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# Psychometric properties of the Chinese version of the Affective Style Questionnaire and its role as a moderator of the relationship between stress and negative affect

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## Abstract

The Affective Style Questionnaire is a self-report instrument for assessing affective style. Study 1 investigated the psychometric properties of the Chinese Affective Style Questionnaire in a sample of 459 Chinese participants. The confirmatory factor analysis supported a three-factor structure. Study 1 indicated that the Chinese Affective Style Questionnaire can be used as a simple, reliable, and valid scale for measuring individual differences in affective style. Study 2 examined the moderating role of different affective styles in the relationship between stress and negative affect. *Concealing* and *tolerating* moderated the relationship between stress and anxiety, and *adjusting* moderated the relationship between stress and depression.

## Keywords

affective style, anxiety, Chinese Affective Style Questionnaire, depression, emotion regulation strategies, moderation, stress

## Introduction

Emotion regulation is one of the impressive byproducts of human evolution. Researcher showed that emotion regulation is associated with well-being (Davidson, 2004), affective disorders (Davidson, 1998), and immune response (Rosenkranz et al., 2003). A number of instruments have been developed to assess emotion regulation strategies, such as the Emotion Regulation Questionnaire (ERQ; Gross and John, 2003), the Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011), and the Difficulties in Emotion Regulation Scale (DERS; Gratz and Roemer, 2004). However,

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these measurements differ in the definition of emotion regulation strategies, leading to some confusion in the field. Moreover, these instruments have a fairly limited scope of possible affect regulation strategies and are restricted to a particular theoretical orientation (Hofmann and Kashdan, 2010).

One important determinant of an emotion regulation strategy is a person's affective style. An affective style refers to the inter-individual differences in the sensitivity to and the regulation of emotions, which is a concept integrated by Hofmann and his colleague on the basis of previous research (Davidson, 1998; Hofmann and Kashdan, 2010). Hofmann and Kashdan (2010) proposed three different affective styles for regulating emotions: *concealing*, *adjusting*, and *tolerating* strategies. *Concealing* strategies emphasize efforts to conceal or suppress emotions after they arise, *adjusting* strategies intend to readjust or balance emotions according to contextual demands, and *tolerating* strategies reflect a non-defensive way of responding to emotions as they exist in the present moment (Hofmann and Kashdan, 2010). Consistent with this theoretical framework, a 20-item questionnaire, the Affective Style Questionnaire (ASQ), consisting of three subscales—*concealing*, *adjusting*, and *tolerating*—was developed.

This theoretical perspective and the ASQ itself developed by Hofmann and Kashdan (2010) made a unique contribution to the comprehensive understanding of emotion regulation strategies. Studies showed that the ASQ has good reliability and validity, and it acts as a valuable measurement of affective style in various independent studies (Crawcour et al., 2012; Enebrink et al., 2013; Hofmann et al., 2012; Szasz et al., 2012).

However, Hofmann and Kashdan's work was based on a college student sample. As acknowledged by the authors, it is unclear whether the conclusions can be generalized to other samples (Hofmann and Kashdan, 2010). Moreover, the English version of the ASQ was developed in a Western context. Therefore, it is unknown whether the ASQ can also be used in a Chinese context. The development of the Chinese Affective Style Questionnaire (C-ASQ) can be helpful in improving our understanding of affective styles in a Chinese sample and give researchers opportunities to conduct comparative studies about cultural differences on affective styles in future research.

Another purpose of this research is to examine the convergent validity and utility of the C-ASQ by exploring the moderating effect of affective style in the relationship between stress and negative affect, particularly anxiety and depression. Because different dimensions of affective style are related to different emotion regulation strategies, they may play different roles in the coping process, leading to different emotional consequences. In other words, affective style has the potential to moderate the relationship between stress and negative affect. A variety of factors such as locus of control (Sandler and Lakey, 1982), social support (Cobb, 1976), and sense of humor (Prerost, 1989) were found to be moderators of the relationship between stress and other negative outcomes. However, to the best of our knowledge, there is no study examining affective style as a moderator of stress.

