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ORIGINAL PAPER

The Effects of a Self-Compassion Intervention on Future-Oriented Coping and Psychological Well-being: a Randomized Controlled Trial in Chinese College Students

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Abstract

Objectives Future-oriented coping and self-compassion have demonstrated promising benefits for psychological well-being, but the effects of self-compassion interventions have not been adequately examined in Chinese samples. Moreover, the role of self-compassion in enhancing future-oriented coping remains unclear. This study aimed to test the effects of a group-based self-compassion intervention on future-oriented coping and psychological distress with a randomized controlled trial using a sample of Chinese college students.

Methods A total of 69 participants were randomized into an intervention group ($N = 32$) and a waitlist-control group ($N = 37$). Self-compassion (including positive and negative self-compassion), future-oriented coping (including proactive coping and preventive coping), and psychological distress (depression, anxiety, and stress) were assessed at the baseline, postintervention, and 1-month follow-up.

Results The intervention group evidenced an increase in self-compassion and future-oriented coping as well as a decrease in depression and stress compared to the control group. The enhancement of proactive coping played a mediating role in the intervention's effects on depression and stress.

Conclusions This study provided evidence regarding the effects of self-compassion intervention on future-oriented coping. Future studies can further investigate the role of proactive coping as a mechanism of change in self-compassion interventions.

Keywords Self-compassion · Intervention · Randomized controlled trial · Future-oriented coping · College students

A strong sense of future orientation typically characterizes student life. Being in the early stage of emerging adulthood, college students struggle with the developmental task of identity exploration, clarifying who they want to be and what kind of future they prefer (Arnett et al., 2014). During this stage, students must seriously consider the commitments and goals that will define the structure of their future adulthood. Overwhelming uncertainty and instability may also accompany identity exploration because finding a career poses challenges, which highlights the prevalence of anticipatory or unexpected stressors during this stage (Arnett et al., 2014).

Researchers have widely acknowledged future-oriented coping, which refers to individuals' coping efforts preceding the occurrence of negative events, as an important contributor to positive adjustment (Drummond & Brough, 2016; Greenglass & Fiksenbaum, 2009). The prospective efforts of goal and risk management consist of two strategies, proactive coping and preventive coping, respectively (Gan et al., 2007; Schwarzer & Taubert, 2002). Proactive coping, which refers to efforts to facilitate goal achievement and personal growth by strengthening general resources, is motivated by challenging evaluations of future demanding situations (Schwarzer & Taubert, 2002). Preventive coping refers to the process whereby individuals prepare themselves for a potential stressor, aiming to prevent it or minimize the consequences before it occurs (Aspinwall & Taylor, 1997). This term was initially

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called proactive coping, but was later modified to preventive coping because it distinctly entails harmful evaluations of certain potential events and efforts to prevent undesired outcomes (Gan et al., 2007; Schwarzer & Taubert, 2002). Given the considerable roles of personal growth and preparation for potential stressors in college students' identity exploration, future-oriented coping may be important in this population (Arnett et al., 2014; Aspinwall, 2005). Previous studies have found future-oriented coping to be beneficial to psychological adjustment and to contribute to adaptive behaviors (e.g., job hunting and preparation) in college students (Gan et al., 2010; Hu & Gan, 2011). However, previous research has rarely investigated interventions promoting future-oriented coping despite the potential benefits.

Self-compassion, referring to treating oneself with compassion in times of suffering, may contribute to future-oriented coping (Neff, 2003a). Being compassionate to oneself involves the acknowledgment of distress and the benevolent wish to alleviate or prevent suffering (Gilbert et al., 2017). With self-compassion, people can identify their feelings mindfully, meet themselves with kindness instead of harshness, and recognize distress as a shared human experience (Neff, 2003a). As a healthy attitude for relating to the self, self-compassion has shown promising protective effects on psychological well-being (e.g., decreased depression, anxiety, and stress) in various populations (MacBeth & Gumley, 2012; Zessin et al., 2015), including Chinese college students (Yang, 2016; Zhang et al., 2016).

