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ORIGINAL PAPER

A Pilot Study of the 8-Week Mindful Self-Compassion Training Program in a Chinese Community Sample

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Abstract The aim of this uncontrolled pilot study was to explore the potential of the Mindful Self-Compassion (MSC) program for reducing psychological distress and increasing compassion in a Chinese community sample. Self-report data on measures of compassion and psychological distress were collected at pre-test (N = 49), post-test (N = 44), and 3-month follow-up (N = 35) among a convenience sample of Chinese women (mean age = 36.6 years). Data were analyzed using generalized linear mixed models (GLMMs), and maladaptive perfectionism was investigated as a potential moderator of the effects of time on outcomes. Significant main effects of time were observed for mean scores on self-compassion, compassion for others, fears of self-compassion, rumination, depression, anxiety, and stress, and these changes were maintained at follow-up. These relationships were not moderated by perfectionism. Effect size calculations indicated large effect sizes for all outcomes, indicating that the MSC program holds promise for increasing compassion and reducing psychological distress among Chinese females. Further research is required to demonstrate the efficacy of this program relative to control conditions, using more representative samples.

Keywords Self-compassion · Intervention · Cross-cultural · Mindfulness, mindful self-compassion

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Introduction

Self-compassion is an adaptive mode of self-relation that involves mindful awareness of one's difficult experiences, kindness to oneself during times of suffering, and the capacity to see one's challenges as part of the shared human experience (Neff 2003b). Conversely, individuals low in self-compassion may be more likely to respond to moments of difficulty by avoiding their experiences or becoming overidentified with them, criticizing or judging themselves for their struggles, and feeling alone in their suffering (Neff 2003b). Research consistently documents inverse associations between self-compassion and markers of psychopathology (MacBeth and Gumley 2012), such as symptoms of anxiety (Raes 2010; Van Dam et al. 2011) and depression (Krieger et al. 2016; Raes 2011). Self-compassion also positively predicts physical health (Raque-Bogdan et al. 2011), and multiple dimensions of well-being (Zessin et al. 2015). Importantly, self-compassion appears to be a mediator of mindfulness-based programs such as Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT; Keng et al. 2012). As a result, self-compassion has been identified as an important process and outcome variable for interventions aimed at increasing well-being and reducing psychological distress (Finlay-Jones 2017).

One intervention which explicitly targets self-compassion is the Mindful Self-Compassion (MSC) program (Neff and Germer 2013), an 8-week group training that incorporates psychoeducation, meditation practice, and individual and interpersonal reflective exercises. The MSC program differs from other mindfulness-based programs such as MBSR and MBCT in that it explicitly and primarily focuses on the cultivation of self-compassion through the use of loving-kindness and compassion practices in addition to basic mindfulness practice. An initial randomized controlled trial (RCT)

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documented the effectiveness of the MSC program for improving psychological health outcomes, including self-compassion, mindfulness, depression, anxiety, and stress, relative to waitlist control (Neff and Germer 2013). More recently, in a RCT comparing MSC with a waitlist control for patients with diabetes, there were significant pre-post reductions in depression and diabetes-related distress in the intervention group, which were maintained at the 3-month follow-up (Friis et al. 2016). These findings are in line with research supporting the benefit of other compassion-based interventions for promoting psychological health in both clinical and non-clinical samples (for reviews, see Galante et al. 2014; Leaviss and Uttley 2015; Shonin et al. 2015).

Despite growing evidence regarding the value of self-compassion training for promoting psychological health, little work has examined self-compassion training in non-Western countries such as China. While there is some evidence that self-compassion is a protective mental health factor among Chinese adults (Kemppainen et al. 2013; Wong and Mak 2013), it has also been found that contemplative practice (a key aspect of compassion-based interventions) is linked to psychopathology risk among Chinese, but not Indian, or US samples (McClintock et al. 2016). The authors of the latter study suggest that in China's cultural context, engaging in contemplative practices that are outside of the mainstream culture may place psychological strain on participants that outweigh potential benefits (McClintock et al. 2016). Explicitly targeting self-compassion in this population may also be problematic due to cross-cultural differences in shame, self-devaluation, and self-criticism (Bedford 2004). The positive value placed on shame as a socialization tool in Chinese culture (Luo et al. 2013) and the cultural emphasis on interconnectedness, "saving face," and maintaining high personal standards (Bedford 2004) suggests that engagement in MSC training may elicit common misgivings about practicing self-compassion, including concerns that to do so is selfish or leads to a drop in personal standards (Gilbert et al. 2011). Thus, while compassion-focused interventions are thought to be particularly valuable for individuals with high levels of shame (Gilbert and Procter 2006), it is plausible that cultural factors might increase resistance to the core practices of the MSC program.

To our knowledge, only one published study (Wong and Mak 2016) has examined the impact of an intervention designed to target self-compassion among Chinese individuals. In this study, participants randomly assigned to a brief self-compassion letter writing intervention (three sessions over 1 week) reported improvements in physical symptoms at 1 and 3 months post intervention, relative to a neutral writing control group. Interestingly, the intervention group did not report improvements in self-compassion, depressive symptoms, or emotion regulation at the 1- and 3-month assessment points. To address potential methodological limitations underlying these results, the authors recommended that future research consider longer interventions with assessments administered immediately post intervention. Taken together, these initial findings suggest that further exploration of self-compassion training among Chinese samples is warranted.

Further work is also required to more comprehensively understand the psychological benefits of MSC training. Specifically, two outcomes that are worthy of examination given their role in predicting clinical risk are fear of self-compassion and rumination. Fear of self-compassion (Gilbert et al. 2011) has been identified as an important target of clinical intervention, including in the treatment of trauma (Miron et al. 2016) and eating disorders (Kelly et al. 2013). It is not yet understood how MSC training might impact on fear of self-compassion in the general population. Rumination involves repetitive focus on one's experience of distress, and fixation on its possible causes and consequences (Nolen-Hoeksema et al. 1998) and is also of clinical interest given its role as a transdiagnostic risk factor (Aldao et al. 2010; Olatunji et al. 2013). Ruminative responding is at odds with the balanced and self-nurturing response to distress taught in the MSC program. While trait self-compassion negatively predicts the tendency to ruminate (Finlay-Jones et al. 2015; Trompetter et al. 2017), research is yet to examine whether this outcome can be modified through MSC training.