Our hypothesis is that the C-ASQ moderates the relationship between stress and negative affect, such as anxiety and depression. We predicted that individuals who use *concealing* as an emotion regulation strategy tend to suppress emotions when they perceive stress compared to individuals who do not use the *concealing* strategy. Individuals who score high on the *adjusting* and *tolerating* subscales are expected to adjust their emotions and accept reality when faced with stress. Therefore, these individuals are expected to have fewer negative emotions as compared to individuals with low scores in these subscales. Individuals with high scores in the *tolerating* subscale may have an acceptable attitude toward the stressful event, which may be more helpful for them to avoid anxiety and depression compared to individuals with low scores on this subscale. It should be noted that, to the best of our knowledge, there is no convincing direct empirical evidence for those assumptions.

This research conducted two studies, which respectively aimed to (1) investigate the psychometric properties of the reliability and validity of the C-ASQ using a large Chinese sample and (2) explore the moderating effect of affective style in the relation between stress and negative affect (including anxiety and depression).

## Study 1

This study involved developing the C-ASQ and investigating its psychometric properties.

## Methods

### Participants

A total of 459 participants were recruited to complete a series of questionnaires via the Internet. We randomly split the total sample into two halves. One half was used to test the origin factor structure of the C-ASQ and explore the plausible modifying indices. The other half was used to cross-validate the final revised model in a separate sample.

### Measures

*C-ASQ.* The Affective Style Questionnaire is a 20-item self-report scale that includes three analytically derived subscales for assessing the three types of affective styles, which are *concealing* (8 items), *adjusting* (7 items), and *tolerating* (5 items). The ASQ has been demonstrated to have good psychometric properties in US college samples.

The C-ASQ was created by directly translating the English instrument using the recommended and standardized procedures for the cross-lingual adaptation of measures. More specifically, the English version of the ASQ was translated into the Chinese version by a native Chinese speaker (J.W.) and examined for surface-level relevance to the construct of interest. Next, the Chinese version was back-translated by a professional bilingual translator and the back-translated version was reviewed by the senior author and his students to compare it to the original English version. The Chinese version was finalized with only a few changes considering the differences between the statements in the two languages.

*ERQ.* The ERQ includes 10 items assessing individual differences in two emotion regulation strategies: expressive suppression and cognitive reappraisal (Gross and John, 2003). The Chinese version of the ERQ was revised by Wang et al. (2007). In this study, Cronbach's alphas of the ERQ were 0.83 and 0.81 (for cognitive reappraisal and expressive suppression, respectively).

*AAQ-II.* The AAQ-II is a 10-item scale, which is a refinement of the original scale (Bond et al., 2011) used to assess individual differences in acceptance and experiential avoidance. The Chinese version of the AAQ-II was revised by Cao et al. (2013). In this study, Cronbach's alpha of the AAQ-II was 0.83.

*Simplified Coping Style Questionnaire.* The 20-item Simplified Coping Style Questionnaire (SCSQ) is used for assessing positive and negative coping strategies (Xie, 1998). This scale consists of two subscales: positive strategies and negative strategies. In this study, Cronbach's alphas of the SCSQ were 0.77 and 0.72 (for positive strategies and negative strategies, respectively).

*Short Ruminative Responses Scale.* The Short Ruminative Responses Scale (SRRS) consists of 10 items assessing ruminative responses (Zhang and Xu, 2010). This scale includes two factors: sensitive rumination and assessment rumination. In this study, Cronbach's alphas of the SRRS were 0.83 and 0.75 (for sensitive rumination and assessment rumination, respectively).

### Procedure

This research (including Studies 1 and 2) was approved by the Ethics Committee of the School of Psychology, Beijing Normal University.