Self-compassion may facilitate future-oriented coping given the close relation between self-compassion and self-improvement (Neely et al., 2009; Neff et al., 2005). By generating a warm, understanding attitude toward oneself in the face of difficulties, self-compassion can facilitate an acknowledgment of weakness and a more realistic self-appraisal without feelings of being overwhelmed by despair and fear of failure (Breines & Chen, 2013; Leary et al., 2007). Such positive qualities can provide a foundation for people to rationally assess their current capacity and whether changes are required. Self-compassion was also found to generate a flexible mindset that views people's weaknesses as malleable rather than static (Breines & Chen, 2012). This attitude may engage individuals in future-oriented coping because they see improving themselves in preparation for future stress as possible instead of unachievable. Moreover, because self-compassion involves a benevolent desire to maximize well-being and prevent potential suffering, it can motivate people to cope with future stress prospectively and actively (Allen & Leary, 2010; Gilbert et al., 2017). However, the role of self-compassion in future-oriented coping has not been empirically tested. Therefore, whether self-compassion interventions can improve future-oriented coping remains unknown.

The reported benefits have prompted increasing interventions to cultivate self-compassion and improve well-being. A recent meta-analysis showed that self-compassion interventions were efficacious in general, but group interventions had stronger effects than individual interventions (Ferrari et al., 2019). College students, who commonly comprised the targeted samples in previous intervention studies on self-compassion, had a good response to self-compassion interventions (Ferrari et al., 2019). To date, randomized controlled trials (RCTs) to test the effects of group-based self-compassion interventions in Chinese samples have been lacking. Specifically, one previous study showed that self-compassion writing did not significantly improve Chinese college students' self-compassion despite producing notable decreases in physical symptoms (Wong & Mak, 2016). Thus, the effectiveness of group self-compassion interventions for Chinese college students remains unclear.

There is ongoing debate concerning the conceptualization and measurement of self-compassion. Defining self-compassion as representing the balance between enhanced compassionate and reduced uncompassionate self-responding in times of distress, Neff developed the Self-Compassion Scale (SCS) to assess overall self-compassion (Neff, 2003b). The construct validity of the SCS was supported and most studies measured self-compassion via the total score of SCS (Neff et al., 2019). However, some researchers emphasized the need to differentiate between positive self-compassion (i.e., compassionately responding to personal suffering) and negative self-compassion (i.e., uncompassionately responding to personal suffering), arguing that the sum score of positive SCS subscales (i.e., self-kindness, mindfulness, and common humanity) and negative SCS subscales (i.e., self-judgment, over-identification, and isolation) should be used separately (Brenner et al., 2017; Halamová et al., 2020). The uniqueness of positive and negative self-compassion has not been adequately investigated due to the lack of differentiation between these two constructs in previous studies. For example, most intervention studies only reported the total SCS score (e.g., Rodgers et al., 2018), largely obscuring the specific intervention outcomes on positive and negative self-compassion.

In summary, future-oriented coping may particularly benefit college students because it addresses the strong future orientation of student life and resolves the developmental task of identity exploration at this early stage of emerging adulthood (Arnett et al., 2014). However, scholars have not adequately investigated interventions promoting future-oriented coping. Although the existing literature has demonstrated the influence of self-compassion on self-improvement and psychological well-being, the ability of a self-compassion intervention to facilitate future-oriented coping remains unclear (Breines & Chen, 2013; Zessin et al., 2015). The effects of group-based self-compassion interventions in Chinese samples require additional examination. Therefore, this study aimed to examine the effects a group-based self-compassion

intervention for future-oriented coping and psychological well-being in Chinese college students with an RCT design. We hypothesized that the group intervention would increase participants' self-compassion and future-oriented coping while reducing psychological distress. Given the previous findings of the contribution of future-oriented coping to psychological well-being (Drummond & Brough, 2016; Vaculíková, 2017), we also hypothesized that future-oriented coping mediated the effects of the self-compassion intervention on psychological distress.

