



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



# Self-compassion and life-satisfaction among Chinese self-quarantined residents during COVID-19 pandemic: A moderated mediation model of positive coping and gender



Angyang Li<sup>a</sup>, Shuo Wang<sup>b</sup>, Minmin Cai<sup>c</sup>, Ruiqi Sun<sup>c</sup>, Xiangping Liu<sup>a,\*</sup>

<sup>a</sup> Faculty of Psychology, Beijing Key Laboratory of Applied Experimental Psychology, Beijing Normal University, China

<sup>b</sup> Faculty of Education, Beijing Normal University, China

<sup>c</sup> Faculty of Psychology, Beijing Normal University, China

## ARTICLE INFO

### Keywords:

COVID-19 pandemic  
Self-compassion  
Life-satisfaction  
Positive coping  
Gender  
Chinese self-quarantined residents

## ABSTRACT

Concern for the psychological health of people affected by the COVID-19 pandemic is necessary. Previous studies suggested that self-compassion contributes to life-satisfaction. However, little is known about the mechanism underlying this relation. This study investigated the relationship between self-compassion and life-satisfaction among Chinese self-quarantined residents during the COVID-19 pandemic. Furthermore, we examined the mediating effect of positive coping and the moderating role of gender in this relation. Participants consist of 337 self-quarantined residents (129 men, 208 women) from a community in China, who completed measures of demographic information, Self-Compassion Scale, Satisfaction with Life Scale, and Simplified Coping Style Questionnaire. The results revealed that self-compassion was positively linked with life-satisfaction. Moreover, positive coping partially mediated the relationship between self-compassion and life-satisfaction for males and not females. In the female group, self-compassion was positively linked with positive coping and life-satisfaction; however, positive coping and life-satisfaction were not significantly linked. These findings indicated that intervention focus on self-compassion could increase life-satisfaction in self-quarantined people during the COVID-19, and self-compassion may contribute to life-satisfaction via positive coping only in the male.

## 1. Introduction

The COVID-19 pandemic has led to various negative impacts on people's physical and mental health, such as physical sickness, fear, stress, and anxiety (Fullana et al., 2020; Mann et al., 2020; Trzebiński et al., 2020). In China, the most populated country, the Infectious Disease Prevention Act (IDPA) and the National Health Commission's (NHC) strict quarantine regulation (2020) have been implemented to contain the virus. Specifically, if community members were exposed to COVID-19, a community lockdown is required, and all residents in the community must undergo 14-day home quarantine. Although the measures are conducive to prevent the spreading of coronavirus, people's psychological health and well-being (e.g., life-satisfaction) may be threatened. A systematic review has suggested that people in quarantine suffer from the fear of being infected, the anxiety of isolation, and stigma, which may destroy their life-satisfaction (Brooks et al., 2020). Thus, it is urgent to strengthen the life-satisfaction of self-quarantined people in the COVID-19.

Life-satisfaction refers to the subjective evaluation of current life quality, which is an essential indicator of psychological health and well-being (Diener et al., 1985). Numerous studies indicated that self-compassion is significant and positively linked with life-satisfaction (Jennings & Tan, 2014; Kim & Ko, 2018; Neff et al., 2008; Yang et al., 2016). That is, people with a high level of self-compassion may achieve higher life-satisfaction. However, this relationship has not been tested among the self-quarantined people during the pandemic. Moreover, the mediating and moderating mechanisms between self-compassion and life-satisfaction remain unclear. Therefore, this study replicated the association between self-compassion and life-satisfaction by using the sample of self-quarantined residents during the COVID-19 pandemic. Furthermore, we examined the mediating effect of positive coping and the moderating effect of gender in this relation.

### 1.1. Self-compassion and life-satisfaction

Self-compassion refers to being kind and caring about oneself when

\* Corresponding author at: Room 1512, Houzhu Building, Beijing Normal University, No.19 Xijiekouwai Street, Haidian, Beijing, China.

E-mail address: [201831061047@mail.bnu.edu.cn](mailto:201831061047@mail.bnu.edu.cn) (X. Liu).

<https://doi.org/10.1016/j.paid.2020.110457>

Received 3 August 2020; Received in revised form 4 October 2020; Accepted 11 October 2020

Available online 21 October 2020

0191-8869/© 2020 Published by Elsevier Ltd.

facing hardships (Neff, 2003). Specifically, people with a high level of self-compassion are self-kind to themselves instead of self-judgment and criticism. Furthermore, they perceive a sense of common humanity that suffering is not personal but universal. Additionally, they are mindful of the present experience without over-identification (Neff, 2003). From the positive psychological perspective and the key resource theory (KRT), as a personal character, self-compassion is an individual's internal positive strength and resources, which is an important determinant of subjective well-being and life-satisfaction (Seligman, 2002; Thoits, 1994).

Empirical studies supported that self-compassion is positively related to life-satisfaction across ages and Western and Eastern cultures (Jennings & Tan, 2014; Kim & Ko, 2018; Neff et al., 2008; Yang et al., 2016). For instance, a study demonstrated a positive link between self-compassion and life-satisfaction in Chinese adults (Yang et al., 2016). Self-compassion was found to enhance life satisfaction among 203 older adults aged over 65 in Korea (Kim & Ko, 2018). Meta-analyses further revealed that self-compassion improves life-satisfaction (Macbeth & Gumley, 2012; Muris & Petrocchi, 2017; Zessin et al., 2015). People with higher self-compassion could generate positive psychological resources, which could improve their life-satisfaction during the quarantine period (Gunnell et al., 2017; Ryan & Deci, 2017). Therefore, based on previous evidence, we hypothesized that self-compassion is positively related to life-satisfaction in self-quarantined people.

### 1.2. Positive coping as a mediator

Coping is defined as purposeful adjustment and response to stress (Carver et al., 1989). Positive coping, also known as problem-focused coping, refers to directly solving pressure-related problems in stressful situations rather than avoiding and distancing (Folkman & Lazarus, 1984; Xie, 1998). Positive coping involves a set of strategies, such as seeking emotional support and striving for change. These strategies are either helpful (adaptive) or helpless (inadaptive). Fullana et al. (2020) recently displayed that people with high-level positive coping may use such as recognize self-quarantine as a chance to rest, develop hobbies, communicate with friends, and seek support from the health cares to deal with the COVID-19-relevant issues. These positive coping strategies have always been associated with better psychological outcomes (e.g., higher life-satisfaction; Hamarat et al., 2001; Li et al., 2016). The adaptive calibration model (ACM) proposes that people with positive coping will adapt to the stressful environment faster and better, thus improving psychological health and well-being, such as life-satisfaction (Del Giudice et al., 2011).