Participants were recruited via the Internet from all parts of China by posting advertisement online. Participants completed a voluntary informed consent form online, followed by a questionnaire packet which was anonymous and took approximately 20–30 minutes to complete. The packet included the C-ASQ, the ERQ, the AAQ-II, the SCSQ, and the SRRS. Three weeks later, 110 of the participants were signed up for a second testing session and completed the C-ASQ, and this sample was used for the test–retest reliability. All participants left their e-mail or QQ number after they completed the reports for the first time so that they could be randomly selected at a later time. As compensation, each participant received a brief explanation of his or her result.

### Data analysis

Analyses were conducted using SPSS 16.0 and Mplus 7.0. To examine the factor structure of the C-ASQ, a confirmatory factor analysis (CFA) in a structural equation modeling (SEM) framework was used to test the C-ASQ factor model derived from the US samples. The reliability of the C-ASQ was evaluated by investigating the internal consistency and test–retest reliability. Internal consistencies of the total score and the three subscales of the C-ASQ were calculated using Cronbach's alpha. The convergent validity of the C-ASQ was examined using Pearson's correlation coefficients for the C-ASQ score and a variety of measures of emotion regulation.

## Results

### Sample characteristics

The IP addresses showed that all participants were from one of the 18 provinces in China. Most were from Shanghai (14.8%), Guangdong (14.2%), Jiangsu (7.2%), Fujian (7.0%), and Zhejiang (7.0%). Participants' age ranged from 18 to 65 ($M = 30.5$, standard deviation ($SD$) = 6.7); 61 percent were female and 89.5 percent were Han Chinese. Most (96.51%) had at least a college education.

### Correlations, internal reliability, and test–retest reliability

Correlations between each of the C-ASQ subscales and the total score revealed that each of the C-ASQ subscales correlated strongly with the C-ASQ total score ($r$'s between 0.85 and 0.89). The inter-correlations between the subscales were moderately high ($r$'s between 0.54 and 0.69).

Pearson's $r$ was calculated to assess the scale's test–retest reliability (at a 3-week interval). The result for the C-ASQ total score was 0.77 ($p < 0.01$). For the ASQ subscales, the coefficients of *adjusting*, *concealing*, and *tolerating* were 0.74, 0.75, and 0.65, respectively ($p$'s < 0.01). Cronbach's alpha for the ASQ total score was 0.89. The alphas of the subscales were 0.84, 0.87, and 0.66 (for *adjusting*, *concealing*, and *tolerating*, respectively). All alphas were acceptable.

### Factor structure

To test the factor structure of the C-ASQ in the first randomly selected subsample ($n = 229$), a measurement model was tested in which the three latent variables (*concealing*, *adjusting*, and *tolerating*) were allowed to covary. According to the criteria proposed by Hu and Bentler (1999), this model fit the data poorly ($\chi^2 = 487.53$, df = 167, $p < 0.001$, comparative fit index (CFI) = 0.91, root mean square error of approximation (RMSEA) = 0.07, standardized root mean square residual (SRMR) = 0.06). Two *tolerate* items (item 6: "It's OK of people see me if I am upset" and item 17: "There's nothing wrong with feeling very emotional") were identified as invalid items due to their low loading (item 6 on *tolerating* = 0.04 and item 17 = 0.03). In this subsequent analysis, we removed these two items from the model. Next, we added covariance according to the modification indices. The results implied that several residual error terms should be allowed to covary to improve the fit (item 13 with item 10, item 19 with item 12, and item 16 with item 19). Next, we tested this modified model in the second

**Table 1.** Chinese Affective Style Questionnaire confirmatory factor analysis data for modified model, including factor loading and squared multiple correlations.