Method

Participants

We recruited participants via online advertisements posted by the research team during the fall semester of 2016. The recruiting scripts introduced the study as testing the efficacy of a group intervention for stress management in college students. The exclusion criteria were (a) taking psychiatric medications, (b) undergoing psychotherapy, and (c) not being a college student.

We conducted a prior power analysis using G*Power (Faul et al., 2007) for a 2 (between-subject factor: intervention group vs. control group) × 3 (within-subject factor: baseline, postintervention test, follow-up test) mixed analysis of variance (mixed ANOVA) and found that detecting a medium main effect of group, main effect of time, and interaction effect required 70, 38, and 38 participants, respectively (Cohen's f = .25, power = 80%, correlation among repeated measures = .30). During the semester, we managed to recruit 69 participants. All participants provided informed consent to participate in the study. We randomly assigned 32 participants to the intervention group and 37 participants to the waitlist-control group. However, three of the control group participants were excluded in the analyses because they completed neither the postintervention nor the follow-up measures, making the valid sample for the control group 34 participants (eight males and 26 females; mean age = 20.88, SD = 2.28) and that of the intervention group 32 participants (11 males and 21 females; mean age = 20.22, SD = 1.64).

Procedure

Participants in both groups completed the baseline measures approximately 1 week before the intervention (T1), the postintervention measures within 1 week after the intervention (T2), and the follow-up measures 4 weeks after the intervention (T3). The waitlist-control group received the intervention after the follow-up test. One participant in the control group did not complete the postintervention measures, and two participants in the intervention group and five participants in the control group did not complete the follow-up measures; these were treated as missing data in the analyses.

Intervention

We developed a 4-week, group-based intervention to teach basic self-compassion skills. This intervention was adapted from Mindfulness-Based Cognitive Therapy (Segal et al., 2018), Compassionate Mind Training (Gilbert & Procter, 2006), and the Mindful Self-Compassion Program (Germer & Neff, 2019). The exercises used in our intervention generally followed the practices of previous self-compassion programs. We made some minor modifications based on the characteristics of Chinese culture, which are presented in the supplementary material with additional detail.

Over the course of the intervention, each group met for 2 hours, once a week, in a group counseling room on the campus. The intervention was co-led by two graduate students in counseling psychology who had an adequate theoretical understanding of self-compassion and practiced mindfulness and self-compassion themselves. The whole intervention process was supervised by a counseling psychologist. Group leaders were not blind to the hypotheses of this study and delivered interventions to both the intervention group and the waitlist-control group. During the intervention, group leaders introduced information about self-compassion and guided participants through a series of practices. Participants were also encouraged to do home practices following the guidelines provided by group leaders.

The first session provided psychoeducation about self-compassion and presented a few practices to improve participants' awareness of stress (e.g., observing body sensations under stress). The second session advanced participants' understanding of self-compassion using exercises that savored the experience accompanied by self-compassion practices (e.g., affectionate breathing meditation). The third session focused on guiding participants to meet stress with self-compassion (e.g., loving-kindness meditation for ourselves). In the last session, participants discussed and reviewed their experience during the intervention with the group and made plans for future self-compassion practice. For more details on the intervention, please see this article's supplementary material.

Measures

Self-compassion The total score from the 26-item SCS was used to indicate a general level of self-compassion (Neff, 2003b). Three positively phrased subscales of SCS (i.e., self-kindness, common humanity, and mindfulness) were collapsed into a score reflecting positive self-compassion (e.g., "I'm kind to myself when I'm experiencing suffering"). The other three negatively phrased subscales (i.e., self-judgment,

isolation, and over-identification) were collapsed into a score for negative self-compassion (e.g., "I'm disapproving and judgmental about my own flaws and inadequacies"). The participants rated their responses on a 5-point Likert scale from 1 (almost never) to 5 (almost always). The Chinese version of this measure was validated in previous studies (Chen et al., 2011). The average internal reliabilities of the positive self-compassion subscale, the negative self-compassion subscale, and the full inventory across the three time points were α = .86, α = .89, and α = .91, respectively.