Additionally, despite growing research on the benefits of compassion training, potential moderators of intervention effects have received little attention (an exception is Arch et al. (2016) who found that trait self-compassion did not moderate responses to self-compassion training). Maladaptive perfectionism is one individual difference variable that may attenuate the way in which individuals respond to compassion training, because it is linked to automatic, negative self-appraisals (Ashby and Rice 2002). Specifically, maladaptive perfectionists tend to hold unrealistically high self-standards, experience cognitive rigidity, and have a tendency for self-critical evaluation (Slaney et al. 2001), all of which are in direct contrast to the kinder and more accepting self-relation characterized by self-compassion (Barnett and Sharp 2016; Mehr and Adams 2016; Neff 2003b). While it is possible that maladaptive perfectionism will lead to greater benefit from MSC because it is associated with lower levels of self-compassion and higher levels of psychological distress at baseline, it is also plausible that individuals who report greater maladaptive perfectionism may struggle with the MSC program, as it may activate self-critical schemas and feelings of failure connected to being "bad" at self-compassion.

The aim of the current study was to examine whether previous findings regarding the impact of participation in the MSC program on compassion, depression, anxiety, and stress were generalizable to a Chinese community sample, and to extend previous findings by examining pre-post changes in rumination, fears of self-compassion, and maladaptive

perfectionism. It was hypothesized that perfectionism would change over time (i.e., that a main effect of time on perfectionism would be observed) and that perfectionism would therefore need to be treated as a time-varying moderator (H1). Second, it was hypothesized that perfectionism would moderate the main effect of time on mean scores for all outcome variables (H2). Third, it was hypothesized that self-compassion and compassion for others would increase significantly between pre- and post-test, with changes maintained at 3-month follow-up (H3). Fourth, it was hypothesized that psychological distress would decrease significantly between pre- and post-test, with changes maintained at the 3-month follow-up (H4). Finally, it was hypothesized that fear of self-compassion and rumination would decrease significantly between pre- and post-test, with changes maintained at the 3-month follow-up (H5).

Method

Participants

An uncontrolled, un-blinded pilot study was conducted using a convenience sample of participants who enrolled to attend an 8-week MSC course in Beijing, China. Of the initial 49 participants recruited to the study, 5 dropped out of the program due to time limitations, giving a retention rate of 89.80%. In line with this, 44 participants completed post-test measures, and 35 of these provided follow-up data. All participants in the current study were female, with a mean age of 36.6 years (SD = 7.1) for the 44 participants who provided data at post-test. The majority of participants (68.2%) reported some previous experience with meditation, although only 20.5% of participants have previously undertaken a structured mindfulness training program.

Procedure

All participants self-referred to the course, which was advertised online and via social media, and all enrolled course attendees were invited to participate in the study. Only attendees who voluntarily consented to participate in the research were asked to complete outcome measures, and no compensation was provided for participation. A research assistant emailed participants with links to the online questionnaire prior to commencing the intervention, in the week following the completion of the intervention, and 3 months after the intervention was completed. The research assistant was exposed only to participant number to ensure anonymization of the data.

Intervention The MSC program involves a 2.5-h group class each week for 8 weeks, as well as a half-day silent retreat held between weeks 4 and 5 of the program. The classes were led by two of the authors who were trained to deliver the MSC program. The protocol of the MSC program is detailed in Neff and Germer (2013); apart from teaching classes in Chinese, no adaptations to the protocol were made in the current study. Broadly, each weekly class focuses on different topics related to the cultivation of self-compassion, including developing foundational mindfulness skills, developing a compassionate inner voice, and working with difficult emotions. Classes involve conceptual and experiential learning, and include interpersonal exercises, group discussion, meditation, and psychoeducation (Neff and Germer 2013).

Measures

All scales were translated from English to Chinese by one of the study authors and a professional translator who speak fluent Chinese and English. Translations were then checked by two of the study authors to ensure consistency with the original meaning of the scale items. The translated scales were not validated prior to use in the current study.

Self-Compassion The 26-item Self-Compassion Scale (SCS; Neff 2003a) was used to measure self-compassion. The scale asks respondents to rate their agreement with 26 statements across the six dimensions of self-compassion defined by (Neff 2003b): self-kindness, self-judgment, common humanity, isolation, mindfulness, and overidentification, using a 5-point Likert-type scale. While some researchers argue for the use of a two-factor model (i.e., self-compassion and self-coldness/criticism; see, e.g., Costa et al. 2015; López et al. 2015), a recent study which tested the factor structure of the SCS across four different populations did not find support for the two-factor model (Neff et al. 2017). Rather, they found support for a model in which items loaded onto the six subscale factors, as well as a general self-compassion factor, validated the use of a total score (Neff et al. 2017). This solution has also been supported in a number of other studies (de Souza and Hutz 2016; Kotsou and Leys 2016; Tóth-Király et al. 2017). The SCS has previously been used in Chinese samples (Wong and Mak 2013); in the current study, the internal reliability for the total scale was α = 92.

Compassion for Others Compassion for others was measured using the 24-item Compassion for Others Scale (CS; Pommier 2001). The CS measures compassion for others along six dimensions: kindness, indifference, common humanity, separation, mindfulness, and disengagement, and respondents are asked to rate the frequency with which they respond to others in the manner stated, using a 5-point Likert-type scale. Initial research supports the psychometric viability of the CS (Neff and Germer 2013; Pommier 2001); in

the current study, the internal reliability of this scale was $\alpha = .90$.