| C-ASQ item | Loading | SMC |
|---|---|---|
| *Adjusting* | | |
| I have my emotions well under control | 0.643 | 0.41 |
| I can avoid getting upset by taking a different perspective on things | 0.592 | 0.35 |
| I can calm down very quickly | 0.792 | 0.62 |
| I am able to let go of my feelings | 0.695 | 0.48 |
| I can get out of a bad mood very quickly | 0.678 | 0.46 |
| I know exactly what to do to get myself into a better mood | 0.460 | 0.21 |
| I can get into a better mood quite easily | 0.630 | 0.40 |
| *Concealing* | | |
| People usually can't tell how I am feeling inside | 0.353 | 0.13 |
| I often suppress my emotional reactions to things | 0.386 | 0.15 |
| I am good at hiding my feelings | 0.799 | 0.64 |
| People usually can't tell when I am upset | 0.728 | 0.53 |
| People usually can't tell when I am sad | 0.752 | 0.57 |
| I can act in a way that people don't see me being upset | 0.780 | 0.61 |
| I could easily fake emotions | 0.827 | 0.69 |
| I can hide my anger well if I have to | 0.629 | 0.40 |
| *Tolerating* | | |
| I can tolerate having strong emotions | 0.654 | 0.43 |
| It's ok to feel negative emotions at times | 0.504 | 0.25 |
| I can tolerate being upset | 0.735 | 0.54 |

C-ASQ: Chinese Affective Style Questionnaire; Loading: factor loading; SMC: squared multiple correlations; *Adjusting*: *adjusting* latent factor; *Concealing*: *concealing* latent factor; *Tolerating*: *tolerating* latent factor.

randomly selected subsample ($n=230$). This model fit the data well ($\chi^2=273.06$, df=132, $p<0.001$, CFI=0.96, RMSEA=0.05, SRMR=0.05). Table 1 depicts the factor loadings and squared multiple correlations (SMCs).

### *Convergent and discriminant validity*

To examine the convergent and discriminant validity of the C-ASQ, we calculated the correlations between the three subscales of the instrument and various measures of emotion regulation (ERQ, AAQ-II, SCSQ, and SRRS).

*Adjusting* was positively correlated with cognitive reappraisal ($r=0.63$, $p<0.001$), positive coping strategies ($r=0.53$, $p<0.001$), and AAQ-II ($r=0.52$, $p<0.001$) and negatively correlated with assessment rumination ($r=-0.19$, $p<0.001$). *Concealing* was positively correlated with suppression ($r=0.70$, $p<0.001$), both positive and negative coping strategies ($r=0.26$, $r=0.19$, respectively, $p<0.001$), and assessment rumination ($r=0.13$, $p<0.001$). *Tolerating* was positively correlated with cognitive reappraisal ($r=0.52$, $p<0.001$), expressive suppression ($r=0.54$, $p<0.001$), AAQ-II ($r=0.46$, $p<0.001$), and positive coping strategies ($r=0.35$, $p<0.001$).

## Discussion of Study 1

We conducted a cross-validation of the factor structure of the C-ASQ in a representative Chinese community sample from mainland China. The results demonstrated that the C-ASQ showed good psychometric properties. The internal consistencies for the total and subscale scores were found to be acceptable (alpha>0.6), and the C-ASQ demonstrated good stability as shown by its high test–retest reliability. Moreover, the scale

showed good convergent and discriminant validity. As expected, *adjusting* was positively correlated with cognitive reappraisal and positive strategies, suggesting that individuals with this affective style can moderate their affect appropriately. In contrast to the original results by Hofmann and Kashdan (2010), *concealing* not only correlated with positive but also with negative strategies. This finding could be due to cultural differences because Chinese people are known to be more emotionally restraint in social interactions than individuals from Western cultures. Finally, *tolerating* is closely correlated with positive strategies in this study. This result is in line with the original study.

Several of our findings describing the factor structure differed from those of the original study, which used the US sample. The first issue is that two *tolerating* items did not demonstrate sufficiently high loadings on their respective factors and were therefore removed from the final model. These items ask respondents about the acceptability to show emotional feelings in front of other people. It may be that feedback from others plays less of a role in *tolerating* affect for Asian people. This result is in line with a factor analysis of the scale in Japanese samples, in which the same two items (items 6 and 17) also had to be removed (Ito and Hofmann, 2014). The correlations of the subscales were higher and not entirely consistent with the original results by Hofmann and Kashdan (2010). We recommend for future research to explore possible cultural differences in tolerating affect. Some limitations must be acknowledged. First, because these studies were based on non-clinical samples, the results cannot be generalized to individuals with mental illnesses. Moreover, the relatively high education level in Study 1 may also be a limitation to generalize the results. We recommend that future studies adjust for the *tolerating* items to examine cultural differences.

