RESEARCH ARTICLE

Exploring Self-compassion and Empathy in the Context of Mindfulness-based Stress Reduction (MBSR)

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Abstract

Mindfulness-based stress reduction (MBSR) programmes have demonstrated beneficial outcomes in a variety of populations. Self-compassion and empathy have theoretical connections to mindfulness, the key element of the MBSR programme; however, previous studies examining the programme's impact on self-compassion or empathy have demonstrated mixed results. This study examined the impact of MBSR on self-compassion and empathy, as well as on mindfulness, symptoms of stress, mood disturbance and spirituality in a community sample. Significant reductions in symptoms of stress and mood disturbance, as well as increases in mindfulness, spirituality and self-compassion were observed after programme participation. With regards to empathy, a significant increase was seen in perspective taking and a significant decrease in personal distress; no significant change was observed for empathic concern. Changes in self-compassion were predicted by changes in mindfulness. Self-compassion and aspects of empathy revealed strong associations with psychological functioning. Implications of MBSR as an intervention for enhancing self-compassion and empathy are discussed.

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Keywords

mindfulness-based stress reduction; self-compassion; empathy; psychological functioning; community sample

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Mindfulness-based stress reduction (MBSR) programmes have been widely researched and positive results reported amongst an array of clinical and non-clinical populations, including cancer patients (Carlson, Ursuliak, Goodey, Angen, & Speca, 2001; Garland, Carlson, Cook, Lansdell, & Speca, 2007; Speca, Carlson, Goodey, & Angen, 2000), mixed illness populations (Carmody & Baer, 2008; Carmody, Reed, Merriam, & Kristeller, 2008; Grossman, Niemann, Schmidt, & Walach, 2004), healthcare professionals (Shapiro, Astin, Bishop, & Cordova, 2005), continuing education students (Chang et al., 2004) and college undergraduates (Shapiro, Oman, Thoresen, Plante, & Flinders, 2008). Mindfulness is the key element of the MBSR programme and involves paying attention and being aware in the present moment (Kabat-Zinn, 1990). It encompasses attitudes of non-judgment, a beginner's mind, trust, non-striving, acceptance, letting go and patience (Kabat-Zinn, 1990). Engagement in meditative practices has been posited to enhance qualities of empathy and self-compassion (Kristeller & Johnson, 2005) and qualities fostered by mindfulness are considered necessary preconditions for self-compassion and empathy to take root (Beddoe & Murphy, 2004; Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007; Neff, 2003a).

Self-compassion involves feelings of caring and kindness towards oneself in the face of personal suffering and involves the recognition that one's suffering,

failures and inadequacies are part of the human condition. Self-compassion entails three fundamental components: (1) extending kindness and understanding to oneself rather than harsh self-criticism and judgment, (2) seeing one's experiences as part of the larger humanity rather than as separating and isolating; and (3) holding one's painful thoughts and feelings in balanced awareness rather than over-identifying with them (Neff, 2003a, p. 224). Using this definition, mindful awareness of one's own inner experience of suffering is a necessary step in the development of compassion towards oneself. In addition to fostering simple awareness and recognition of the universal human condition of suffering in oneself, applying attitudes of acceptance and non-judgment as incorporated into mindfulness practice are also necessary prerequisites for self-compassion to take place. There are also conceptual differences between the two constructs. Although mindfulness of suffering is a prerequisite for self-compassion, mindfulness itself is a more general practice as it applies to enhanced awareness of all experience including sensory awareness of the body, of sound, sight, smell, taste and awareness of passing thoughts and emotions: not just the experience of suffering. Further, self-compassion emphasizes affective components that mindfulness does not, including feelings of care and concern and the urge to act upon one's feelings.

Empirically, overlap between self-compassion and mindfulness is also apparent in validity investigations for the Self-Compassion Scale (SCS) developed by Neff (2003a) and other mindfulness measures (Brown & Ryan, 2003; Neff, 2003a). Validity examination of five mindfulness measures revealed moderately strong positive correlations between self-compassion and five identified facets of mindfulness including observing internal experience, describing one's experience, acting with awareness, non-judging and non-reactivity (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). The strongest associations were between self-compassion and the non-judging ($r = -0.48$) and non-reactivity ($r = 0.53$) factors, while correlations between self-compassion and observing and describing were much lower ($r = 0.14$, $r = 0.30$, respectively); this pattern of association fits well with the conceptual definition of self-compassion. Given these similarities and distinctions between the mindfulness and self-compassion constructs, exploring self-compassion in the context of the MBSR programme seemed to have the potential to further address these issues.