Psychological Distress Symptoms of psychological distress were measured using the 21-item Depression, Anxiety, Stress Scales (DASS-21; Antony et al. 1998). This measure uses a 4-point Likert-type response scale to measure the frequency with which respondents have experienced symptoms of depression, anxiety, and stress over the past month. It is sensitive to change in psychological distress symptoms over time, and adequate psychometric properties have been reported for the Chinese translation of the scale (Wang et al. 2016). In the current study, the internal consistencies were $\alpha = 0.85$ for the depression scale, $\alpha = 0.83$ for the anxiety scale, and $\alpha = 0.83$ for the stress scale.

Fear of Self-Compassion Fear of self-compassion was measured using the Self-Compassion subscale of the Fear of Compassion Scale (FOCS; Gilbert et al. 2011). This subscale of the FOCS contains 15 items that measure common fears and concerns about feeling compassion for oneself, using a 4-point, Likert-type response scale. While fears of giving compassion and receiving compassion to/from others have also been identified (Gilbert et al. 2011), we focused on fear of self-compassion in the current study, as the MSC program specifically targets this construct. The internal consistency for the self-compassion subscale in the current study was $\alpha = .92$.

Maladaptive Perfectionism The Discrepancy subscale of the Almost Perfect Scale—Revised (APS-R; Slaney et al. 2001) was used to measure perfectionism. The APS-R is a 23-item scale that measures perfectionism along three dimensions: standards (i.e., setting high standards for oneself), order (the need for order and organization), and discrepancy (discrepancy between one's standards and one's performance). Elevated scores on the Discrepancy subscale are considered to be indicative of maladaptive perfectionism, and previous work has demonstrated that scores on this subscale are associated with increased depression and reduced self-esteem (Ashby and Rice 2002). The APS-R demonstrates adequate psychometric properties and has previously been used in Chinese samples (e.g., Chan 2011). The internal consistency for the APS-R in the current study was $\alpha = 0.90$.

Rumination Rumination was measured using the Ruminative Responses Scale (Nolen-Hoeksema and Morrow 1991). This scale measures ruminative (e.g., self-focused, symptom-focused, and consequence-focused) responses to depressed mood using 22 items with a 4-point, Likert-style response format. Both the English version and previous Chinese translations (Hong et al. 2010) of the scale have demonstrated adequate psychometric properties; in the current study, the internal reliability of the scale was $\alpha = 0.94$.

Data Analyses

Mann-Whitney *U* tests were used to determine whether there were differences between completers and non-completers (i.e., those who provided data and those who did not) at post-test and follow-up on baseline measures of all outcome variables. No significant differences were found between the groups on any outcomes (see Table 1). Generalized mixed models (GLMM) using SPSS's (Version 22.0) GENLINMIXED procedure were used to analyze data. The GLMM maximum likelihood procedure maximizes statistical power and reduces attrition-related bias by using all of the data available at each assessment (Elobeid et al. 2009; Kwok et al. 2008). In the current analyses, separate GLMMs were run to examine the relationship between the fixed effect of time, the effect of the perfectionism × time interaction, and each of the outcome variables. To determine whether there was a main effect for time on perfectionism, Participant was treated as a random effect, and Time (pre-test, post-test, and follow-up) was treated as a fixed effect. In the moderation analyses, Participant was treated as a random effect and Perfectionism (entered as a continuous variable), Time (pre-test, post-test, and follow-up), and the Perfectionism*Time interaction treated as fixed effects. To optimize statistical power, conceptually related outcomes were grouped and Bonferroni-corrected alpha levels were used across each set of outcomes to control for the family-wise error rate (Klockars et al. 1995). The Bonferroni-corrected alpha was 0.017 for the outcomes on the DASS-21 and 0.008 for the outcomes on the SCS; all other tests were performed using an alpha of 0.05. Post hoc least significant difference (LSD) tests were used to test for significant differences between pre- and post-test, and pre-test and follow-up. Cohen's *d* calculations were used to determine the effect size of pre-post test change, and magnitude of effect size was interpreted using Cohen's conventions: 0.2 = small, 0.5 = moderate; and ≥ 0.8 = large.

Results

Estimated means are used to describe the average pre-test, post-test, and follow-up scores on the outcome measures for the current sample, and are displayed in Table 1. Our first hypothesis predicted that there would be a main effect for time on perfectionism. This hypothesis was supported, $F[2, 125] = 33.08$, $p < .001$. Second, we hypothesized that changes in outcome variables over time would vary as a function of perfectionism. This hypothesis was not supported for self-compassion, $F[2, 122] = 2.31$, $p = .10$, depression $F[2, 122] = .54$, $p = .59$, anxiety $F[2, 122] = .23$, $p = .79$, stress

Table 1 Estimated means and standard errors and results of non-parametric comparisons between completers and non-completers at T2 and T3

	T1 Mean (std. err.)	T2 Mean (std. err.)	T3 Mean (std. err.)	Baseline differences: T2 completion	Baseline differences: T3 completion
SCS					
Self-compassion	2.66 (0.08)	3.81 (0.08)	3.88 (0.08)	0.21	0.34
Self-kindness	2.31 (0.09)	3.74 (0.10)	3.75 (0.11)		
Self-judgment	3.06 (0.09)	2.06 (0.09)	1.87 (0.10)		
Comm. humanity	2.48 (0.09)	3.73 (0.12)	3.67 (0.13)		
Isolation	2.82 (0.11)	1.95 (0.11)	1.82 (0.15)		
Mindfulness	2.47 (0.12)	3.66 (0.13)	3.72 (0.14)		
Overidentification	3.42 (0.09)	2.26 (0.10)	2.18 (0.10)		
DASS-21					
Depression	27.04 (0.43)	21.12 (0.06)	21.80 (0.45)	0.29	0.61
Anxiety	25.88 (0.45)	21.02 (0.44)	21.26 (0.47)	0.28	0.84
Stress	32.66 (0.45)	25.56 (0.44)	24.98 (0.47)	0.86	0.95
FOCS					
Fear of SC	2.25 (0.10)	1.43 (0.10)	1.49 (0.11)	0.28	0.08
APS					
Discrepancy	4.22 (0.19)	2.84 (0.19)	4.24 (0.21)	0.89	0.41
RRS					
Rumination	2.29 (0.08)	1.92 (0.08)	1.94 (0.08)	0.76	0.86
CS					
Comp. for others	3.82 (0.08)	4.15 (0.07)	4.06 (0.09)	0.39	0.93