Despite these limitations, the C-ASQ appears to be a useful measure for assessing emotion regulation strategies.

## Study 2

The objective of this study was to investigate the role of affective styles as moderators in the relationship between stress and negative emotions (including anxiety and depression).

## Methods

### Participants

In all, 305 student volunteers from three universities in Beijing, Wuhan, and Zhuhai, China, respectively, participated in this study.

### Measures

*C-ASQ.* The C-ASQ was the instrument after the modifications of the original version in Study 1. In Study 2, the factor structure of the C-ASQ remained stable in accordance with that in Study 1. The findings showed that the CFA results of the C-ASQ in Study 2 were acceptable ($\chi^2 = 290.70$, df = 132, $p < 0.001$, CFI = 0.95, SRMR = 0.055, RMSEA = 0.06). Cronbach's alpha values of the C-ASQ in this study were 0.77, 0.78, and 0.62.

*Chinese Perceived Stress Scale.* The 14-item Chinese Perceived Stress Scale (CPSS) was used to assess perceived stress (Yang and Huang, 2003). The Perceived Stress Scale was developed by Cohen et al. (1983). In this study, Cronbach's alpha of the CPSS was 0.81.

*Zung Self-Rating Anxiety Scale.* The Self-Rating Anxiety Scale (SAS) was used to assess anxiety (Zung, 1971). The Chinese version of the SAS was translated and revised by Tao and Gao (1994). In this study, Cronbach's alpha of the SAS was 0.78.

*The Center for Epidemiological Studies Depression Scale.* The Center for Epidemiological Studies Depression Scale (CES-D) is a 20-item scale for assessing depression (Radloff, 1977). The Chinese version of the CES-D was translated

and revised by Chen et al. (2009). Cronbach's alpha of the CES-D in this study was 0.87.

### Procedure

Participants were recruited between August and November 2014 using flyers on the campuses (at the three universities in Beijing, Wuhan, and Zhuhai, respectively). Students who were taking psychology-related courses were invited to complete a series of questionnaires. After completing the informed consent forms, the students completed an anonymous questionnaire packet in groups in a large classroom. Each participant was debriefed and given a pen for their time and effort.

### Data analysis

The mean values, SD values, Cronbach's alpha coefficients, and the correlations of the four scales were computed using SPSS 19.0. The moderation analysis was conducted using Baron and Kenny's (1986) approach. The continuous predictor and moderator were standardized using a *z*-transformation to minimize multi-collinearity with the interaction terms of the model. A simple slope test was adopted to further analyze the effect of moderation (Figure 1).

## Results

### Sample characteristics

The ages of participants ranged from 18 to 22 ($M=19.8$, $SD=1.2$); 64.9 percent were female, and 89.5 percent were Han Chinese. Nobody reported a history of mental illness (i.e. nobody reported that he or she consulted a medical doctor because of a mental illness).

### Correlations

We found that stress was highly correlated with anxiety ($r=0.52$, $p<0.001$) and depression ($r=0.68$, $p<0.001$). *Concealing* was not significantly correlated with stress, anxiety, or depression. *Adjusting* was moderately negatively correlated with stress ($r=-0.50$, $p<0.001$), anxiety ($r=-0.38$, $p<0.001$), and depression ($r=-0.46$, $p<0.001$). *Tolerating* was slightly negatively correlated with stress ($r=-0.15$, $p<0.01$), anxiety ($r=-0.12$, $p<0.05$), and depression ($r=-0.16$, $p<0.01$).