Future-Oriented Coping The 16-item Future-Oriented Coping Inventory (Gan et al., 2007) includes the Proactive Coping subscale (e.g., "When I experience a problem, I take the initiative in resolving it.") and the Preventive Coping subscale (e.g., "Before disaster strikes I am well-prepared for its consequences."). This Chinese measure was adapted from the item pool of the Proactive Coping Inventory (Greenglass et al., 1999). Participants rated their responses on a 6-point Likert scale from 1 (not at all true) to 6 (completely true). The average internal reliabilities of the Proactive Coping subscale, the Preventive Coping subscale, and the full inventory was α = .87, α = .83, and α = .90, respectively.

Psychological Distress The Depression Anxiety Stress Scale (Henry & Crawford, 2005) includes three subscales of seven items each that measure depression (e.g., "I couldn't seem to experience any positive feeling at all."), anxiety (e.g., "I got worried about situations in which I could have panicked and looked ridiculous."), and stress (e.g., "I found it difficult to calm myself."). Participants rated their responses on a 5-point Likert scale from 1 (not at all true) to 5 (completely true). The Chinese version of this measure was validated in previous studies (Gong et al., 2010). The three subscales demonstrated satisfactory psychometric properties in this study (depression: α = .85; anxiety: α = .81; stress: α = .80).

Data Analyses

Attrition analyses using a *t*-test and a chi-square test were performed to examine differences between the final sample and participants who dropped out and were excluded from later analyses. A *t*-test and a chi-square test were also used to examine the baseline differences between the intervention group and the control group. We used hierarchical linear modeling (HLM) to test the intervention effects because HLM can handle missing data more flexibly (Smith, 2012). HLM treated outcomes as a function of time, group, and the time-by-group interaction in the fixed-effect proportion and considered the random effects of participants in the random-effect proportion. The effect sizes were indicated by Cohen's *d* (.20: small, .50: moderate, .80: large; Cohen, 1988). If the intervention effects on future-oriented coping and psychological distress were significant, the mediation effects of future-oriented coping were tested using the intervention (self-compassion intervention vs. waitlist control), T1-to-T2 residual change in future-oriented coping, and their interaction term to predict the T1-to-T3 residual changes in psychological distress (Kazdin, 2007). A significant main effect or interaction effect would reveal the influence of future-oriented coping on depression and stress, and support its mediating role (Kraemer et al., 2002). HLM was conducted with lme4, lmerTest, EMAtools, and Parameters packages in R. Other analyses were performed using SPSS 21.0. All data from this study are available at the Open Science Framework (https://osf.io/u5t3d/).

Results

Attrition analyses revealed no significant differences in demographic characteristics (i.e., sex, age) or study variables between the final sample and the participants who dropped out of the study. There were no significant baseline differences between the intervention group and the control group in demographic characteristics or study variables. Analyses also showed that demographic characteristics were not significantly correlated with any studied variables at any timepoint. Consequently, these characteristics were not included in subsequent analyses. Table 1 displays the descriptive statistics of the study variables for the two groups at each timepoint. The results showed that desired outcomes, including self-compassion, positive self-compassion, future-oriented coping, proactive coping, and preventive coping, increased across timepoints in the intervention group but not in the control group. Undesired outcomes, including negative self-compassion, depression, anxiety, and stress, decreased across timepoints in the intervention group but not in the control group.

Table 2 displays the HLM results. As shown, the time-by-group interaction terms for all study variables except anxiety were significant. In particular, the slopes of the interaction terms for self-compassion (B = 7.12, 95% CI [4.57, 9.68], d = 0.98, p < .001), future-oriented coping (B = 3.00 [1.49, 4.50], d = 0.71, p < .001), positive self-compassion (B = 3.62 [2.28, 4.97], d = 0.96, p < .001), proactive coping (B = 1.92 [0.90, 2.94], d = 0.66, p < .001), and preventive coping (B = 1.08 [0.27, 1.88], d = 0.47, p = .009) were positive, suggesting that the participants in the intervention group experienced increases in these variables compared to those in the control group. In contrast, the slopes of the interaction terms for negative self-compassion (B = −3.36 [−5.11, −1.61], d = −0.67, p < .001), depression (B = −2.61 [−3.79, −1.44], d = −0.78, p < .001), and stress (B = −1.36 [−2.46, −0.26], d = −0.44, p = .015) were negative, indicating that participants in the intervention group had a larger decrease in these variables