Furthermore, the transactional model of stress (TMS; Carver & Connor-Smith, 2010) believes that personality characters (e.g., self-compassion) are related to the choice of coping strategies (Bolger, 1990; Folkman & Lazarus, 1984). As mentioned above, self-compassion, as a positive character, could provide psychological resources for self-quarantined residents to cope with isolation-related problems directly (Allen & Leary, 2010). The general strain theory (GST; Agnew, 1992) also pointed out that under the stressful events, personality characters (i.e., self-compassion) influence the outcomes of adaptation (i.e., life-satisfaction) through positive coping. Using the ACM, TMS, and GST as the theoretical frameworks, we assumed that positive coping might mediate the association between self-compassion and life-satisfaction among self-quarantined residents.

Consistent with the theoretical standpoints above, multiple empirical studies supported that self-compassion is linked with positive coping (Allen & Leary, 2010; Leary et al., 2007; Ştefan, 2019; Thompson & Waltz, 2008). For instance, students with high self-compassion might take positive coping strategies to relieve stress when faced with academic failure (Neff et al., 2005). Similarly, an empirical study suggested that individuals with high self-compassion promote the recovery of traumatic events by accepting reality (Thompson & Waltz, 2008). Furthermore, several studies have indicated that positive coping

enhances people's life-satisfaction (Hamarat et al., 2001; Li et al., 2016). For instance, Li et al. (2016) found that positive coping improves college students' and employees' life-satisfaction. Therefore, this research hypothesized that positive coping could mediate the linkage between self-compassion and life-satisfaction.

### 1.3. Gender as a moderator

Although self-compassion might be related to life-satisfaction via positive coping, not all people with positive coping could effectively improve their life-satisfaction (Del Giudice et al., 2011). Thus, it is necessary to explore the factors that could weaken the strength of the association of positive coping and life-satisfaction. Social role theory (SRT) proposes that each gender benefit differently from positive coping in stressful situations (Eagly & Wood, 2012). That is, individuals' internalized gender stereotypes may result in different consequences in coping with stressful events (Howerton & Van Gundy, 2009). Inspired by the SRT, this study examined whether gender moderates the relationship between positive coping and life-satisfaction among self-quarantined residents.

According to SRT, influenced by social norms, males and females may generate different psychological expectations and behaviors (Eagly & Wood, 2012). Specifically, males tend to show more optimistic, active, and take responsibility in adversity (e.g., self-quarantine in the pandemic). By contrast, females are more likely to be emotional, rely on others, and hold negative expectations when encountering difficulties (Basow & Rubenfeld, 2003; Broderick & Korteland, 2002). Moreover, some studies have demonstrated that individuals with positive goals can overcome difficulties more effectively than those with less positive goals (e.g., Gaudreau et al., 2002). Consistent with the SRT, an empirical study found gender differences in coping with the COVID-19, with females use more emotional and less effective coping (Hennekam & Shymko, 2020). Another empirical study investigated 2816 adults from 18 to 65 years old and found that males tend to be more effective in solving stress life events and perceive a lower sense of stress than females (Matud, 2004). Based on SRT and empirical evidence, this study assumed that gender might moderate the relationship between positive coping and life-satisfaction.

### 1.4. Research question and hypothesis

The current study aimed to examine the mediating role of positive coping and the moderating role of gender between self-compassion and life-satisfaction in self-quarantined people during the COVID-19 pandemic. Based on the above literature review, this study proposed three hypotheses. (1) Self-compassion is positively related to life-satisfaction among self-quarantined residents. (2) Positive coping mediates the relationship between self-compassion and life-satisfaction. Self-compassion is positively related to positive coping, which in turn positively relates to life-satisfaction. (3) Gender moderates the relationship between positive coping and life-satisfaction (Fig. 1).

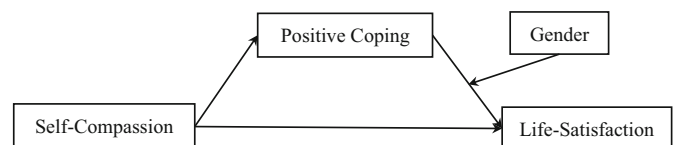


Fig. 1. Proposed moderated mediation model.

Note. This figure illustrates the proposed model of the current study. Self-compassion relates to life-satisfaction via positive coping. Gender moderates the relationship between positive coping and life-satisfaction.

**Table 1**  
Demographic characteristic of the participants ( $n = 337$ ).

Variables	N	%
<b>Gender</b>		
Female	208	62.7
Male	129	38.2
<b>Age</b>		
18–25	6	1.8
26–30	11	3.3
31–40	129	38.3
41–50	112	33.2
51–60	68	20.2
≥ 60	11	3.3
<b>Occupation</b>		
Students	7	2.1
Teacher	43	12.8
Human resource	24	7.1
Production worker	25	7.4
Customer service	3	0.9
Salesman	14	4.2
Professional employee	11	3.3
Technical employee	2	0.6
Officer	4	1.2
Support crew	10	3.0
Manager	3	0.9
Others	191	56.7
<b>Subjective economic status</b>		
Very low	5	1.50
Low	111	32.90
Medium	182	54.00
High	39	11.60
<b>Attention-degree of COVID-19 epidemic situation</b>		
Never	1	0.30
Rarely	27	8.0
Often	166	49.3
Always	143	42.4

## 2. Method

### 2.1. Participants and procedures

The convenient sampling method was used in the current study. Participants were recruited through WeChat talking group (a message communication application in China) with community workers' help. Three hundred fifty-five quarantined residents were collected in a community with COVID-19 infections in Liaoning Province, China, on March 13th 2020. These residents in this community were self-quarantined from March 2nd to 16th. After eliminating the 18 invalid responses, the final valid data was 337 cases (129 men, 208 women). [Table 1](#) shows the demographic characteristics of the participants.