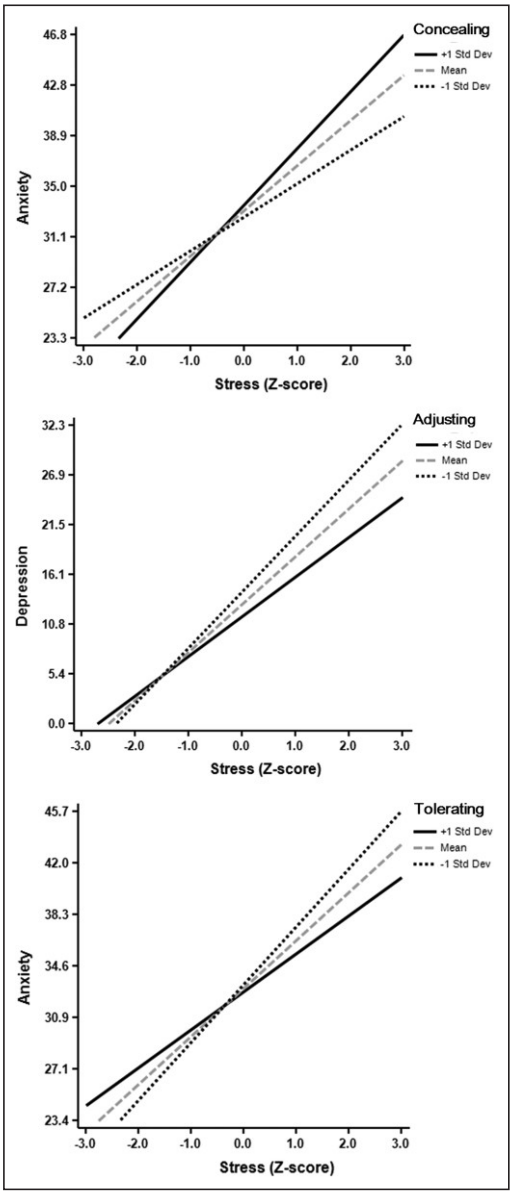


**Figure 1.** Simple slopes of interaction effect.
Std Dev: standard deviation.

### Moderating analyses

To test for the moderating effects of the three types of affective styles, two hierarchical regression analyses were conducted. In each analysis, the study outcomes were first regressed onto the demographic factors (gender and age) that may have an impact on dependent variables. Second, the main effect variables for *concealing*, *adjusting*, and *tolerating* were entered into the regression models. Finally, the three interaction terms were entered into the models to assess whether the affective styles moderated the impact of the perceived stress.

When anxiety was chosen as the dependent variable and stress × *concealing* was entered into the regression in the third step, stress × *concealing* accounted for a significant increase in anxiety ($R^2=0.30$, $\Delta R^2=0.017$, $\beta=0.13$, $p=0.008$). These results suggest that *concealing* had a moderating effect on the relationship between stress and anxiety. Next, we examined the slopes at −1 and 1 *SD* values of the moderator (*concealing*) to test for the differences in people with low and high *concealing* strategies. The slope was significant for those with high scores on the *concealing* subscale ($b=0.63$, $t=9.63$, $p<0.001$). For people with low *concealing* scores, the slope was also significant, but the regression coefficient became smaller ($b=0.37$, $t=5.42$, $p<0.001$). When depression was chosen as the dependent variable, stress × *concealing* did not account for a significant increase in depression ($R^2=0.47$, $\Delta R^2=0.001$, $\beta=-0.03$, $p=0.454$), suggesting that *concealing* had no moderating effect on the relationship between stress and depression.