Research with empathy and mindfulness has also revealed significant positive correlations between the two constructs (Beitel, Ferrer, & Cecero, 2005). No commonly accepted definition of empathy has been operationalized amongst the psychological community; however, it can be broadly defined as the ability to take another's perspective and experience resulting thoughts and feelings (Davis, 1996). Definitions of empathy differentially weigh its affective and cognitive components; however, empathy is now commonly thought to involve both aspects (Block-Lerner et al., 2007; Davis, 1996). The cognitive feature relates to accurately imagining another's viewpoint, while the affective component involves the corresponding emotional reactions. In the current study, empathy was measured using the Interpersonal Reactivity Index (IRI) (Davis, 1983), which encompasses both an affective and cognitive component. The IRI divides empathy into four subscales: the cognitive subscales of Perspective Taking and Fantasy, and the emotional subscales of Empathic Concern and Personal Distress (Davis, 1983). The Perspective Taking and Empathic Concern subscales were most highly correlated to a measure of mindfulness (Block-Lerner et al., 2007). Theoretically, compassion naturally arises from the affective component of empathy when one observes the suffering of others and then desires to alleviate it through altruistic behaviour (Steffen & Masters, 2005). One distinction between empathy and compassion may be that compassion adds this additional layer of the urge to act to alleviate the observed suffering on top of the intellectual and emotional understanding of another's suffering encompassed by empathy. However, very little theoretical or empirical effort has been made to distinguish compassion from empathy

A surprisingly small number of studies have explored the impact of MBSR on self-compassion (Abercrombie, Zamora, & Korn, 2007; Shapiro, Brown, & Biegel, 2007; Shapiro et al., 2005) and empathy (Beddoe & Murphy, 2004; Galantino, Baime, Maguire, Szapary, & Farrar, 2005; Shapiro, Schwartz, & Bonner, 1998), with mixed results. This is the first study to examine both self-compassion and empathy within the MBSR programme and hence, the associations between these two constructs in the context of learning MBSR have not yet been explored. The focus of the current study on self-compassion and empathy was primarily made in an effort to expand the literature of the impact of the MBSR programme with these specific variables.

Abercrombie et al. (2007) provided a modified six week MBSR programme to a group of low-income women of multiethnic origin who demonstrated decreased anxiety after participation, but no observed significant changes in self-compassion. Gross limitations of the study were the small sample size ($n = 8$) and lack of fluency in English of many participants. Two studies of more sound design have shown promising results for MBSR participation and enhancement of self-compassion. A randomized-controlled trial examining MBSR for health professionals observed a significant increase of 22 per cent in self-compassion as measured by the SCS for the intervention group (versus 3 per cent in the control group), with 90 per cent of all MBSR participants demonstrating an increase (Shapiro et al., 2005). Furthermore, self-compassion mediated stress reductions observed after MBSR participation. Secondly, in a prospective, non-randomized, cohort-controlled design, master's level psychology students reported significant increases in self-compassion after MBSR participation. Increases in mindfulness were found to predict increases in self-compassion (Shapiro et al., 2007). These results from a limited number of studies both examining the impact of MBSR on self-compassion levels, as well as the nature of the relationship between self-compassion and mindfulness, identifies a need for further inquiry.

Studies examining the impact of MBSR programmes on empathy have provided mixed results. Increases in empathy in medical and premedical students were observed after participation in an MBSR programme compared with a wait-list control group (Shapiro et al., 1998), with reductions in stress and anxiety mediating the increases in empathic concern. In contrast, Beddoe and Murphy (2004) observed stress and empathy levels of nursing students in an MBSR programme and although significant decreases in stress were seen, no significant changes were observed in empathy. Similarly, Galantino et al. (2005) observed no significant changes in empathy levels after a mindfulness meditation intervention for healthcare professionals using the IRI. It appears unclear to what degree, if at all, the MBSR programme may impact levels of empathy. Further research is required to help clarify any relationship between empathy and mindfulness. A measure of mindfulness was included in the current study to observe any relationships between the programme's main philosophical basis and variables indicative of psychological health.

To further examine the impact of the programme on other positive outcomes in addition to self-compassion and empathy, stress, mood and spirituality were also explored. Symptoms of stress and mood disturbance were included as they are commonly examined in relation to the MBSR programme and provide a good comparison of our sample to previous research; furthermore, previous associations have been observed between these two constructs and self-compassion and empathy, such that we thought it interesting to explore if or how these associations might change after participation in the MBSR programme. An increasing body of literature supports the notion that spiritual health plays a role in one's overall mental and physical health. It is a construct that has been explored before in ill populations with regards to the MBSR programme and has demonstrated relationships with many of the constructs explored in the current study, including self-compassion. It seems intuitive to include spirituality in the current study to explore its relationships with other variables, particularly in the context of MBSR.

Positive associations have been demonstrated between self-compassion and life satisfaction, social connectedness, emotional intelligence, happiness, optimism, agreeableness, extroversion and personal initiative to lead a productive and fulfilling life; moreover, self-compassion buffers against negative self-feelings and is negatively correlated with depression, anxiety, neuroticism, rumination, self-criticism and thought suppression (Neff, 2003a; Neff, Kirkpatrick, & Rude, 2007a; Neff, Rude, & Kirkpatrick, 2007b). Increases in self-compassion were observed up to 6 months after spiritual care training, indicating a link between spirituality and self-compassion (Wasner, Longaker, Fegg, & Borasio, 2005). Empathy has shown positive associations with a sense of personal accomplishment, quality of life, social support satisfaction, marital adjustment and commitment, while demonstrating negative associations with symptoms of depression, emotional exhaustion, depersonalization, burnout and perceived stress (Steffen & Masters, 2005; Thomas et al., 2007).