Before data collection, we calculated the minimum sample size through G-power 3.1. Previous studies have found that the correlation coefficient between self-compassion and life-satisfaction was about 0.47 ([Booker & Dunsmore, 2019](#)). Thus, when we set  $\alpha = 0.05$  (two-tailed),  $1-\beta = 0.80$ , the minimum sample size was 155. This study takes 155 as the minimum number of participants and collects as much data as possible to ensure reliability.

During the data-gathering phase, we recruited quarantined residents with the help of community workers. We obtained informed consent from all the quarantined residents and explained the requirements to all participants with standard instructions. The authenticity, independence, and integrity of the answers were also emphasized. Participants completed the online questionnaires ([www.sojump.com](http://www.sojump.com)). After filling out the questionnaires, they acquired 2 RMB online as a reward. The authors' university ethics committee approved the current research.

### 2.2. Measures

#### 2.2.1. Demographics

In this study, demographics included gender, age, occupation, subjective economic status (SES), and attention degree (AD) of COVID-19 the pandemic situation. Explicitly, gender was set as dummy variables (male = 0, female = 1). SES was assessed by an item of "What do you think of your economic situation?" This item is scored from 1 (Very Low) to 5 (Very High). AD of the COVID-19 pandemic situation was measured by an item of "What is your attention degree towards the COVID-19 situation?" This item is scored from 0 (Never) to 3 (Always). Previous findings indicated that the demographic variables mentioned above might link with the current main variables ([Mann et al., 2020](#); [Yuan et al., 2009](#)). Thus, age, occupation, SES, and AD were controlled as covariables in the data analysis process.

#### 2.2.2. Positive coping

Positive coping was measured by the Simplified Coping Style Questionnaire (SCSQ; [Xie, 1998](#)). We used the subscale of positive coping in SCSQ. The subscale has 12 items, such as "I try to find the positive side of negative events," "I develop hobbies, such as entertainment and sports activities," "I talk to people about my worries." Participants were asked to respond to how often they used the positive coping strategies in self-quarantine during the COVID-19 pandemic on a 4-point scale, ranging from 0 (Never) to 3 (Very Often). The higher mean score of positive coping representing the higher frequency of positive coping. Previous studies indicated the Cronbach's  $\alpha$  coefficient of the positive coping subscale of SCSQ ranged from 0.79–0.89 ([Li et al., 2016](#); [Li et al., 2020](#)). The Cronbach's  $\alpha$  of positive coping in this study was 0.83. Confirmatory factor analysis (CFA) of the SCSQ showed that it fitted well ( $\chi^2/df = 3.18$ , CFI = 0.91, TLI = 0.90, SRMR = 0.05, RMSEA = 0.08, 90% C.I. = [0.06, 0.09]). These results suggested that this scale is a reliable measurement.

#### 2.2.3. Self-compassion

The self-compassion was assessed by the Self-Compassion Scale (SCS; [Tang, 2015](#)). The scale has 16 items. It consists of three subscales, including *Self-kindness* (e.g., "I often do things that make me happy."), the *Sense of Common Humanity* (e.g., "I am not the only one who has been treated unfairly."), and *Mindfulness* (e.g., "I can concentrate well."). Participants responded on a 5-point scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The final score of SCS was the mean of the 16 items scores, with higher scores reflecting higher self-compassion. The Cronbach's  $\alpha$  coefficient of SCS ranging from 0.85 to 0.89 in previous studies ([Tang, 2015](#); [Tang, 2017](#)). The Cronbach's  $\alpha$  of SCS in the present study was 0.90. CFA of SCS showed that the model fitted well ( $\chi^2/df = 3.63$ , CFI = 0.90, TLI = 0.89, SRMR = 0.05, RMSEA = 0.08, 90% C.I. = [0.068, 0.089]). These findings indicated that the scale has good reliability and validity.

#### 2.2.4. Life-satisfaction

The Satisfaction with Life Scale (SWLS) was used to measure participants' life-satisfaction ([Diener et al., 1985](#); [Xiong & Xu, 2009](#)). The SWLS consists of 5 items (e.g., "If I could live my life over, I would change almost nothing"). Participants responded on a 7-point scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). The higher the mean score indicating the higher level of life-satisfaction. In previous studies, the Cronbach's  $\alpha$  coefficient of SWLS, ranging from 0.83 to 0.86 ([Shao et al., 2020](#); [Shen & Zhang, 2020](#)). The Cronbach's  $\alpha$  of the SWLS in the study was 0.85. CFA of SWLS suggested that the model fitted well ( $\chi^2/df = 5.8$ , CFI = 0.97, TLI = 0.93, SRMR = 0.03, RMSEA = 0.09, 90% C.I. = [0.05, 0.12]). These results indicated that this scale is reliable and has good validity and reliability.

### 2.3. Data analysis

SPSS 21.0 and PROCESS version 3.0 ([www.afhayes.com](http://www.afhayes.com)) were performed to analyze data (Hayes, 2013). The first step was data screening. Data distribution and multicollinearity tests showed that the coefficient of kurtosis and skewness of the main variables were smaller than  $|\pm 2|$ , indicating that the variables were in line with the normal distribution (Curran et al., 1996). The variance inflation factor (VIF) of self-compassion and positive coping was smaller than 5, reflecting no severe multicollinearity (Liu, 2019). The predictors were mean-centered to minimize multicollinearity for examining the moderated mediation model. Additionally, Harman's single factor test suggested that a total of 13 characteristic roots were bigger than 1. The maximum factor variance interpretation rate was 23.27% (lower than the critical value of 40%), indicating that common method biases were insignificant (Harman, 1967). To further test the common method bias, we recruited single-factor CFA (Podsakoff et al., 2003). The results showed that the fit index is not good ( $\chi^2/df = 10.32$ , CFI = 0.20, TLI = 0.10, RMSEA = 0.15, SMRM = 0.23), suggesting that the common method bias in this study is not significant, indicating the validity of the statistical analysis results is not affected. The second step was data analysis. Descriptive statistics, difference comparisons, and Pearson correlation analysis were calculated through SPSS 21.0. Model 4 and Model 14 of PROCESS version 3.0 were performed to examine the mediating effect and moderated mediating effects. According to Cohen's (1992), Pearson correlation or  $\beta$  coefficient around 0.10 indicated a minimum effect size, near 0.30 meant a moderate effect, and higher 0.50 reflected a strong effect.