Group differences: Significance of Mann-Whitney *U* test on baseline difference for completers vs non-completers at post-test and follow-up

Comm. Humanity common humanity, *Fear of SC* fear of self-compassion, *Comp. for others* compassion for others

$F[2, 122] = 1.31$, $p = .27$, rumination $F[2, 122] = 1.48$, $p = .23$, or fear of self-compassion $F[2, 122] = 1.00$, $p = .37$. Our third hypothesis predicted a significant main effect of time on mean compassion scores. This hypothesis was supported for self-compassion, $F[2, 125] = 134.34$, $p < .001$, and compassion for others, $F[2, 125] = 11.58$, $p < .01$, with significant increases in both outcomes observed between pre- and post-test. These changes were maintained at follow-up, with large ($d = 2.76$) and moderate-large ($d = .71$) effect sizes observed for pre-post changes in self-compassion and compassion for others, respectively. Additionally, while we did not formulate any hypotheses regarding changes on the various SCS subscales, tests of the main effects of time at a Bonferroni-corrected alpha of 0.008 indicated significant (pre-post) improvements on all subscales (Table 2).

Our fourth hypothesis predicted a significant main effect of time on mean distress scores, using a Bonferroni-corrected alpha of 0.025. This hypothesis was supported for depression $F[2, 125] = 26.65$, $p < .001$, anxiety $F[2, 125] = 17.57$, and stress $F[2, 125] = 35.13$ with significant decreases in these outcomes observed between pre- and post-test ($p < .001$). All changes were maintained at follow-up. Effect size calculations indicated a large effect size for depression, $d = 1.31$, anxiety, $d = 1.01$, and stress, $d = 1.34$, between pre- and post-test. Our fifth hypothesis, which predicted a significant main effect of time on mean fear of self-compassion and rumination scores, was also supported $F[2, 125] = 34.85$, $p < .001$, and $F[2, 125] = 15.04$, $p < .001$. Significant decreases in fear of self-compassion and rumination were observed between pre- and post-test, and these changes were maintained at follow-up. Effect size calculations indicated a large effect size for pre-post-test changes in fear of self-compassion, $d = 1.55$, and rumination, $d = 1.12$. See Table 2 for a summary of results.

Discussion

The primary aim of the study was to examine whether previously reported benefits of the MSC program for improving psychological health outcomes (Neff and Germer 2013) were generalizable to a Chinese community sample. A second aim was to examine maladaptive perfectionism as a potential moderator of the relationship between time and the outcome variables. In support of our hypotheses, significant main effects of time on each of the outcome variables suggested improvements in self-compassion, depression, anxiety, stress, rumination, maladaptive perfectionism, fear of self-compassion, and compassion for others between pre- and post-test. All of these changes were maintained at the 3-month follow-up, apart from perfectionism, which returned to baseline levels. These results provide support for the proposition that self-compassion can be intentionally cultivated among Chinese women, and that

Table 2 Least significant difference (LSD) tests of the simple main effects of time with pairwise contrasts for all outcome measures ($df = 125$)

	Time	C. E.	SE	*t* value	95% C.I.	Adj. Sig.
SCS						
Total	T1–T2	− 1.15	0.08	− 14.52	− 1.31, − 0.99	< .001
	T1–T3	− 1.23	0.09	− 13.59	− 1.40, − 1.04	< .001
Self-kindness	T1–T2	− 1.42	0.17	− 12.22	− 1.65, − 1.19	< .001
	T1–T3	− 1.44	0.12	− 11.85	− 1.68, − 1.20	< .001
Self-judgment	T1–T2	1.01	0.09	11.57	0.84, 1.18	< .001
	T1–T3	1.19	0.10	11.98	0.10, 1.39	< .001
Comm humanity	T1–T2	− 1.25	0.13	− 9.33	− 1.52, − 0.90	< .001
	T1–T3	− 1.19	0.12	− 9.64	− 1.44, − 0.95	< .001
Isolation	T1–T2	0.88	0.12	7.47	0.65, 1.11	< .001
	T1–T3	1.01	0.13	7.67	0.75, 1.27	< .001
Mindfulness	T1–T2	− 1.18	0.12	− 9.46	− 1.43, − 0.94	< .001
	T1–T3	− 1.24	0.14	− 9.01	− 1.52, − 0.97	< .001
Overident	T1–T2	1.16	0.11	10.23	0.94, 1.39	< .001
	T1–T3	1.24	0.12	9.97	0.10, 1.49	< .001
CS						
Total	T1–T2	− 0.32	0.11	− 2.99	− 0.53, − 0.11	.003
	T1–T3	− 0.23	0.11	− 2.03	− 0.46, − 0.01	.005
DASS-21						
Depression	T1–T2	5.81	0.84	6.91	4.14, 7.47	< .001
	T1–T3	5.10	0.95	5.36	3.22, 6.98	< .001
Anxiety	T1–T2	4.85	0.88	5.48	3.10, 6.60	< .001
	T1–T3	4.62	1.01	4.59	2.63, 6.61	< .001
Stress	T1–T2	6.87	0.94	7.32	5.01, 8.73	< .001
	T1–T3	7.43	1.05	7.05	5.35, 9.52	< .001
FOCS						
Fear of self-compassion	T1–T2	0.81	0.11	7.56	0.61, 1.0	< .001
	T1–T3	0.76	0.12	6.40	0.53, 1.00	< .001
APS						
Discrepancy	T1–T2	1.37	0.26	5.20	0.85, 1.90	< .001
	T1–T3	− 0.02	0.28	− 0.08	− 0.58, 0.53	.93
RRS						
Rumination	T1–T2	0.37	0.07	5.13	0.23, 0.52	< .001
	T1–T3	0.36	0.08	4.20	0.19, 0.52	< .001