We found that stress × *adjusting* accounted for a significant decrease in depression ($R^2=0.48$, $\Delta R^2=0.010$, $\beta=-0.10$, $p=0.018$), indicating that *adjusting* had a moderating effect on the relationship between stress and depression. The slope was significant for those scoring low in *adjusting* ($b=0.87$, $t=11.61$, $p<0.001$). For those scoring high in the *adjusting* subscale, the slope was also significant, but the regression coefficient became smaller ($b=0.62$, $t=7.27$, $p<0.001$). When anxiety was chosen as the dependent variable, stress × *adjusting* did not account for a significant increase in anxiety ($R^2=0.30$, $\Delta R^2=0.001$, $\beta=-0.04$, $p=0.440$), suggesting that *adjusting* had no moderating effect on the relationship between stress and anxiety.

We also found that *tolerating* served as a moderator of stress and anxiety ($R^2=0.30$, $\Delta R^2=0.012$, $\beta=-0.11$, $p=0.026$). The slope was significant for people with low scores on the *tolerating* subscale ($b=0.60$, $t=8.82$, $p<0.001$). For people with high *tolerating* scores, the slope was also significant, but the regression coefficient became smaller ($b=0.39$, $t=5.80$, $p<0.001$). There was no moderating effect of *tolerating* in the relationship between stress and depression ($R^2=0.47$, $\Delta R^2=0.000$, $\beta=0.01$, $p=0.962$).

## Discussion of Study 2

This study explored the moderating roles of *concealing*, *adjusting*, and *tolerating* in the relationship between stress and negative emotions (i.e. anxiety and depression). We observed that *concealing* moderated the relationship between stress and anxiety. This suggests that *concealing* is an emotional regulation strategy that makes people prone to anxiety when used in stressful situations. This finding is consistent with other studies showing that emotional suppression is a maladaptive strategy for people with anxiety disorders (Campbell-Sills et al., 2006a, 2006b; Hofmann et al., 2009).

We further observed that *adjusting* was a moderator in the relationship between stress and depression. For people with low scores in the *adjusting* subscale, stress was more closely associated with depression, suggesting that people may be depressed when they feel stressed and are unable to adjust their negative affect, possibly because of negative cognitive activities, such as rumination (Lo et al., 2008).

*Tolerating* also moderated the relationship between stress and anxiety. Stress was more positively related to anxiety among people with low scores in the *tolerating* subscale, suggesting that *tolerating* makes people less sensitive

to anxiety when faced with stressful events. This is consistent with previous research suggesting that people with anxiety disorders can benefit from an acceptance-based strategy (Campbell-Sills et al., 2006a, 2006b; Hofmann et al., 2009).

There are also several limitations in this study. The moderation hypothesis was tested in a cross-sectional sample. Moreover, the sample in Study 2 comprised university students, which is different from the sample in Study 1. However, Study 2 demonstrated that the ASQ can be generalized to a sample of college students. Moreover, there was no clinical sample involved in Study 2. Therefore, the results of this study cannot be easily generalized to individuals with mental illnesses.

## General discussion

We revised the ASQ to examine its use in a Chinese sample. The findings of Study 1 demonstrated that the C-ASQ shows adequate psychometric properties. The findings from Study 2 further provided evidence supporting the convergent validity and utility of the C-ASQ. We found that the three affective styles of the C-ASQ had different effects as potential moderators for the relationship between stress and negative affect. These findings raise important questions about the functional relationship between stress, coping, and negative affect on one hand and possible cultural differences in affect regulation on the other hand.

### Declaration of Conflicting Interests

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### References

Baron RM and Kenny DA (1986) The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* 51(6): 1173–1182.

Bond FW, Hayes SC, Baer RA, et al. (2011) Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy* 42(4): 676–688.

Campbell-Sills L, Barlow DH, Brown TA, et al. (2006a) Acceptability and suppression of negative emotion in anxiety and mood disorders. *Emotion* 6(4): 587–595.

Campbell-Sills L, Barlow DH, Brown TA, et al. (2006b) Effects of suppression and acceptance on emotional responses of individuals with anxiety and mood disorders. *Behaviour Research and Therapy* 44(9): 1251–1263.

Cao J, Ji Y and Zhu Z (2013) Reliability and validity of the Chinese version of the Acceptance and Action Questionnaire: Second edition (AAQ-II) in college students. *Chinese Mental Health Journal* 27(11): 873–877.