### 3. Results

#### 3.1. Preliminary analyses

An independent-sample *t*-test was performed to explore the gender differences in self-compassion, positive coping, and life-satisfaction. Table 2 presents that gender difference in positive coping was statistically significant. The female's positive coping score was higher than the male ( $t = -3.81$ ,  $p < .001$ , Cohen's  $d = 0.443$ ). Further, the independent-sample *t*-test was used to analyze each item's gender differences in the Simplified Coping Style Questionnaire (SCSQ). The results indicated that the gender differences of item 2 ("Talking to people and sharing inner troubles") were statistically significant. The score in female ( $M = 2.86$ ,  $SD = 1.11$ ) was significantly higher than that in male ( $M = 2.59$ ,  $SD = 1.01$ ;  $t = 2.07$ ,  $p = .03$ , Cohen's  $d = 0.26$ ).

Additionally, the Pearson correlations are shown in Table 3. The results indicated that self-compassion was significant and positive related to positive coping and life-satisfaction and positive coping significantly and positively associated with life-satisfaction ( $r_s > 0.20$ ,  $p_s < .001$ ).

#### 3.2. Testing the mediating role of positive coping

As shown in Table 4, after controlling for the age, occupation, SES, AD of COVID-19 pandemic situation, a positive and strong relationship was found between self-compassion and life-satisfaction ( $\beta = 0.61$ ,

**Table 2**  
Results of independent-sample *t*-test in different gender among variables ( $n = 337$ ).

<i>M</i>	<i>SD</i>	Male ( $n = 129$ ) ( $M \pm SD$ )	Female ( $n = 208$ ) ( $M \pm SD$ )	<i>t</i>	<i>P</i>	Cohen's <i>d</i>
3.97	0.57	3.99 $\pm$ 0.53	3.94 $\pm$ 0.63	0.66	0.507	0.086
1.65	0.61	1.51 $\pm$ 0.67	1.78 $\pm$ 0.55	-3.81	< 0.001	0.443
4.43	1.22	4.46 $\pm$ 1.28	4.40 $\pm$ 1.22	0.49	0.63	0.048

$SE = 0.10$ ,  $p < .001$ ). A positive and medium association was found between self-compassion and positive coping ( $\beta = 0.24$ ,  $SE = 0.06$ ,  $p < .001$ ). However, the correlation between positive coping and life-satisfaction was not significant ( $\beta = 0.08$ ,  $SE = 0.05$ ,  $p = .06$ ). The indirect effect of self-compassion on life-satisfaction was not significant ( $\beta = 0.04$ , 95% CI =  $[-0.02, 0.11]$ ).

#### 3.3. Testing of the moderated mediation model

According to the Model 14 (see Table 4), the interaction of positive coping and gender was positively related to life-satisfaction, and the effect size was moderate ( $\beta = -0.41$ ,  $SE = 0.17$ ,  $p = .01$ ). This result indicated that gender moderated the relationship between positive coping and life-satisfaction. Furthermore, simple slope analysis (see Fig. 2) displayed that positive coping was positively related to life-satisfaction in males ( $\beta_{simple} = 0.54$ ,  $t = 3.48$ ,  $p < .001$ ). However, for the female group, positive coping was not significantly linked with life-satisfaction ( $\beta_{simple} = -0.12$ ,  $t = -0.76$ ,  $p = .45$ ).

Additionally, the bootstraps (5000 times) analysis showed that the mediating effect was moderated by gender (see Table 4). Specifically, in the male group, positive coping mediated the relationship between self-compassion and life-satisfaction with the small indirect effect size ( $\beta = 0.15$ , 95% CI =  $[0.05, 0.24]$ ). By contrast, in female group, the indirect effect was not significant ( $\beta = -0.07$ , 95% CI =  $[-0.15, 0.02]$ ).

### 4. Discussion

In the context of the strictest quarantine measures of the COVID-19 in China, this study investigated the relationship between self-compassion and life-satisfaction among quarantined residents during the 14-day self-isolation period. It further examined the mediating effect of positive coping and the moderating role of gender in the relationship between self-compassion and life-satisfaction. The findings may advance the understanding of how self-compassion links with life-satisfaction in the self-quarantine period and further offer empirical evidence for the intervention of enhancing life-satisfaction of quarantined people in the COVID-19 pandemic.

#### 4.1. Self-compassion and life-satisfaction

Self-compassion was positively linked with life-satisfaction, which was consistent with Hypothesis 1, KRT, and previous studies (Jennings & Tan, 2014; Kim & Ko, 2018; Seligman, 2002; Thoits, 1994; Wei et al., 2011; Yang et al., 2016). This finding indicated that self-compassion, as a positive character, could provide psychological resources for individuals in adversity to improve life-satisfaction (Seligman, 2002; Thoits, 1994). Furthermore, following the concept of self-compassion, individuals with higher self-compassion may generate more self-kindness and warmth during the quarantine period (Neff, 2003; Soysa & Wilcomb, 2015). Moreover, their sense of common humanity (i.e., a component of self-compassion) may lead them to treat pandemic and self-quarantine as a universal event rather than personal misfortune. They may also tend to accept the self-isolation issue without emotional over-involvement. Thus, self-quarantined residents with a high level of self-compassion were more likely to possess higher life-satisfaction.

#### 4.2. The mediating role of positive coping

The results showed that self-compassion was positively related to positive coping and life-satisfaction. These findings were consistent with TMS, a theory that believes that personality characters (e.g., self-compassion) are positively linked with positive coping (Bolger, 1990; Carver & Connor-Smith, 2010; Folkman & Lazarus, 1984). However, the association between positive coping and life-satisfaction was non-significant. We further found that positive coping mediated the

**Table 3**  
Pearson correlations among variables (n = 337).

	1	2	3	4	5	6	7	8
1. LS	–							
2. PC	0.21***	–						
3. SC	0.43***	0.29***	–					
4. Gender	0.05	0.02	–0.03	–				
5. Age	0.11*	0.13*	0.08	0.04	–			
6. Occupation	0.03	–0.01	0.10	0.17**	0.54***	–		
7. SES	0.09	0.28***	0.23**	–0.12*	0.00	–0.10	–	
8. AD	0.15**	0.31***	0.23***	–0.09	0.19**	0.04	0.49***	–

Notes. SC = self-compassion, PC = positive coping, LS = life-satisfaction, AD = attention-degree of COVID-19: 0 = never, 1 = rarely, 2 = often, 3 = always, SES = subjective economic status: very low = 1, low = 2, medium = 3, high = 4, very high = 5, gender: male = 0; female = 1.