Table 1 Means and standard deviations of study variables

Variable	Intervention group			Control group		
	T1	T2	T3	T1	T2	T3
Self-compassion	80.59 (12.09)	89.28 (14.31)	92.57 (13.50)	77.38 (13.00)	75.64 (10.77)	74.83 (12.35)
Positive self-compassion	45.75 (5.06)	50.03 (6.25)	52.53 (6.18)	44.58 (7.30)	44.67 (6.88)	44.31 (6.54)
Negative self-compassion	43.16 (9.01)	38.75 (10.15)	37.97 (9.04)	45.29 (7.55)	47.03 (5.39)	47.17 (8.62)
Future-oriented coping	68.38 (10.73)	72.13 (10.56)	74.90 (9.88)	69.41 (11.42)	69.39 (12.15)	70.21 (11.68)
Proactive coping	31.97 (6.00)	34.94 (5.95)	36.40 (5.43)	33.18 (6.44)	33.12 (6.91)	33.76 (6.57)
Preventive coping	36.41 (5.54)	37.19 (5.52)	38.50 (5.10)	36.24 (5.70)	36.27 (6.17)	36.45 (6.26)
Depression	16.34 (6.14)	14.34 (6.30)	13.80 (5.44)	15.21 (5.31)	17.55 (5.41)	18.10 (6.13)
Anxiety	17.72 (6.95)	16.19 (5.98)	15.63 (6.18)	18.56 (4.39)	18.42 (4.60)	18.03 (5.05)
Stress	20.47 (6.84)	18.81 (5.96)	17.57 (6.34)	21.62 (5.25)	21.97 (3.97)	21.66 (5.02)

Note. Standard deviations are presented in parentheses. T1 = baseline, T2 = post-intervention test, T3 = follow-up test

relative to those in the control group. The interaction terms for anxiety were not significant (B = −0.73 [−1.79, 0.34], d = −0.24, p = .181).

The significant intervention effects on future-oriented coping, depression, and stress fulfilled the prerequisites for mediation analyses for the intervention. Therefore, we performed mediation analyses for the intervention effects for depression and stress. The results showed that the main effects of future-oriented coping on depression (β = −.32, p = .011, ΔR^2 = .09) and stress (β = −.33, p = .012, ΔR^2 = .10) were significant. In particular, the main effects of proactive coping were significant (depression: β = −.48, p < .001, ΔR^2 = .19; stress: β = −.39, p = .004, ΔR^2 = .13). However, the main effects of preventive coping were not significant (depression: β = .01, p = .958, ΔR^2 < .01; stress: β = −.13, p = .300, ΔR^2 = .02). None of the interaction effects between the intervention and future-oriented coping (including proactive and preventive coping) was significant. These results suggest that the enhancement of future-oriented coping (specifically, increased proactive coping) had therapeutic effects on depression and stress through this self-compassion intervention.

Discussion

This study sought to examine the contribution of self-compassion to future-oriented coping. It investigated whether a self-compassion group intervention could improve college