Hence, the objectives of this study were to: (1) enhance understanding of the impact of MBSR on levels of self-compassion and empathy in a community sample; and (2) explore the relationships between self-compassion and empathy, and amongst self-compassion, empathy and other key variables shown to be influenced by MBSR including mindfulness, stress, mood disturbance and spirituality.

Methods

Participants

The MBSR programme is offered to the public through the University of Calgary's Continuing Education Faculty, in Calgary, Alberta, Canada. Participants were recruited from Fall 2005 until Spring of 2007. Participants had to be free of a chronic medical condition, attend a minimum of 6 (75 per cent) of the programme's classes, and be able to understand English.

Procedure

The study was approved by the Conjoint Health Research Ethics Board of the University of Calgary Faculty of Medicine. Prior to the first MBSR session, students provided informed consent and completed the pre-intervention questionnaires. They completed post-intervention questionnaires after the last MBSR class. Reminder phone calls were made if questionnaires were not received back within 2 weeks following the end of the class.

Measures

SCS (Neff, 2003a)

This instrument measures self-compassion and consists of six subscales: Self-kindness (SK), Self-judgment (SJ), Common Humanity (CH), Isolation (I), Mindfulness (M) and Over-identification (OI). Sample items include 'I try to be loving towards myself when I'm feeling emotional pain' (SK), 'When times are really difficult, I tend to be tough on myself' (SJ), 'I try to see my failing as part of the human condition' (CH), 'When I fail at something that's important to me, I tend to feel alone in my failure' (I), 'When something upsets me I try to keep my emotions in balance' (M), and 'When something painful happens I tend to blow the incident out of proportion' (OI). The internal consistency reliabilities of each of the subscales were reported as 0.78, 0.77, 0.80, 0.79, 0.75 and 0.81, respectively. Each statement is scored on a Likert scale ranging from 0 (almost never) to 4 (almost always) based on how often the participant acts in that manner. High convergent and discriminant validity was shown with overall self-compassion scores correlated negatively with self-criticism, depression, anxiety and rumination and positively with social connectedness and emotional intelligence.

IRI (Davis, 1983)

The IRI was developed as a measure of the cognitive and emotional components of empathy. Two subscales measure cognitive empathy: Perspective Taking (PT) and Fantasy. The Fantasy subscale is not included in this report as its focus on identification with fictional characters is not considered an exclusive aspect of empathy; furthermore, it demonstrates poor concurrent validity with other empathy measures (Baron-Cohen & Wheelwright, 2004; Lawrence, Shaw, Baker, Baron-Cohen, & David, 2004). Emotional empathy is measured by the Empathic Concern (EC) and Personal Distress (PD) subscales. Sample items from each utilized subscale are 'I believe that there are two sides to every question and try to look at them both' (PT), 'I am often quite touched by things that I see happen' (EC) and 'Being in a tense emotional situation scares me' (PD). Each subscale consists of seven items and is responded to on a Likert scale ranging from 0 (does not describe me well) to 4 (describes me very well). The subscales internal and test–retest reliabilities are satisfactory ranging from 0.71 to 0.77 and 0.62 to 0.71, respectively. Good convergent and discriminant validity was also demonstrated.

Mindful Attention Awareness Scale (MAAS) (Brown & Ryan, 2003)

This instrument measures the presence or absence of attention and awareness to the present moment. The scale has 15 items and responses are scored on a Likert scale from 1 (almost always) to 6 (almost never) with higher scores depicting higher levels of everyday mindfulness. Sample items include 'I find myself preoccupied with the future or the past' and 'I rush through activities without being really attentive to them'. This scale was shown to be valid in both college students and general adult populations by confirmatory factor analysis, had good convergent and discriminant correlations and had an interclass correlation of .81.

Symptoms of Stress Inventory (SOSI) (Leckie & Thompson, 1979)

The SOSI was designed to measure physical, psychological and behavioural responses to stressful situations. It consists of 95 items rated on a Likert scale from 1 (never) to 5 (very frequently). The SOSI produces an overall stress score by summing its ten subscales of symptoms. Sample items include: 'flushing of your

face', 'feeling faint', 'nausea', 'alone and sad' and 'keyed up and jittery'. Cronbach's alpha for the SOSI total score was 0.97, with subscale coefficients ranging from 0.62 (Neurological) to 0.91 (Emotional Irritability). Test–retest correlations ranged from 0.47 (Respiratory) to 0.86 (Muscle Tension) and are appropriate as the measure is meant to indicate the current state of stress symptoms, not as a measure of a stable trait.

