to the belief that one's health is affected by "powerful others" such as physicians and other health care professionals. Neither of these findings is consistent with conceptualizations of self-compassion or LOC, and additional research is needed to understand them fully. Research has shown that self-compassion is positively related to personal initiative, accepting responsibility for one's missteps, and the belief that one's efforts will lead to positive outcomes (Iskender, 2009; Leary et al., 2007; Neff et al., 2007), so one would expect self-compassionate people to have higher internal and lower external LOC. These findings may reflect the lack of consistent findings of the relationship between internal LOC and health outcomes (see the meta-analysis by Hummer et al., 2011) or the intertwined nature of internal LOC and health values, which were unrelated to self-compassion (see Wallston, 2005, for a thorough discussion of HLOC). Clearly, further research on self-compassion and LOC is needed.

Although significant progress has been made in understanding how people think about their health, make medical decisions, and cope with medical problems (Leventhal, Weinman, Leventhal, & Phillips, 2008; Richard, Gauvin, & Raine, 2011), many people struggle with maintaining good health and managing their emotions when ill or injured. The present findings converge on the conclusion that self-compassion facilitates health by prompting people to take better care of themselves, seek attention when potentially ill or injured, and regulate their negative affect when dealing with medical problems (Neff et al., 2005; Terry & Leary, 2011). This research offers a first step in understanding how self-compassion relates to health behavior, but work is needed to delve

more deeply into the relationship between self-compassion and health behavior, particularly using participants with actual medical problems. Brion et al.'s 2012 study of self-compassion among people with HIV provides a step in this direction.

Of course, in all these studies, self-compassion was measured (rather than manipulated), and the findings were correlational. Future research should explore causal pathways through experimental interventions that increase self-compassion, while recognizing that induced self-compassion may have different effects on health outcomes than naturally occurring individual differences in self-compassion. Along these lines, Deary, Weiss, and Batty (2010) offered suggestions for how personality can be used to provide better health management, and their suggested strategies can be easily adapted to self-compassion. These strategies include targeting people whose personality characteristics put them at risk (e.g., patients low in self-compassion) and developing intervention strategies that promote healthful behavior (e.g., promoting self-compassionate responses in patients). Encouraging people to be self-compassionate about their health (see Kelly et al., 2010) should yield benefits for physical and emotional well-being.

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Notes

1. Including demographic variables did not change the results, so they were not included in analyses.
2. The Self-Compassionate Reactions Inventory (SCRI), along with information about its reliability and validity, is available from the authors.
3. Of the eight items on the SCRI, only one relates to health (*An injury or illness keeps you from doing things that you would like to do*). Although the available response options for this item are general reactions and not specific to health (e.g., I would think of ways to make myself feel better), we ran the analyses using an altered scoring of the SCRI (removing this item from the SCRI scoring), and the pattern of results was the same.
4. This study was conducted prior to the development of the short version of Neff's Self-Compassion Scale (Raes, Pommier, Neff, & Van Gucht, 2011).

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