Table 2 Results of HLM analysis of study variables

Effect	B	95% CI	*SE*	*d*	B	95% CI	*SE*	*d*	B	95% CI	*SE*	*d*
	Self-compassion				Positive self-compassion				Negative self-compassion			
Intercept	78.56**	[73.38, 83.74]	2.64		44.67**	[42.56, 46.78]	1.08		45.62**	[42.87, 48.37]	1.40	
Time	−1.47	[−3.28, 0.34]	0.92	−0.29	−0.30	[−1.25, 0.66]	0.49	−0.11	1.03	[−0.21, 2.26]	0.63	0.29
Group	−2.61	[−10.02, 4.80]	3.78	0.31	1.40	[−1.62, 4.43]	1.54	0.19	−3.15	[−7.09, 0.79]	2.01	−0.32
Time by group	7.12**	[4.57, 9.68]	1.31	0.98	3.62**	[2.28, 4.97]	0.69	0.96	−3.36**	[−5.11, −1.61]	0.89	−0.67
	Future-oriented coping				Proactive coping				Preventive coping			
Intercept	69.25**	[65.18, 73.33]	2.08		32.91**	[30.52, 35.30]	1.22		36.33**	[34.22, 38.44]	1.08	
Time	0.11	[−0.96, 1.17]	0.54	0.04	0.16	[-.56, 0.89]	0.37	0.02	−0.05	[−0.62, 0.52]	0.29	−0.03
Group	−3.77	[−9.60, 2.07]	2.98	−0.07	−2.73	[−6.16, 0.69]	1.75	−0.12	−1.03	[−4.06, 1.99]	1.54	0.01
Time by group	3.00**	[1.49, 4.50]	0.77	0.71	1.92**	[0.90, 2.94]	0.52	0.66	1.08**	[0.27, 1.88]	0.41	0.47
	Depression				Anxiety				Stress			
Intercept	14.17**	[11.80, 16.54]	1.21		18.87**	[16.64, 21.10]	1.14		21.71**	[19.45, 23.98]	1.15	
Time	1.43**	[0.60, 2.27]	0.43	0.60	−0.21	[−0.96, 0.55]	0.38	−0.09	0.07	[−0.71, 0.85]	0.40	0.03
Group	3.08†	[-.31, 6.47]	1.73	0.07	−0.42	[−3.61, 2.78]	1.63	−0.18	−0.07	[−3.30, 3.17]	1.65	−0.22
Time by group	−2.61**	[−3.79, −1.44]	0.60	−0.78	−0.73	[−1.79, 0.34]	0.54	−0.24	−1.36*	[−2.46, −0.26]	0.56	−0.44

Note. [a] 0 = T1, 1 = T2, 2 = T3; [b] 0 = control group, 1 = intervention group; *CI* confidence interval

† p < .10, * p < .05, ** p < .01

students' future-oriented coping with an RCT design. It also sought to examine whether future-oriented coping had a mediating role on the intervention's effects on psychological distress. The results showed that the self-compassion intervention significantly enhanced future-oriented coping (including proactive and preventive coping) while reducing depression and stress. Moreover, the enhancement of future-oriented coping, particularly proactive coping, mediated the intervention effects on depression and stress.

Although the existing literature emphasized the role of self-compassion in adjusting to ongoing stressors (e.g., chronic disease; Allen & Leary, 2010; Sirois et al., 2015), this study extends the previous research by demonstrating the benefits of self-compassion in coping with future stressors. Our findings highlight the positive effects of a self-compassion intervention to equip participants with better coping capacities for future events. As such, training self-compassion can be an applicable strategy for building strength and resilience.

Consistent with the extensive literature on the protective effects and intervention effects of self-compassion (Ferrari et al., 2019; Neff et al., 2018), this study found that the self-compassion intervention reduced participants' depression and stress. Additionally, the study identified proactive coping, but not preventive coping, as a mediator of intervention effects, providing new evidence for the mechanism through which self-compassion interventions work. The reason for this distinction may be that proactive coping focuses on strengthening general resources to prepare for challenges. Consequently, changes in proactive coping following a self-compassion intervention may bring immediate enhancement to participants' sense of worth and well-being as their general resources increase (Schwarzer & Taubert, 2002). However, because preventive coping aims at preparing for possible stressful events to prevent maladaptive consequences, the related changes may not initiate an instant increase in well-being following the intervention, at least until the events or consequences occur and are subsequently prevented (Aspinwall, 2005). Our findings correspond with previous evidence regarding the benefits of proactive coping (Drummond & Brough, 2016). This study also addresses the lack of investigations into the mechanisms of self-compassion interventions in previous studies (Ferrari et al., 2019). The role of proactive coping might be particularly salient in the current sample of college students because of the strong future orientation toward life tasks in this population (e.g., studying, hunting for jobs). Future research should validate such mediating effects in other populations, especially in those with upcoming life transitions (e.g., couples expecting babies).