Profile of Mood States (POMS) (McNair, Lorr, & Droppelman, 1971)

The POMS was developed to measure identifiable mood or affective states. It is used to assess mood states, as well as changes in mood and is recommended for research with normative adult samples. It includes 65 items and is rated on a Likert scale from 1 (not at all) to 5 (extremely) indicating how the participant has felt over the last week. It produces a global score as well as scores on six subscales encompassing dimensions of mood. Sample items include feeling 'shaky', 'unhappy', 'peeved', 'lively', 'listless' and 'muddled'. Kuder-Richardson internal consistency of the six subscales ranged from 0.84 (Confusion) to 0.95 (Depression) in two studies.

Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being (FACIT-Sp) (Peterman, Fitchett, Brady, Hernandez, & Cella, 2002)

This instrument was designed to tap into aspects of spirituality in chronic illness populations, but has been used successfully in community samples. It has a total score for spiritual well-being and comprises two subscales: Meaning and Peace and Faith in Illness. Sample items include 'I feel peaceful' and 'I find comfort in my faith or spiritual beliefs'. Studies have demonstrated good internal consistency reliability and a significant relation with quality of life in a large, multiethnic sample, and convergent validity with five other measures of religion and spirituality in a sample of individuals with cancer. The measure has been used in examinations of non-chronically ill populations including nurses, hospice volunteers, physicians, (Scherwitz, Pullman, McHenry, Gao, & Ostaseski, 2006; Wasner et al., 2005) and caregivers of cancer patients (Colgrove, Kim, & Thompson, 2007). Colgrove et al. (2007) reported good internal consistency of the total score (0.90) and both subscale scores (0.88–0.90) in their study. As the current study is not specific to medical patients, the last two items on the measure were altered from 'my illness has strengthened my faith/spirituality' to 'hard times have strengthened my faith/spirituality' and 'I know that whatever happens with my illness, things will be okay' to 'I know that whatever happens, things will be okay'.

Programme description

The programme consisted of eight weekly, 90-min sessions. Mindfulness meditation is the core component of the programme and was taught experientially through the body scan sensory awareness exercise, seated and walking meditations, as well as gentle yoga presented as a form of moving meditation. The programme closes with a loving-kindness (Metta) meditation that was introduced in the last 2 weeks of the programme. Also included each week was didactic instruction on the impact and symptoms of stress, influences on our stress response (emotional, cognitive and behavioural), mini mindfulness breathing exercises and incorporation of mindfulness into everyday living. The group process is another important component of the class whereby experiences and challenges with the practice are shared and the group problem-solves together. Constructive feedback and supportive interaction are encouraged. Classes ranged from 15 to 20 people and participants were asked to reserve 45 min per day for home practice. To aid the programme process, a booklet was distributed containing information relevant to each week's instruction, including additional references for those wishing to further investigate relevant themes. In addition, two compact discs were provided that included guided instruction for the body scan, sitting meditation, walking meditation, Metta meditation and both standing and lying yoga postures. For a more in-depth programme description, please see Carlson, Labelle, Garland, Hutchins, and Birnie (2009) or Speca, Carlson, Mackenzie, and Angen (2006).

Results

All data analyses were conducted using the Statistical Package for the Social Sciences (SPSS), version 16.0 (SPSS Inc, Chicago, IL, USA).

Participants

A total of 104 participants provided consent for the study and provided pre-intervention data; however

complete pre-post data was obtained from only 51 (49.0 per cent) participants. Complete data for the SCS was only available for 41 participants as 10 post-questionnaire packages were missing a page from this measure. The current exploratory report deals with complete data only; hence, data analysis was conducted on 51 participants who provided full data except analysis involving the SCS, where data analysis was conducted on 41 participants with full data.

Demographic variables are summarized in Table I. Sixteen (31.4 per cent) participants were male and 35 (68.6 per cent) female. The mean age of participants was 47.4 years (SD = 10.87) ranging from 24 to 70 years. The majority were married (78.4 per cent), Caucasian (94.1 per cent), identified as Christian (58.8 per cent), were employed full-time outside the home (56.9 per cent), and had a mean of 17.0 (SD = 3.06) years of education. Participants' reported yearly income was split fairly evenly between available categories ranging from below $15,000 to over $100,000 per year.