\*  $p < .05$ (two-tailed).  
 \*\*  $p < .01$ (two-tailed).  
 \*\*\*  $p < .001$ (two-tailed).

relationship between self-compassion and life-satisfaction in male residents. However, in the female group, it is found that self-compassion was positively related to positive coping and life-satisfaction, and the mediating effect was non-significant. These results were partially consistent with *Hypothesis 2* and GST (Agnew, 1992). The GST suggested that under stressful events, personality characters (i.e., self-compassion) would influence adaptation outcomes (i.e., life-satisfaction) through positive coping. This study only verified this theory in the male residents in quarantine.

4.3. The moderating role of gender

Our findings demonstrated the moderating role of gender between positive coping and life-satisfaction, which supported *Hypothesis 3*, SRT, and previous studies (Esnaola et al., 2019; Hennekam & Shymko, 2020; Joshanloo & Jovanovic, 2019; Matud, 2004; Soysa & Wilcomb, 2015). This study found that positive coping was significantly related to life-satisfaction in the male group, while positive coping was not associated

with life-satisfaction in the female group. These findings may indicate that, among the quarantined residents, females' positive coping might not be as effective as males in increasing life-satisfaction.

Two possible explanations are as follows: First, although the current study showed that women's positive coping was higher than men. Further, it found that women used more emotional support-seeking strategies than men ("I talk to people about the troubles"). Previous studies have pointed out that emotional support-seeking strategy as positive coping strategies may not always be adaptive in stressful situations (Carver et al., 1989; Matud, 2004). Moreover, some studies have found that the overload of empathy and emotional caring towards people experiencing quarantine and COVID-19 introduces helpers' empathy fatigue, indicating that the helpers may encounter emotional and psychical strain and burnout in the helping process (Liu et al., 2020; Zhuang et al., 2020). Additionally, quarantined individuals were also stigmatized by others (Hooper et al., 2020). Thus, other people might not offer sufficient emotional support. Therefore, the life-satisfaction of female residents with higher positive coping was not higher

**Table 4**  
Mediation model and moderated mediation model (N = 337).

Process	Variables	Model 4			Model 14			
		$\beta$	SE	t	$\beta$	SE	t	
1. Mediator variable model (PC)	constant	–0.16	0.25	–0.65	–1.89	0.25	–7.65***	
	SC	0.24	0.06	4.28***	0.24	0.06	4.28***	
	Age	0.05	0.02	2.17*	0.05	0.02	2.17*	
	Occupation	–0.01	0.01	–1.67	–0.01	0.01	–1.67	
	SES	0.12	0.05	2.19*	0.12	0.05	2.19*	
	AD	0.16	0.06	2.82*	0.16	0.06	2.82*	
	$R^2 = 0.42, F(df) = 13.80(331)$		$R^2 = 0.42, F(df) = 13.80(331)$					
2. Dependent variable model (LS)	constant	0.77	0.50	1.55	0.88	0.55	1.61	
	SC	0.61	0.10	6.14***	0.61	0.10	6.12***	
	PC	0.08	0.05	1.68	0.13	0.11	1.12	
	Age	–0.01	0.01	–1.07	0.08	0.05	1.68	
	Occupation	–0.07	0.11	–0.61	–0.02	0.01	–1.23	
	SES	0.12	0.12	1.03	–0.08	0.11	–0.75	
	AD	0.77	0.5	1.55	0.12	0.77	0.11	
	Gender				0.16	0.13	1.28	
$R^2 = 0.42, F(df) = 11.57(330)$		PC * gender		–0.41	0.17	–2.41*	$R^2 = 0.43, F(df) = 9.47(328)$	
Process	Variables	Effect	Boot SE	Boot 95% CI				
3. Conditional indirect effects of SC on LS according to values of the moderator (gender)	Mediator PC, male	0.15	0.04	[0.05, 0.24]				
	Mediator PC, female	–0.07	0.04	[–0.15, 0.02]				

Notes. SC = self-compassion, PC = positive coping, LS = life-satisfaction, AD = attention-degree of COVID-19: 0 = never, 1 = rarely, 2 = often, 3 = always, ses = subjective economic status: very low = 1, low = 2, medium = 3, high = 4, very high = 5, gender: male = 0; female = 1, CI = confidence interval. All  $\beta$ s in this table are unstandardized coefficients.

\*  $p < .05$ (two-tailed).  
 \*\*\*  $p < .001$ (two-tailed).

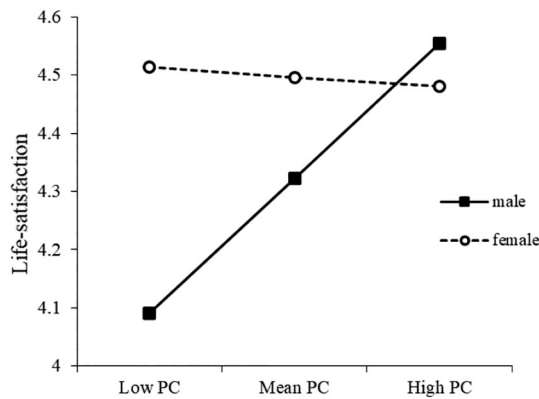


Fig. 2. Gender as a moderator of the relationship between positive coping and life-satisfaction.

Note. PC = positive coping. Low PC means one standard deviation below the mean of PC; High PC means one standard deviation above the mean of PC. This figure illustrates gender differences in the relationship between positive coping and life-satisfaction. For the male group, positive coping positively relates to life-satisfaction. For the female group, positive coping is not significantly linked with life-satisfaction.

than that of men in the present study.