Our findings also extend the previous literature (e.g., Dundas et al., 2017) on self-compassion by establishing the effectiveness of a self-compassion-oriented group intervention in a sample of Chinese college students. This study addresses the lack of RCT evidence about the effects of group-based self-compassion interventions in a Chinese context and replicates the uncontrolled pilot findings on effects of the Mindful Self-Compassion Program in China (Finlay-Jones et al., 2018). Previous studies have suggested that Chinese individuals might be less inclined to advocate for self-compassion because of Confucianism, a crucial component of Chinese culture. This philosophy, which considers moral perfection to be the ultimate life goal, posits remarkably high behavioral standards and encourages self-criticism (Neff et al., 2008; Tang, 1991). It also values shame as a means to perfection and as a way to motivate people to correct their mistakes (Geaney, 2004; Neff et al., 2008). These characteristics contrast sharply with the warm, accepting attitude of self-compassion. However, Chinese culture was also shaped by Buddhism and Daoism. The former attaches great importance to compassion, whereas the latter emphasizes that gain and loss are both part of the endless cosmic change and thus are an inevitable part of life (Ho, 1995). These notions may facilitate an accepting attitude toward human suffering, which is the essence of self-compassion. Our findings confirmed that although Chinese culture might hold a complex attitude toward self-compassion due to variations in its philosophical origins, a self-compassion intervention showed promising effects in Chinese college students. Interestingly, a previous study found no significant improvement in self-compassion after an individual intervention using self-compassion writing among Chinese college students (Wong & Mak, 2016). Together with the meta-analysis results showing that group-based delivery produced a larger effect on self-compassion (Ferrari et al., 2019), these findings suggest that a group-based intervention may be a more robust strategy for training self-compassion, especially in cultures with a strong collectivistic orientation, such as Chinese culture.

This 4-week group intervention led to an increase in self-compassion with a large effect size, comparable to the general effect sizes of existing group-based self-compassion interventions (Ferrari et al., 2019). This relatively short intervention tried to cover all conceptual components of self-compassion by selecting body scan, affectionate breathing, and loving-kindness meditation from longer programs as core meditations (Germer & Neff, 2019; Gilbert, 2009; Segal et al., 2018). While existing short programs varied in the selection of intervention components and practices, some of them (e.g., Dundas et al., 2017; Smeets et al., 2014), including ours, generated comparable effects to those of the longer programs (Ferrari et al., 2019). Future studies could explore other effective combinations of intervention components to develop short self-compassion programs.

Limitations and Future Research

This study has several limitations. First, the study used a waitlist-control group instead of an active control group. Such a design fails to control for placebo effects. Second, this study was underpowered for HLM (128 participants were

required for Cohen's d = 0.5 and power = 80%) because a priori sample size estimation was conducted based on a mixed ANOVA. Third, the long-term maintenance of the intervention effects remains unknown because the study only followed participants for 1 month after the intervention. Future studies should extend the current preliminary findings to a larger sample of participants with a longer follow-up design. Fourth, measurement of future-oriented coping in this study assessed self-report of coping with future stressors. Whether such self-perception reflects actual coping is unclear. Future studies can consider using measures to assess more specific future-oriented coping activities (e.g., job applications for final-year students).

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s12671-021-01614-8.

Author Contribution JH: designed the study, analyzed the data, and wrote the paper. KL: designed and executed the study, assisted with the data analyses. LF: collaborated with the design. SQ: collaborated in writing the paper. YW: supervised the whole study and collaborated in writing and editing the paper. All authors approved the final version of the manuscript for submission.

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Declarations

Ethics Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the Institutional Review Board of Department of Psychology, Sun Yat-sen University (201703030039) 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.

Conflict of Interest The authors declare no competing interests.

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