self-compassion training has the potential to improve psychological health across a number of different outcomes among this group. However, it is important to note that the current study was uncontrolled and therefore, it cannot be concluded that the observed changes were linked to participation in the intervention. As might be anticipated, effect sizes were greatest for change on self-compassion: importantly, significant pre-post improvements were also observed across all SCS subscales.

This study examined the impact of the MSC program among a Chinese community sample, and when interpreted in the context of findings from controlled trials of MSC in Western samples (Friis et al. 2016; Neff and Germer 2013), the results provide preliminary support for the utility of the MSC program for improving psychological health across cultures. While not a RCT, the current study provided some extension to the findings of Neff and Germer (2013) by investigating the impact of participation in the MSC program on rumination, perfectionism, and fears of compassion. In addition, this study tested maladaptive perfectionism as a moderator of the relationship between time and the intervention outcomes. Contrary to expectations, our hypothesis that perfectionism might act as a moderator was not supported, suggesting that the benefit of the program might be similar for participants regardless of their level of maladaptive perfectionism.

The current findings provide some basis on which to generate hypotheses about the potential relevance of the MSC program for different psychological concerns, although caution is warranted when extrapolating these findings to clinical populations as they are drawn from a non-clinical sample. The finding that participants reported significant decreases in

rumination at post-test is consistent with the hypothesis that self-compassion cultivates the capacity to process difficult events in a mindful, positive, and self-reflective way, rather than engaging in self-critical ruminative responses (see, e.g., Johnson and O'Brien 2013; Leary et al. 2007; Raes 2010). Given the central role of rumination in predicting depressive relapse (e.g., Michalak et al. 2011), future work may wish to consider the feasibility of the MSC program for reducing rumination in individuals who have previously experienced a depressive episode, to determine whether participation in the program may reduce risk of relapse. The finding of a main effect for time on maladaptive perfectionism is in line with previous findings that self-compassion shares significant inverse relationships with this construct (Barnett and Sharp 2016; Mehr and Adams 2016; Neff 2003b), although it is unclear why changes in perfectionism in the current study were not as robust as those observed for other outcomes. In light of evidence that self-compassion partially mediates the link between perfectionism and depressive symptoms (Mehr and Adams 2016), the hypothesis that increasing self-compassion decouples the link between perfectionism and psychological distress should be explored in future work.

The current finding that, on average, participants reported significant decreases in fears of self-compassion following the MSC program is not surprising given that the training actively addresses myths about self-compassion (e.g., that it is self-indulgent) and works with difficulties participants may experience when extending compassion toward themselves. Previous research has found that fears of self-compassion are negatively associated with self-compassion and positively linked to self-criticism, self-coldness, and depression (Gilbert et al. 2014, 2011). In addition, fear of self-compassion may play a key role in predicting responses to psychological interventions (Kelly et al. 2013), as well as having important implications for the therapeutic relationship in general (Gilbert et al. 2011). It is therefore worthwhile investigating whether the MSC program or exercises adapted from it might be usefully used to address fears of self-compassion as an adjunct to treatment where such fears might impede therapeutic progress. It should be noted that in the current study, fears of self-compassion were only examined at the group level; an important direction for future research may be to examine how individuals with elevated fears of self-compassion respond to the MSC program, and how fears of self-compassion change over the course of the program.

The finding that participants reported significant mean increases in compassion for others over the course of the MSC training are in line with Neff and Germer (2013); nevertheless, these are interesting given previous findings of a low correlation between trait self-compassion and compassion for others (Neff and Germer 2013). The current findings suggest that while having compassion for others does not necessarily mean having compassion for oneself, cultivating self-compassion through training might increase compassion for others. Further research is required to replicate this finding and to examine whether constructs such as empathy or social connectedness might mediate this relationship.

Limitations

While the results of the current study are promising, a number of limitations should be noted. First, there was no comparison control group, making it impossible to conclude that the observed changes were due to participation in the MSC program and not some other variable. Second, the sample consisted entirely of women, who self-selected to participate in the MSC program, and who had a relatively high degree of prior experience with meditation and mindfulness training. It is therefore feasible that participants in the current study expected to benefit positively from the intervention; in the absence of a more diverse sample and a control group, it is not possible to determine whether the outcomes observed in the current study are more likely accounted for by self-selection bias, demand characteristics, or expectancy bias. To address these issues, future research should consider evaluating the effects of the MSC program in Chinese populations in the context of a RCT, and controlled designs are required in other cultures to replicate findings regarding the impact of the program on rumination, perfectionism, and fears of self-compassion.

In addition, while the cultivation of self-compassion among women is an area of interest given that females tend to report lower self-compassion scores than males (Yarnell et al. 2015), future research might examine whether the outcomes observed in the current study might be replicated in mixed gender groups. This is important given recent findings that women may benefit more from mindfulness-based interventions than men (Nyklíček et al. 2016). Further, while the current study had relatively low dropout rates, suggesting that the intervention was, on the whole, acceptable for the participants, the lack of follow-up with participants who dropped out of the study is another limitation. Despite finding no significant differences between baseline characteristics of completers and non-completers of either post-test or follow-up measures, it is possible that attrition may have skewed the results, if those who provided data at all time points were the ones who benefited most from the intervention. It is recommended that future work collect qualitative feedback and examine outcomes for MSC program dropouts to investigate the possibility of adverse effects of program participation. It is also recommended that future work include comprehensive measures of program feasibility, such as acceptability, satisfaction, fidelity, and adherence.