Second, based on SRT, social expectations and stereotypes may lead to gender differences of goal-setting in positive coping, and coping with a positive goal will be more rewarding (Howerton & Van Gundy, 2009; Sorkin & Rook, 2006). Studies found that men's coping-related goals tend to be more optimistic to solve problems than seek emotional caring among women, which may significantly increase life-satisfaction (Basow & Rubenfeld, 2003; Broderick & Korteland, 2002). Based on these results, it is crucial to adopt effective positive coping strategies to improve life-satisfaction during the COVID-19 pandemic.

#### 4.4. Limitations and future direction

Some limitations of this investigation should be emphasized. First, the moderated mediation model was tested through a cross-sectional method, which prevents us from providing strong causal inference. However, our moderated mediation model is proposed based on a positive perspective and the theoretical framework of ACM, TMS, GST, and SRT, suggesting that self-compassion contributes to life-satisfaction. Admittedly, high life-satisfaction may become the driving variable behind greater self-compassion. Thus, to further explore the relationship between the two variables, future studies should use a randomized controlled trial or a longitudinal design to test the variables' casual relationships. Second, this study only measured positive coping styles rather than specific coping styles, such as planning, suppressing competitive activities, and seeking instrumental support. The present study specifically aimed to explore the role of positive coping between self-compassion and life-satisfaction. Further studies could identify the effects of specific coping strategies. Third, this study was conducted only in the Chinese context with Eastern culture. Trzebiński et al. (2020) recruited 317 Polish participants during the COVID-19 pandemic. The score of life-satisfaction ( $M = 4.33$ ) in their study was smaller than the score ( $M = 4.43$ ) among the sample in this study, the context of Eastern culture. We speculated that the underlying reason might be that self-compassion is a spiritual characteristic deprived of the Eastern culture (Esnaola et al., 2019; Neff et al., 2008). Future studies could compare the cultural differences of psychological characteristics (e.g., life-satisfaction, self-compassion) and their associations during the COVID-19 pandemic. Forth, it is undeniable that not all people confirm gender stereotypes from social norms. Future studies could explore personality differences rather than gender diversity, such as the big five personalities (Neff et al., 2007), to get more details about the association

between self-compassion and life-satisfaction.

#### 4.5. Implications

Although this study has some limitations, it may provide an essential insight into the mechanism of self-compassion and life-satisfaction among people in quarantine. First, the finding served to emphasize that self-compassion contributed to life-satisfaction among quarantined individuals during the isolation period. Based on this finding, psychologists should pay more attention to self-compassion for increasing life-satisfaction in self-quarantine. Previous therapy programs have been implemented in this field, such as Mindful Self-Compassion (MSC), Compassion-Focused Therapy (CFT), and Loving-Kindness Meditation (LKM) (Leaviss & Uttley, 2015). Given the outbreak of COVID-19, the online psychological intervention of self-compassion could be carried out. The existing therapy and programs may shed light on the psychological intervention of individuals experiencing self-isolation during the pandemic. Second, this study's significant contribution is to examine a mediating role of positive coping of self-compassion and life-satisfaction of individuals in quarantine. The test of the mediator of positive coping provides empirical evidence that positive coping strategies do matter. Thus, psychological practitioners should provide self-quarantined residents with helpful and adaptive coping strategies during the epidemic, such as regular exercise at home and developing hobbies (Fullana et al., 2020). Third, the current work results advance the understanding of the moderating role of gender between positive coping and life-satisfaction in quarantine, which provides avenues of the quarantined people's psychological intervention during the COVID-19 pandemic. Specifically, the relationship between positive coping and life-satisfaction is not significantly linked in the female group. The finding reflected that the female's positive coping (i.e., seeking emotional and social support) might not be adaptive in the self-quarantine period. This result indicates that psychological intervenors should pay more attention to women's psychological health during the pandemic and provide them with more adaptive coping strategies to ride out the pandemic.

#### 5. Conclusion

This study probed the relationship between self-compassion and life-satisfaction among quarantined residents during the 14-day quarantine period in the COVID-19. Furthermore, we examined the mediating effect of positive coping and the moderating effect of gender in this relation. The results showed that self-compassion was significantly and positively correlated with life-satisfaction. Moreover, for quarantined male residents, self-compassion was positively correlated with positive coping, which in turn, positively correlated with life-satisfaction. For female quarantined residents, self-compassion is positively linked with life-satisfaction and positive coping. The positive coping was significantly associated with life-satisfaction among male groups, but not for those of the female group. These findings provide theoretical and empirical evidence for psychological intervention to improve quarantined residents' life-satisfaction of COVID-19.

#### CRedit authorship contribution statement

**Angyang Li:** Conceptualization, Methodology, Data Collection, Visualization. Writing - original draft, reviewing, and editing.

**Shuo Wang:** Writing - original draft, reviewing, and editing.

**Minmin Cai:** Writing - original draft preparation.

**Ruiqi Sun:** Reviewing and Editing.

**Xiangping Liu:** Supervision, Reviewing and Editing, Funding Support, and Submission.

## Ethical statement

All procedures performed in studies involving human participants were in accordance with the institutional and/or national research committee's ethical standards and with The 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The Research Ethics Committee of the authors' university approved this study.

## Informed consent

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

## Funding

This research was supported by the Priority Projects of Beijing Municipal Education Commission Grant CFEA19061.

## Declaration of competing interest

All authors declared no conflicts of interest.

## Acknowledgments

The authors thank the members of the community for their contribution to this study.