Table I. Demographics (n = 51)

Gender	
Female	35 (68.6%)
Male	16 (31.4%)
Age (years)	
Mean	47.4
Range	(24–77)
Education (years)	
Mean	17.04
Range	(8–24)
Marital Status	
Married/Common law	40 (78.4%)
Never married	5 (9.8%)
Separated	2 (3.9%)
Divorced	2 (3.9%)
Widowed	2 (3.9%)
Ethnicity	
Caucasian	48 (94.1%)
First Nations/Aboriginal/Inuit/Metis	2 (3.9%)
Other	1 (2.0%)
Religion	
Christian	30 (58.8%)
Atheist	7 (13.7%)
Agnostic	3 (5.9%)
Sikh	2 (3.9%)
Buddhist	1 (2.0%)
Jewish	1 (2.0%)
Other	4 (7.8%)
Missing	5 (9.4%)
Employment status	
Full time outside of home	29 (56.9%)
Retired	9 (17.6%)
Part time	6 (11.8%)
Full time inside home/Homemaker	1 (2.0%)
Other	5 (9.8%)
Missing	1 (2.0%)
Income	
<$15,000	4 (7.8%)
$16,000–$30,000	8 (15.7%)
$31,000–$45,000	5 (9.8%)
$46,000–$60,000	8 (15.7%)
$61,000–$75,000	7 (13.7%)
$76,000–$100,000	7 (13.7%)
>$100,000	8 (15.7%)
Missing	4 (7.8%)

Pre-post intervention changes

To determine whether any significant changes occurred between pre- and post-intervention on the IRI, SCS, MAAS, SOSI, POMS and FACIT-Sp, paired t-tests were performed. Pre and post-intervention mean total scores on all of the measures are presented in Table II, as well as subscale scores on the SCS and IRI. Significant reductions were observed in total SOSI scores ($t = 9.41$, $p < 0.01$) and total POMS scores ($t = 4.80$, $p < 0.01$), as well as significant increases in total MAAS scores ($t = -8.06$, $p < 0.01$), total FACIT-Sp scores ($t = -4.49$, $p < 0.01$) and total SCS scores ($t = -5.32$, $p < 0.01$). A significant increase was observed on the PT subscale ($t = -4.04$, $p < 0.01$) and a significant reduction on the PD subscale ($t = 7.01$, $p < 0.01$) of the IRI.

Using Cohen's d, effect sizes were calculated for the programme. Large effect sizes were obtained for the SOSI (1.23), MAAS (1.06) and POMS (0.84), medium effect sizes for the SCS (0.65), IRI–PD (0.49), FACIT-Sp (0.47) and IRI–PT (0.40), and a small effect size for the IRI–EC (0.16). These reflect the large impact of the MBSR programme for reducing symptoms of stress and mood disturbance, as well as increasing mindfulness, and a moderate impact on enhancing spirituality, self-compassion and perspective taking while minimizing personal distress.

Table II. Scores on SCS, IRI, SOSI, POMS, MAAS and FACIT-Sp

	Pre-MBSR	Post-MBSR	*t*	*p*	Cohen's *d*
SCS					
Total					
Mean	16.35	19.15	−5.32	0.000	0.65
SD	4.24	4.44			
Self-kindness					
Mean	2.49	3.04	−5.34	0.000	0.70
SD	0.74	0.82			
Self-judging					
Mean	2.51	3.05	−4.37	0.000	0.63
SD	0.85	0.86			
Common Humanity					
Mean	2.87	3.17	−3.05	0.004	0.37
SD	0.78	0.83			
Isolation					
Mean	2.88	3.46	−5.62	0.000	0.61
SD	0.99	0.90			
Mindfulness					
Mean	2.91	3.20	−2.97	0.005	0.36
SD	0.77	0.82			
Over-identification					
Mean	2.70	3.23	−3.72	0.001	0.56
SD	1.07	0.92			
IRI					
PT					
Mean	16.94	18.71	−4.04	0.000	0.40
SD	4.24	4.66			
PD					
Mean	11.71	9.43	7.01	0.000	0.49
SD	4.89	4.48			
EC					
Mean	20.12	20.86	−1.42	0.162	0.16
SD	4.65	4.41			
SOSI					
Mean	94.00	48.98	9.41	0.000	1.23
SD	43.57	29.88			
POMS					
Mean	27.06	4.12	4.80	0.000	0.84
SD	30.34	24.37			
MAAS					
Mean	3.59	4.30	−8.06	0.000	1.06
SD	0.66	0.68			
FACIT-Sp					
Mean	25.73	29.16	−4.49	0.000	0.47
SD	7.17	7.54			

SCS: Self-Compassion Scale; IRI: Interpersonal Reactivity Index; PT: Perspective Taking subscale; PD: Personal Distress subscale; EC: Empathic Concern subscale; SOSI: Symptoms of Stress Inventory; POMS: Profile of Mood States; MAAS: Mindful Attention Awareness Scale; FACIT-Sp: Functional Assessment of Chronic Illness Therapy—Spiritual Well-Being.

Correlations

Exploratory Pearson product-moment correlations conducted between total scores on the measures within each time point are presented in Table III. Corrections for multiple comparisons were not made, as these analyses were exploratory in nature; hence cutoff values of $p < 0.05$ were utilized.