Finally, while the internal reliability of all measures in the current study were adequate, the measures were translated into Chinese for the purposes of this study and have not undergone

comprehensive psychometric evaluation in Chinese samples. Further research to understand the psychometric properties of these measures in Chinese samples is required. In addition, the current study relied entirely on self-report measures of the outcomes of interest. While the use of self-report scales to evaluate personality and psychology constructs confers a number of advantages, they also have notable limitations (Olino and Klein 2015). Given emerging findings that self-compassion impacts biobehavioral markers of stress (e.g., Arch et al. 2014), future studies may wish to use physiological outcome measures in addition to self-report. In particular, an interesting area for future work is to examine the impact of participation in the MSC program on state self-compassion following negative events and subsequent psychological, physiological, and behavioral responses. Future research may also benefit from incorporating qualitative measures to further understand how self-compassion is enacted among Chinese individuals and to provide insight into the ways in which self-compassionate responding changes over time.

Author's Contributions AFJ collaborated with the design of the study, analyzed the data, and wrote the paper; QX collaborated with the design of the study and helped analyze the data; XH collaborated with the design and execution of the study; XM collaborated with the design of the study; and XG designed and executed the study.

Compliance with Ethical Standards

Conflicts of Interest Authors B and C are employees of the Beijing Hailan Peer Education and Consultation Company which provided the Mindful Self-Compassion training described in the current study. Author E is the founder of the Beijing Hailan Peer Education and Consultation Company. Authors A and D declare no potential conflicts of interest.

Ethical Approval Ethical approval for this study was granted by Renmin University, Beijing, China. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

References

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: a meta-analytic review. *Clinical Psychology Review, 30*, 217–237. https://doi.org/10.1016/j.cpr.2009.11.004.

Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales (DASS) in clinical groups and a community sample. *Psychological Assessment, 10*, 176–181. https://doi.org/10.1037/1040-3590.10.2.176.

Arch, J. J., Brown, K. W., Dean, D. J., Landy, L. N., Brown, K. D., & Laudenslager, M. L. (2014). Self-compassion training modulates alpha-amylase, heart rate variability, and subjective responses to social evaluative threat in women. *Psychoneuroendocrinology, 42*, 49–58. https://doi.org/10.1016/j.psyneuen.2013.12.018.

Arch, J. J., Landy, L. N., & Brown, K. W. (2016). Predictors and moderators of biopsychological social stress responses following brief self-compassion meditation training. *Psychoneuroendocrinology, 69*, 35–40. https://doi.org/10.1016/j.psyneuen.2016.03.009.

Ashby, J. S., & Rice, K. G. (2002). Perfectionism, dysfunctional attitudes, and self-esteem: a structural equations analysis. *Journal of Counseling & Development, 80*, 197–203. https://doi.org/10.1002/j.1556-6678.2002.tb00183.x.

Barnett, M. D., & Sharp, K. J. (2016). Maladaptive perfectionism, body image satisfaction, and disorder eating behaviors among U.S. college women: the mediating role of self-compassion. *Personality and Individual Differences, 99*, 225–234. https://doi.org/10.1016/j.paid.2016.05.004.

Bedford, O. A. (2004). The individual experience of guilt and shame in Chinese culture. *Culture & Psychology, 10*(1), 29–52. https://doi.org/10.1177/1354067X04040929.

Chan, D. W. (2011). Perfectionism among Chinese gifted and nongifted students in Hong Kong: The use of the Revised Almost Perfect Scale. *Journal for the Education of the Gifted, 34*, 68–98. https://doi.org/10.1177/016235321003400104.

Costa, J., Marôco, J., Pinto-Gouveia, J., Ferriera, C., & Castilho, P. (2015). Validation of the psychometric properties of the self-compassion scale. Testing the factorial validity and factorial invariance of the measure among borderline personality disorder, anxiety disorder, eating disorder and general populations. *Clinical Psychology & Psychotherapy, 23*, 460–468. https://doi.org/10.1002/cpp.1974.

de Souza, L. K., & Hutz, C. S. (2016). Adaptation of the self-compassion scale for use in Brazil: Evidence of construct validity. *Temas em Psicologia, 24*, 159–172. https://doi.org/10.9788/TP2016.1-11.

Elobeid, M. A., Padilla, M. A., McVie, T., Thomas, O., Brock, D. W., Musser, B., et al. (2009). Missing data in randomized clinical trials for weight loss: scope of the problem, state of the field, and performance of statistical methods. *PLoS One, 4*, e6624. https://doi.org/10.1371/journal.pone.0006624.

Finlay-Jones, A. L. (2017). The relevance of self-compassion as an intervention target in mood and anxiety disorder: a narrative review based on an emotion regulation framework. *Clinical Psychologist, 21*(2), 90–103. https://doi.org/10.1111/cp.12131.

Finlay-Jones, A. L., Rees, C. S., & Kane, R. T. (2015). Self-compassion, emotion regulation, and stress among Australian psychologists: testing an emotion regulation mode of self-compassion using structural equation modeling. *PLoS One, 10*, e0133481. https://doi.org/10.1371/journal.pone.0133481.

Friis, A. M., Johnson, M. H., Cutfield, R. G., & Consedine, N. S. (2016). Kindness matters: a randomized controlled trial of a mindful self-compassion intervention improves depression, distress, and HbA1c among patients with diabetes. *Diabetes Care, 39*, 1963–1971. https://doi.org/10.2337/dc16-0416.

Galante, J., Galante, I., Bekkers, M.-J., & Gallacher, J. (2014). Effect of a kindness-based meditation on health and well-being: a systematic review and meta-analysis. *Journal of Consulting and Clinical Psychology, 82*(6), 1101–1114. https://doi.org/10.1037/a0037249.