## References

- Agnew, R. (1992). Foundation for a general strain theory of crime. *Criminology*, 30(1), 47–88. <https://doi.org/10.1111/j.1745-9125.1992.tb01093.x>.
- Allen, A. B., & Leary, M. R. (2010). Self-compassion, stress, and coping. *Social and Personality Psychology Compass*, 4(2), 107–118. <https://doi.org/10.1111/j.1751-9004.2009.00246.x>.
- Basow, S. A., & Rubenfeld, K. (2003). "Troubles talk": Effects of gender and gender-typing. *Sex Roles*, 48(3), 183–187. <https://doi.org/10.1023/A:1022411623948>.
- Bolger, N. (1990). Coping as a personality process: A prospective study. *Journal of Personality and Social Psychology*, 59(3), 525–537. <https://doi.org/10.1037/0022-3514.59.3.525>.
- Booker, J. A., & Dunsmore, J. C. (2019). Testing direct and indirect ties of self-compassion with subjective well-being. *Journal of Happiness Studies*, 20(5), 1563–1585. <https://doi.org/10.1007/s10902-018-0011-2>.
- Broderick, P. C., & Korteland, C. (2002). Coping style and depression in early adolescence: Relationships to gender, gender role, and implicit beliefs. *Sex Roles*, 46(7), 201–213. <https://doi.org/10.1023/A:1019946714220>.
- Brooks, S. K., Webster, R. K., Smith, L., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The Lancet*, 395(10227), 912–920. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8).
- Carver, C. S., & Connor-Smith, J. (2010). Personality and coping. *Annual Review of Psychology*, 61, 679–704. <https://doi.org/10.1146/annurev.psych.093008.100352>.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267–283. <https://doi.org/10.1037/0022-3514.56.2.267>.
- Cohen, J. (1992). Statistical power analysis. *Current Directions in Psychological Science*, 1(3), 98–101. <https://doi.org/10.1111/1467-8721.ep10768783>.
- Curran, P. J., West, S. G., & Finch, J. F. (1996). The robustness of test statistics to non-normality and specification error in confirmatory factor analysis. *Psychological Methods*, 1(1), 16–29. <https://doi.org/10.1037/1082-989X.1.1.16>.
- Del Giudice, M., Ellis, B. J., & Shirliff, E. A. (2011). The adaptive calibration model of stress responsivity. *Neuroscience & Biobehavioral Reviews*, 35(7), 1562–1592. <https://doi.org/10.1016/j.neubiorev.2010.11.007>.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 71–75. [https://doi.org/10.1207/s15327775jpa4901\\_13](https://doi.org/10.1207/s15327775jpa4901_13).
- Eagly, A. H., & Wood, W. (2012). Social role theory. In P. van Lange, A. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories in social psychology* (pp. 458–476). <https://doi.org/10.4135/9781446249222.n49>.
- Esnaola, I., Benito, M., Antonioagirre, I., Ballina, E., & Lorenzo, M. (2019). Gender, age and cross-cultural differences in life-satisfaction: A comparison between Spain and Mexico. *Child Indicators Research*, 12(6), 1935–1949. <https://doi.org/10.1007/s12187-018-9616-6>.
- Folkman, S., & Lazarus, R. S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company 150–153.
- Fullana, M. A., Hidalgo-Mazzei, D., Vieta, E., & Radua, J. (2020). Coping behaviors associated with decreased anxiety and depressive symptoms during the COVID-19 pandemic and lockdown. *Journal of Affective Disorders*. <https://doi.org/10.1016/j.jad.2020.06.027>.
- Gaudreau, P., Blondin, J. P., & Lapierre, A. M. (2002). Athletes' coping during a competition: Relationship of coping strategies with positive affect, negative affect, and performance–goal discrepancy. *Psychology of Sport and Exercise*, 3(2), 125–150. [https://doi.org/10.1016/S1469-0292\(01\)00015-2](https://doi.org/10.1016/S1469-0292(01)00015-2).
- Gunnell, K. E., Mosewich, A. D., McEwen, C. E., Eklund, R. C., & Crocker, P. R. (2017). Don't be so hard on yourself! Changes in self-compassion during the first year of university are associated with changes in well-being. *Personality and Individual Differences*, 43–48. <https://doi.org/10.1016/j.paid.2016.11.032>.
- Hamarat, E., Thompson, D., Zabucky, K. M., Steele, D., Matheny, K. B., & Aysan, F. (2001). Perceived stress and coping resource availability as predictors of life-satisfaction in young, middle-aged, and older adults. *Experimental Aging Research*, 27(2), 181–196. <https://doi.org/10.1080/036107301750074051>.
- Harman, D. (1967). A single factor test of common method variance. *Journal of Psychology*, 35, 359–378 1967.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
- Hennekam, S., & Shymko, Y. (2020). Coping with the COVID-19 crisis: Force majeure and gender performativity. *Gender, Work and Organization*, 1–16. <https://doi.org/10.1111/gwao.12479>.
- Hooper, M. W., Nápoles, A. M., & Pérez-Stable, E. J. (2020). COVID-19 and racial/ethnic disparities. *JAMA*, 323(24), 2466–2467. <https://doi.org/10.1001/jama.2020.8598>.
- Howerton, A., & Van Gundy, K. T. (2009). Sex differences in coping styles and implications for depressed mood. *International Journal of Stress Management*, 16(4), 333–350. <https://doi.org/10.1037/a0016843>.
- Jennings, L. K., & Tan, P. P. (2014). Self-compassion and life-satisfaction in gay men. *Psychological Reports*, 115(3), 888–895. <https://doi.org/10.2466/21.07.PRO.115c33z3>.
- Joshanloo, M., & Jovanovic, V. (2019). The relationship between gender and life-satisfaction: Analysis across demographic groups and global regions. *Archives of Women's Mental Health*, 1–8. <https://doi.org/10.1007/s00737-019-00998-w>.
- Kim, C., & Ko, H. (2018). The impact of self-compassion on mental health, sleep, quality of life and life-satisfaction among older adults. *Geriatric Nursing*, 39(6), 623–628. <https://doi.org/10.1016/j.gerinurse.2018.06.005>.
- 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(5), 927–945. <https://doi.org/10.1017/S0033291714002141>.
- Li, J., Delvecchio, E., Lis, A., Nie, Y., & Riso, D. D. (2016). Positive coping as mediator between self-control and life-satisfaction: Evidence from two Chinese samples. *Personality and Individual Differences*, 97, 130–133. <https://doi.org/10.1016/j.paid.2016.03.042>.
- Li, Q., Yu, K., Xie, J. Y., Chen, Y. C., Zhao, X. Y., Liang, C. X., & Zhang, X. D. (2020). Higher vocational college students' anti-frustration psychological ability and dependence on academic performance: The intermediary function of core competency and coping styles. *China Journal of Health Psychology*, 28(06), 918–924.
- Liu, H. Y. (2019). *Advanced statistics for psychology*. China Renmin University Press.
- Liu, M., Yang, C. Z., He, X. F., Chen, F. J., & Wang, H. (2020). Investigation on and influencing factors of compassion fatigue among medical staff working in Fangcang shelter hospitals during the COVID-19 outbreak. *Journal of Nursing Science*, 35(14), 75–78.
- 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>.
- Mann, F. D., Krueger, R. F., & Vohs, K. D. (2020). Personal economic anxiety in response to COVID-19. *Personality and Individual Differences*, 167, Article 110233. <https://doi.org/10.1016/j.paid.2020.110233>.
- Matud, M. P. (2004). Gender differences in stress and coping styles. *Personality and Individual Differences*, 37(7), 1401–1415. <https://doi.org/10.1016/j.paid.2004.01.010>.
- Muris, P., & Petrocchi, N. (2017). Protection or vulnerability?: A meta-analysis of the relations between the positive and negative components of self-compassion and psychopathology. *Clinical Psychology & Psychotherapy*, 24(2), 373–383. <https://doi.org/10.1002/cpp.2005>.
- National Health Commission of the People's Republic of China (2020). Guidelines on the novel coronavirus-infected pneumonia prevention and control. <http://www.nhc.gov.cn/jkj/s3577/202002/573340613ab243b3a7f61df260551dd4.shtml>.
- Neff, K. D. (2003). Self-compassion: An alternative conceptualization of a healthy attitude towards oneself. *Self and Identity*, 2, 85–101. <https://doi.org/10.1080/15298860390129863>.
- Neff, K. D., Hsieh, Y., & Dejitterat, K. (2005). Self-compassion, achievement goals, and coping with academic failure. *Self and Identity*, 4(3), 263–287. <https://doi.org/10.1080/13576500444000317>.
- Neff, K. D., Pitsitungkagarn, K., & Hsieh, Y. P. (2008). Self-compassion and self-construal in the United States, Thailand, and Taiwan. *Journal of Cross-Cultural Psychology*, 39(3), 267–285. <https://doi.org/10.1177/0022022108314544>.
- Neff, K. D., Rude, S. S., & Kirkpatrick, K. L. (2007). An examination of self-compassion in relation to positive psychological functioning and personality traits. *Journal of Research in Personality*, 41(4), 908–916. <https://doi.org/10.1016/j.jrp.2006.08.002>.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended



- remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Press.
- Seligman, M. E. P. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment*. Free Press.
- Shao, L., Dong, Y., Feng, J. X., & Zhang, D. H. (2020). The effect of ostracism on subjective well-being for adults: The chain mediating role of social identification and control. *Chinese Journal of Clinical Psychology*, 28(02), 234–238.
- Shen, L. L., & Zhang, Z. (2020). Relationship between grandparenting willingness and grandparents' subjective well-being: Mediating role of family cohesion and meaning in life. *Chinese Journal of Clinical Psychology*, 28(04), 834–839.
- Sorkin, D. H., & Rook, K. S. (2006). Dealing with negative social exchanges in later life: Coping responses, goals, and effectiveness. *Psychology and Aging*, 21(4), 715–725. <https://doi.org/10.1037/0882-7974.21.4.715>.
- Soysa, C. K., & Wilcomb, C. J. (2015). Mindfulness, self-compassion, self-efficacy, and gender as predictors of depression, anxiety, stress, and well-being. *Mindfulness*, 6(2), 217–226. <https://doi.org/10.1007/s12671-013-0247-1>.
- Ştefan, C. A. (2019). Self-compassion as mediator between coping and social anxiety in late adolescence: A longitudinal analysis. *Journal of Adolescence*, 120–128. <https://doi.org/10.1016/j.adolescence.2019.08.013>.
- Tang, Y. (2015). *The effect of self-compassion on moral emotion and behavior tendencies in unethical network situation*. Wuhan: Huazhong University of Science and Technology.
- Tang, Y. (2017). The relationship between self compassion and parental rearing behaviors of college students. *The Guide of Science & Education*, 5, 84.
- Thoits, P. A. (1994). Stressors and problem-solving: The individual as psychological activist. *Journal of Health and Social Behavior*, 143–160. <https://doi.org/10.2307/2137362>.
- Thompson, B. L., & Waltz, J. (2008). Self-compassion and PTSD symptom severity. *Journal of Traumatic Stress*, 21(6), 556–558. <https://doi.org/10.1002/jts.20374>.
- Trzebiński, J., Cabański, M., & Czarnecka, J. Z. (2020). Reaction to the COVID-19 pandemic: The influence of meaning in life, life satisfaction, and assumptions on world orderliness and positivity. *Journal of Loss and Trauma*, 1–14. <https://doi.org/10.1080/15325024.2020.1765098>.
- Wei, M., Liao, K. Y., Ku, T., & Shaffer, P. A. (2011). Attachment, self-compassion, empathy, and subjective well-being among college students and community adults. *Journal of Personality*, 79(1), 191–221. <https://doi.org/10.1111/j.1467-6494.2010.00677.x>.
- Xie, Y. N. (1998). The initial exploration of reliability and validity of simplified coping styles questionnaire. *Chinese Journal of Clinical Psychology*, 6(2), 114–115.
- Xiong, C. Q., & Xu, Y. L. (2009). Reliability and validity of the satisfaction with life scale for Chinese demos. *China Journal of Health Psychology*, 8, 948–949.
- Yang, Y., Zhang, M., & Kou, Y. (2016). Self-compassion and life-satisfaction: The mediating role of hope. *Personality and Individual Differences*, 98, 91–95. <https://doi.org/10.1016/j.paid.2016.03.086>.
- Yuan, Q., Li, Q. H., Xu, L. Z., Wang, X. Z., Zhou, C. C., Yang, P., ... Li, H. J. (2009). Study on rural residents' life satisfaction and its influencing factors. *Chinese Journal of Public Health*, 25(1), 100–102.
- Zessin, U., Dickhauser, O., & Garbade, S. F. (2015). The relationship between self-compassion and well-being: A meta-analysis. *Applied Psychology: Health and Well-being*, 7(3), 340–364. <https://doi.org/10.1111/aphw.12051>.
- Zhuang, L. L., Wang, J. L., He, H. J., & Li, J. W. (2020). The status quo and related factors of empathy fatigue of nursing personnels under the COVID-19 epidemic. *Medicine and Society*, 33(05), 115–119. <https://doi.org/10.13723/j.yxysh.2020.05.024>.