Self-compassion

Initial reported levels of self-compassion were positively correlated with levels of spirituality ($r = 0.544$, $p < 0.01$) and negatively correlated with levels of mood disturbance ($r = -0.396$, $p < 0.01$) and symptoms of stress ($r = -0.315$, $p < 0.05$). After MBSR participation, levels of self-compassion were significantly positively correlated with spirituality ($r = 0.587$, $p < 0.01$) and mindfulness ($r = 0.627$, $p < 0.01$), and negatively correlated with symptoms of stress ($r = -0.370$, $p < 0.05$) and mood disturbance ($r = -0.587$, $p < 0.01$). Overall, individuals high in self-compassion also tended to have high levels of spirituality and mindfulness and exhibit low levels of stress symptoms and mood disturbance.

Empathy

Pre-intervention perspective taking was positively correlated with self-compassion ($r = 0.547$, $p < 0.01$) and spirituality ($r = 0.424$, $p < 0.01$) and negatively associated with mood disturbance ($r = -0.286$, $p < 0.05$). Pre-intervention personal distress was negatively associated with self-compassion ($r = -0.364$, $p < 0.01$), spirituality ($r = -0.311$, $p < 0.05$) and mindfulness ($r = -0.350$, $p < 0.05$). It was positively associated with mood disturbance ($r = 0.398$, $p < 0.01$) and symptoms of stress ($r = 0.312$, $p < 0.05$). Post-intervention perspective taking was positively associated with spirituality ($r = 0.352$, $p < 0.05$), self-compassion ($r = 0.526$, $p < 0.01$) and mindfulness ($r = 0.308$, $p < 0.05$). Post-intervention personal distress was negatively associated with spirituality ($r = -0.281$, $p < 0.05$) and self-compassion ($r = -0.323$, $p < 0.05$) and positively associated with symptoms of stress ($r = 0.326$, $p < 0.05$). No significant associations involving empathic concern were observed pre- or post-intervention. Correlations between IRI subscales are not reported in the text.

Change scores

Correlational analyses for total change scores (calculated as post minus pre scores) are presented in

Table III. Correlations for total scores

	SCS	IRI-PT	IRI-PD	IRI-EC	SOSI	POMS	MAAS	FACIT-Sp
Pre-intervention								
SCS								
IRI								
PT	0.547**							
PD	–0.364**	–0.317*						
EC	0.065	0.423**	–0.015					
SOSI	–0.315*	–0.185	0.312*	–0.117				
POMS	–0.396**	–0.286*	0.398**	–0.073	0.589**			
MAAS	0.275	0.149	–0.350*	–0.209	–0.398**	–0.430**		
FACIT-Sp	0.544**	0.424**	–0.311*	0.107	–0.276*	–0.471**	0.348*	
Post-intervention								
SCS								
IRI								
PT	0.526**							
PD	–0.323*	–0.298*						
EC	0.119	0.406**	–0.094					
SOSI	–0.370*	–0.120	0.326*	0.024				
POMS	–0.451**	–0.094	0.235	–0.100	0.726**			
MAAS	0.627**	0.308*	–0.180	0.109	–0.456**	–0.404**		
FACIT-Sp	0.587**	0.352*	–0.281*	0.207	–0.339*	–0.501**	0.563**	

* Correlation significant at $p < 0.05$.

** Correlation significant at $p < 0.01$.

SCS: Self-Compassion Scale; IRI: Interpersonal Reactivity Index; PT: Perspective Taking subscale; PD: Personal Distress subscale; EC: Emphatic Concern subscale; SOSI: Symptoms of Stress Inventory; POMS: Profile of Mood States; MAAS: Mindful Attention Awareness Scale; FACIT-Sp: Functional Assessment of Chronic Illness Therapy—Spiritual Well-Being.

Table IV. Change scores in self-compassion were positively related to changes in spirituality ($r = 0.435$, $p < 0.01$) and mindfulness ($r = 0.328$, $p < 0.05$), and negatively correlated with changes in mood disturbance ($r = –0.449$, $p < 0.01$) and symptoms of stress ($r = –0.308$, $p < 0.05$). Therefore, participants who showed an enhancement in self-compassion were also likely to show increases in spirituality and mindfulness from pre- to post-intervention, as well as reductions in mood disturbance and symptoms of stress. IRI subscale change scores were not significantly correlated with total change scores of the other constructs.

Regression analyses

Simple regressions were conducted to determine if changes in mindfulness scores predicted variance in changes in self-compassion and empathy scores. Mindfulness predicted 11 per cent of the variance in self-compassion ($R^2 = 0.107$), which was statistically significant ($F[1,39] = 4.67$, $p < 0.05$). Regression analysis was not performed with mindfulness and any IRI subscales as their change scores were not significantly correlated.

Discussion

Overall, participation in the MBSR programme was beneficial. Participants exhibited increased self-compassion, perspective taking, spirituality and mindfulness, in addition to decreased personal distress, mood disturbance and symptoms of stress. No significant change was observed in empathic concern as measured by the IRI. Thus, after MBSR participation, participants had greater ability to adopt others' perspectives, experienced reduced distress particularly when witnessing others' negative experiences, and were increasingly spiritual and compassionate towards themselves. Given the community sample of the current study, the MBSR programme may be an effective means to increase psychological well-being, self-compassion and aspects of empathy in psychologically healthy individuals.