Gilbert, P., McEwan, K., Catarino, F., Baião, R., & Palmeira, L. (2014). Fears of happiness and compassion in relationship with depression, alexithymia, and attachment security in a depressed sample. *British Journal of Clinical Psychology, 53*, 228–244. https://doi.org/10.1111/bjc.12037.

Gilbert, P., McEwan, K., Matos, M., & Rivis, A. (2011). Fears of compassion: development of three self-report measures. *Psychology and Psychotherapy: Theory, Research & Practice, 84*(3), 239–255. https://doi.org/10.1348/147608310X526511.

Gilbert, P., & Procter, S. (2006). Compassionate mind training for people with high shame and self-criticism: overview and pilot study of a group therapy approach. *Clinical Psychology & Psychotherapy, 13*, 353–379. https://doi.org/10.1002/cpp.507.

Hong, W., Abela, J. R. Z., Cohen, J. R., Sheshko, D. M., Shi, X. T., Van Hamel, A., & Starrs, C. (2010). Rumination as a vulnerability factor to depression in adolescents in mainland China: lifetime history of clinically significant depressive episodes. *Journal of Clinical Child & Adolescent Psychology, 39*, 849–857. https://doi.org/10.1080/15374416.2010.517159.

Johnson, E. A., & O'Brien, K. A. (2013). Self-compassion soothes the savage ego-threat system: effects on negative affect, shame, rumination, and depressive symptoms. *Journal of Social and Clinical Psychology, 32*, 939–963.

Kelly, A. C., Carter, J. C., Zuroff, D. C., & Borairi, S. (2013). Self-compassion and fear of self-compassion interact to predict response to eating disorders treatment: a preliminary investigation. *Psychotherapy Research, 23*, 252–264. https://doi.org/10.1080/10503307.2012.717310.

Kemppainen, J., Johnson, M. O., Phillips, J. C., Sullivan, K. M., Corless, I. B., Chaiphibalsarisdi, P., et al. (2013). A multinational study of self-compassion and human immunodeficiency virus-related anxiety. *International Nursing Review, 60*, 477–486. https://doi.org/10.1111/inr.12056.

Keng, S. L., Smoski, M. J., Robins, C. J., Ekblad, A. G., & Brantley, J. G. (2012). Mechanisms of change in mindfulness-based stress reduction: self-compassion and mindfulness as mediators of intervention outcomes. *Journal of Cognitive Psychotherapy: An international quarterly, 26*(3), 270–280. https://doi.org/10.1891/0889-8391.26.3.270.

Klockars, A. J., Hancock, G. R., & McAweeney, M. J. (1995). Power of unweighted and weighted versions of simultaneous and sequential multiple-comparison procedures. *Psychological Bulletin, 118*(2), 300–307. https://doi.org/10.1037/0033-2909.118.2.300.

Kotsou, I., & Leys, C. (2016). Self-Compassion Scale (SCS): Psychometric properties of the French translation and its relations with psychological well-being, affect and depression. *PLoS One, 11*, e0152880. https://doi.org/10.1371/journal.pone.0152880.

Krieger, T., Berger, T., & Grosse Holtforth, M. (2016). The relationship of self-compassion and depression: cross-lagged panel analyses in depressed patients after outpatient therapy. *Journal of Affective Disorders, 202*, 39–45. https://doi.org/10.1016/j.jad.2016.05.032.

Kwok, O.-M., Underhill, A. T., Berry, J. W., Luo, W., Elliott, T. R., & Yoon, M. (2008). Analyzing longitudinal data with multilevel models: an example with individuals living with lower extremity intra-articular fractures. *Rehabilitation Psychology, 53*(3), 370–386. https://doi.org/10.1037/a0012765.

Leary, M. R., Tate, E. B., Adams, C. E., Allen, A. B., & Hancock, J. (2007). Self-compassion and reactions to unpleasant self-relevant events: the implications of treating oneself kindly. *Journal of Personality and Social Psychology, 92*(5), 887–904. https://doi.org/10.1037/0022-3514.92.5.887.

Leaviss, J., & Uttley, L. (2015). Psychotherapeutic benefits of compassion-focused therapy: an early systematic review. *Psychological Medicine, 45*, 927–945. https://doi.org/10.1017/S0033291714002141.

López, A., Sanderman, R., Smink, A., Zhang, Y., van Sonderen, E., Ranchor, A., & Schroevers, M. J. (2015). A reconsideration of the Self-Compassion Scale's total score: Self-compassion versus self-criticism. *PLoS One, 10*, e0132940. https://doi.org/10.1371/journal.pone.0132940.

Luo, R., Tamis-LeMonda, C. S., & Song, L. (2013). Chinese parents' goals and practices in early childhood. *Early Childhood Research Quarterly, 28*, 843–857. https://doi.org/10.1016/j.ecresq.2013.08.001.

MacBeth, A., & Gumley, A. (2012). Exploring compassion: a meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review, 32*(6), 545–552. https://doi.org/10.1016/j.cpr.2012.06.003.

McClintock, C. H., Lau, E., & Miller, L. (2016). Phenotypic dimensions of spirituality: Implications for mental health in China, India, and the United States. *Frontiers in Psychology, 7*, 1600. https://doi.org/10.3389/fpsyg.2016.01600.

Mehr, K. E., & Adams, A. C. (2016). Self-compassion as a mediator of maladaptive perfectionism and depressive symptoms in college students. *Journal of College Student Psychotherapy, 30*, 132–145. https://doi.org/10.1080/87568225.2016.1140991.

Michalak, J., Holz, A., & Teismann, T. (2011). Rumination as a predictor of relapse in mindfulness-based cognitive therapy for depression. *Psychology and Psychotherapy: Theory, Research & Practice, 84*, 230–236. https://doi.org/10.1348/147608310X520166.

Miron, L. R., Seligowski, A. V., Boykin, D. M., & Orcutt, H. K. (2016). The potential indirect effect of childhood abuse on posttrauma pathology through self-compassion and fear of self-compassion. *Mindfulness, 7*(3), 596–605. https://doi.org/10.1007/s1267-016-0493-0.

Neff, K. D. (2003a). The development and validation of a scale to measure self-compassion. *Self and Identity, 2*, 223–250. https://doi.org/10.1080/15298860390209035.

Neff, K. D. (2003b). Self-compassion: an alternative conceptualization of a healthy attitude toward oneself. *Self & Identity, 2*, 85–101. https://doi.org/10.1080/15298860390129863.

Neff, K. D., & Germer, C. K. (2013). A pilot study and randomized controlled trial of the mindful self-compassion program. *Journal of Clinical Psychology, 69*(1), 28–44.

Neff, K. D., Whittaker, T. A., & Karl, A. (2017). Examining the factor structure of the self-compassion scale in four distinct populations: is the use of a total scale score justified? *Journal of Personality Assessment, 99*, 596–607. https://doi.org/10.1080/00223891.2016.1269334.

Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and posttraumatic stress symptoms after a natural disaster: the 1989 Loma Prieta earthquake. *Journal of Personality and Social Psychology, 61*, 115–121. https://doi.org/10.1037/0022-3514.61.1.115.

Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (1998). Rethinking rumination. *Perspectives on Psychological Science, 3*(5), 400–424. https://doi.org/10.1111/j.1745-6924.2008.00088.x.

Nyklíček, I., van Son, J., Pop, V. J., Denollet, J., & Pouwer, F. (2016). Does Mindfulness-Based Cognitive Therapy benefit all people with diabetes and comorbid emotional complaints equally? Moderators in the DiaMind trial. *Journal of Psychosomatic Research, 91*, 40. https://doi.org/10.1016/j.jpsychores.2016.10.009.

Olatunji, B. O., Naradon-Gainey, K., & Wolitzky-Taylor, K. B. (2013). Specificity of rumination in anxiety and depression: a multimodal meta-analysis. *Clinical Psychology: Science and Practice, 20*(3), 225–257. https://doi.org/10.1111/cpsp.12037.

Olino, T. M., & Klein, D. N. (2015). Psychometric comparison of self- and informant-reports of personality. *Assessment, 22*, 655–664. https://doi.org/10.1177/1073191114567942.

Pommier, E. A. (2001). The compassion scale. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 72*, 1174.

Raes, F. (2010). Rumination and worry as mediators of the relationship between self-compassion and depression and anxiety. *Personality and Individual Differences, 48*, 757–761. https://doi.org/10.1016/j.paid.2010.01.023.

Raes, F. (2011). The effect of self-compassion on the development of depression symptoms in a non-clinical sample. *Mindfulness, 2*, 33–36. https://doi.org/10.1007/s12671-011-0040-y.

Raque-Bogdan, T. L., Ericson, S. K., Jackson, J., Martin, H. M., & Bryan, N. A. (2011). Attachment and mental and physical health: self-

compassion and mattering as mediators. *Journal of Counseling Psychology, 58*, 272–278. https://doi.org/10.1037/a0023041.

Shonin, E., Van Gordon, W., Compare, A., Zangeneh, M., & Griffiths, M. D. (2015). Buddhist-derived loving-kindness and compassion meditation for the treatment of psychopathology: a systematic review. *Mindfulness, 6*, 1161. https://doi.org/10.1007/s12671-014-0368-1.

Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The revised almost perfect scale. *Measurement and Evaluation in Counselling and Development, 34*, 130–145.

Tóth-Király, I., Bőthe, B., & Orosz, G. (2017). Exploratory structural equation modeling analysis of the Self-Compassion Scale. *Mindfulness, 8*, 881. https://doi.org/10.1007/s12671-016-0662-1.

Trompetter, H. R., de Kleine, E., & Bohlmeijer, E. T. (2017). Why does positive mental health buffer against psychopathology? An exploratory study on self-compassion as a resilience mechanism and adaptive emotion regulation strategy. *Cognitive Therapy and Research, 41*(3), 451–468. https://doi.org/10.1007/s10608-016-9774-0.

Van Dam, N. T., Sheppard, S. C., Forsyth, J. P., & Earleywine, M. (2011). Self-compassion is a better predictor than mindfulness of symptom severity and quality of life in mixed anxiety and depression. *Journal of Anxiety Disorders, 25*, 123–130. https://doi.org/10.1016/j.janxdis.2010.08.011.

Wang, K., Shi, H. S., Geng, F. L., Zou, L. Q., Tan, S. P., Wang, Y., et al. (2016). Cross-cultural validation of the depression anxiety stress scale-21 in China. *Psychological Assessment, 28*(5), e88–e100. https://doi.org/10.1037/pas0000207.

Wong, C. C. Y., & Mak, W. W. S. (2013). Differentiating the role of three self-compassion components in buffering cognitive-personality vulnerability to depression among Chinese in Hong Kong. *Journal of Counseling Psychology, 60*, 162–169. https://doi.org/10.1037/a0030451.

Wong, C. C. Y., & Mak, W. W. S. (2016). Writing can heal: effects of self-compassion writing among Hong Kong Chinese college students. *Asian American Journal of Psychology, 7*(1), 74–82. https://doi.org/10.1037/aap0000041.

Yarnell, L. M., Stafford, R. E., Neff, K. D., Reilly, E. D., Knox, M. C., & Mullarkey, M. (2015). Meta-analysis of gender differences in self-compassion. *Self and Identity, 14*(5), 499–520. https://doi.org/10.1080/15298868.2015.1029966.

Zessin, U., Dickhauser, O., & Garbade, S. (2015). The relationship between self-compassion and well-being: a meta-analysis. *Applied psychology: Health and Well-Being, 7*, 340–364. https://doi.org/10.1111/aphw.1205.