Participants' levels of self-compassion before attending the MBSR programme were comparable to those

Table IV. Correlations for change scores

	SCS	IRI-PT	IRI-PD	IRI-EC	SOSI	POMS	MAAS	FACIT-Sp
SCS								
IRI								
PT	0.112							
PD	−0.170	−0.192						
EC	0.150	0.405**	0.174					
SOSI	−0.308*	−0.201	0.050	−0.203				
POMS	−0.449**	−0.148	0.145	−0.034	0.590**			
MAAS	0.328*	−0.039	−0.073	0.025	−0.360**	−0.299*		
FACIT-Sp	0.435**	0.028	−0.258	0.081	−0.110	−0.443**	0.246	

* Correlation significant at $p < 0.05$.

** Correlation significant at $p < 0.01$.

SCS: Self-Compassion Scale; IRI: Interpersonal Reactivity Index; PT: Perspective Taking subscale; PD: Personal Distress subscale; EC: Emphatic Concern subscale; SOSI: Symptoms of Stress Inventory; POMS: Profile of Mood States; MAAS: Mindful Attention Awareness Scale; FACIT-Sp: Functional Assessment of Chronic Illness Therapy—Spiritual Well-Being.

previously reported in undergraduate students (Leary, Tate, Adam, Allen, & Hancock, 2007; Neff, 2003a) and master's level counselling psychology students (Shapiro et al., 2007). Similar increases in self-compassion after programme participation were also observed in the latter group of students (Shapiro et al., 2007) and in an RCT examining MBSR for healthcare professionals (Shapiro et al., 2005). Previous investigations of self-compassion and MBSR have focused on populations with identified risk for increased stress; however, the current study demonstrates the effective use of MBSR as an intervention to enhance self-compassion within a community adult sample.

Results from the current study corroborate previous findings revealing self-compassion's associations with mindfulness (Baer et al., 2006; Shapiro et al., 2007). More specifically, increases in mindfulness over the course of the programme were related to increases in self-compassion. This supports earlier research indicating the pivotal role of mindfulness in effecting change from the MBSR programme (Carmody & Baer, 2008; Shapiro & Izett, 2008; Shapiro et al., 2007) and further supports Neff's (2003a) claim that mindfulness is a precondition of self-compassion. Results also substantiated associations between self-compassion, positive psychological functioning and diminished negative affect (Neff, 2003a; Neff et al., 2007a, 2007b; Shapiro et al., 2005, 2007).

The current study uniquely expands upon previous MBSR research by demonstrating a strong relationship between increases in self-compassion and spirituality. No previous research has investigated relationships between self-compassion and spirituality, and very little has been done to assess relationships between MBSR training, mindfulness and spirituality. MBSR is described as a profound transformative practice, a journey of self-development, and an opportunity to discover inner resources for healing (Kabat-Zinn, 1990). Participants in an MBSR programme have reported significant increases in both spirituality and state and trait mindfulness after programme participation with significant associations between these constructs (Carmody et al., 2008). Spirituality relates to one's own experience of transcendence (Peterman et al., 2002) and research with palliative care professionals has revealed strong associations between spirituality and self-transcendence as defined by the expansion of one's inward introspection and outward concerns for other's, and the integration of one's past and future to enhance the present (Wasner et al., 2005). Engagement in mindful meditation fosters transcendence of self-focused concerns, emphasizing the understanding of oneself as part of a larger humanity, a central tenant of self-compassion (Kristeller & Johnson, 2005). Indeed, interviews with MBSR programme participants have parceled spirituality in self and others as part of a sense of common humanity (Garland et al., 2007).

Both pre and post-MBSR mean scores fell well within the norms for the three subscales of the IRI (PT, EC and PD) (Bellini, Baime, & Shea, 2002). A possible psychometric explanation for the lack of change observed on EC is the extremely high baseline scores when

compared with those from another mindfulness meditation intervention (20.12 versus 4.27) (Galantino et al., 2005). Beddoe and Murphy (2004) observed no significant changes on any of the IRI subscales in a group of nursing students after participation in an MBSR programme and also concluded this was due to a ceiling effect of baseline empathy levels. No means were reported so it is not possible to compare directly to the current study. Additionally, Neff (2003a, 2003b, 2008) has argued that a distinguishing feature of compassion (both for self and others) is a sense of common humanity and mindfulness. However, the EC subscale of the IRI does not include items which assess common humanity or mindfulness. This discrepancy in definition and measurement might also help to explain the findings. More recent research directly assessing relationships between self-compassion and compassion towards others, rather than empathy, has shown links using measures more specifically targeted at compassion (Crocker & Canevello, 2008; Kraus & Sears, 2009).

Significant increases observed in the PT subscale and significant decreases in the PD subscale may reflect a directional move associated with improved psychological functioning (Lee, Brennan, & Daly, 2001). Indeed, individuals high on PT showed a tendency to be more self-compassionate, mindful and spiritual and reported less mood disturbance; whereas individuals high on PD tended to be less self-compassionate, mindful and spiritual, while reporting more mood disturbance and symptoms of stress. Overall, those with an ability to take another's perspective, the cognitive component of empathy as measured on the IRI, had better psychological adjustment than those high on personal distress, one aspect of the emotional component. The PD subscale of the IRI is meant to measure the amount of personal emotional distress experienced in the face of others' suffering. However, it includes items suggesting that one high on this scale may feel overwhelmed or paralyzed in the face of strong emotion. In contrast, mindfulness training aims to strengthen just the opposite tendency: to become a vessel able to hold an increasingly larger and larger amount of emotional material without becoming immobilized. One high in mindfulness should be able to bear witness to a tremendous amount of suffering without being paralyzed by it. At the same time, a person practicing mindfulness does not become insensitive to suffering or callous about it, simply more able to bear witness without becoming overwhelmed. This ability to both better take the perspective of others and understand their suffering, but not be overwhelmed by it, seems to characterize just what happened to participants' over the course of the MBSR programme, and is corroborated by the pattern of results on the IRI.

Improvements in PT were also highly associated with improvements in EC, the other subscale measuring the emotional component of empathy. The EC subscale, in contrast to PD, measures emotions such as being touched by the suffering of others, rather than being overwhelmed or scared by it. Hence, it makes sense that this ability would improve in the same direction as PT.

Comparing our results to previous findings is particularly helpful as it reveals the more nuanced relationships between components of empathy and aspects of psychological functioning. Previous findings discuss a unified construct of empathy and closely link higher levels of empathy and improved psychological functioning (Steffen & Masters, 2005; Thomas et al., 2007), as well as parallel increases in spirituality (Shapiro et al., 1998; Wasner et al., 2005) and mindfulness (Beitel et al., 2005). One limitation to this study is that we used only a global measure of mindfulness that did not delve into the five facets that were differentially associated with aspects of self-compassion in previous research. Future research would benefit from using a mindfulness measure that more clearly delineates different facets of mindfulness, such as the *Five Facet Mindfulness Questionnaire* (Baer et al., 2006, 2008), which could provide insight into more nuanced relationships between components of empathy and mindfulness.

MBSR has been suggested as an effective empathy-enhancing intervention (Block-Lerner et al., 2007; Shapiro & Izett, 2008); however, the inclusion of a directed empathy component towards others may be key (Beddoe & Murphy, 2004). The Metta or loving-kindness meditation begins by directing compassion towards oneself or a loved one and expands to eventually include all living beings. It is included in the current study's programme, but is not mentioned by either Beddoe and Murphy (2004) or Galantino et al. (2005) who found no significant changes in empathy on any of the IRI subscales. The only study to observe significant changes on empathy after MBSR participation used a measure that treats empathy as a global construct (Shapiro et al., 1998).

Future research should seek to minimize limitations of the current study, including a selection bias of participants enrolling in the MBSR programme offered as

a continuing education course. Although significant changes found in this study were comparable to (Carlson et al., 2001; Carmody et al., 2008; Shapiro et al., 2005) or larger than (Abercrombie et al., 2007; Garland et al., 2007; Grossman et al., 2004; Speca et al., 2000) those previously observed with MBSR programmes, participants pre-intervention stress scores were quite high compared with other research. As a continuing education course, participants were required to register and pay tuition for the MBSR programme. Thus, it is likely that the overall sample was biased towards those with an interest in the programme as well as those who could afford both the monetary and time investment to participate. In addition to these initial selection biases, of concern is the high loss of participants (51 per cent) at the post-intervention assessment. This is due both to dropping out of the course and to non-completion of questionnaires by many who did complete the programme. Unfortunately, we do not know how many of those without post-questionnaire data fell into each category. Regardless, the final sample is potentially comprised of those most committed to the programme and the practice that may have derived the most benefit. This should be considered when evaluating the potential generalizability of these results to other samples.

This study was non-randomized and included no control group with which to compare participants completing the MBSR course. As such, it is impossible to know if changes were attributable to the programme itself or to merely the passage of time. However, other randomized-controlled trials with the MBSR programme have achieved comparable results (Grossman et al., 2004; Speca et al., 2000) supporting the contention that results are specific to the programme. Furthermore, due to the exploratory nature of the correlational analyses, no Bonferroni corrections were used for multiple comparisons; as such, observed relationships should be interpreted with caution.

A particular strength of the study was the use of a community sample, supporting evidence that the MBSR programme is beneficial for individuals of generally good health and diversity in age, gender, employment status, income level and religious affiliation. Overall, this study supports the finding that MBSR is successful at increasing participants' levels of self-compassion and specific aspects of empathy. It lends insight into the particular components of empathy that may be most strongly impacted by programme participation and suggests that the Metta meditation may be a crucial component in using MBSR to enhance empathy.

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