Chen Z, Yang X and Li X (2009) Psychometric features of CES–D in Chinese adolescents. *Chinese Journal of Clinical Psychology* 17(4): 443–445.

Cobb S (1976) Social support as a moderator of life stress. *Psychosomatic Medicine* 38(5): 300–314.

Cohen S, Kamarck T and Mermelstein R (1983) A global measure of perceived stress. *Journal of Health and Social Behavior* 24(4): 385–396.

Crawcour S, Leibing E, Ginzburg D, et al. (2012) Transfer of manualized CBT for social phobia into clinical practice (SOPHO-PRAX): A study protocol for a cluster-randomized controlled trial. *Trials* 13(1): 70–78.

Davidson RJ (1998) Affective style and affective disorders: Perspectives form affective neuroscience. *Cognition and Emotion* 12(3): 307–320.

Davidson RJ (2004) Well-being and affective style: Neural substrates and biobehavioural correlates. *Philosophical Transactions of the Royal Society of London Series B: Biological Sciences* 359(1449): 1395–1412.

Enebrink P, Björnsdotter A and Ghaderia A (2013) The emotion regulation questionnaire: Psychometric properties and norms for Swedish

parents of children aged 10–13 years. *Europe's Journal of Psychology* 9(2): 289–303.

Gratz KL and Roemer L (2004) Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment* 26(1): 41–54.

Gross JJ and John OP (2003) Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology* 85(2): 348–362.

Hofmann SG and Kashdan TB (2010) The affective style questionnaire: Development and psychometric properties. *Journal of Psychopathology and Behavioral Assessment* 32(2): 255–263.

Hofmann SG, Heering S, Sawyer AT, et al. (2009) How to handle anxiety: The effects of reappraisal, acceptance, and suppression strategies on anxious arousal. *Behaviour Research and Therapy* 47(5): 389–394.

Hofmann SG, Sawyer AT, Fang A, et al. (2012) Emotion dysregulation model of mood and anxiety disorders. *Depression and Anxiety* 29(5): 409–416.

Hu LT and Bentler PM (1999) Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal* 6(1): 1–55.

Ito M and Hofmann SG (2014) Culture and affect: The factor structure of the affective style questionnaire and its relation with depression and anxiety among Japanese. *BMC Research Notes* 7(1): 590–596.

Lo CS, Ho SM and Hollon SD (2008) The effects of rumination and negative cognitive styles on depression: A mediation analysis. *Behaviour Research and Therapy* 46(4): 487–495.

Prerost FJ (1989) Intervening during crises of life transitions: Promoting a sense of humor as a stress moderator. *Counselling Psychology Quarterly* 2(4): 475–480.

Radloff LS (1977) The CES-D scale a self-report depression scale for research in the general population. *Applied Psychological Measurement* 1(3): 385–401.

Rosenkranz MA, Jackson DC, Dalton K, et al. (2003) Affective style and in vivo immune response: Neurobehavioral mechanisms. *Proceedings of the National Academy of Sciences* 100(19): 11148–11152.

Sandler IN and Lakey B (1982) Locus of control as a stress moderator: The role of control perceptions and social support. *American Journal of Community Psychology* 10(1): 65–80.

Szasz PL, Szentagotai A and Hofmann SG (2012) Effects of emotion regulation strategies on smoking craving, attentional bias, and task persistence. *Behaviour Research and Therapy* 50(5): 333–340.

Tao M and Gao J (1994) The reliability and validity of the SAS–CR. *Chinese Journal of Nervous and Mental Diseases* 20(5): 301–303.

Wang L, Liu H, Li Z, et al. (2007) Reliability and validity of Emotion Regulation Questionnaire Chinese revised version. *Chinese Journal of Health Psychology* 15(6): 503–505.

Xie Y (1998) A preliminary study on the reliability and validity of the Simplified Coping Style Questionnaire. *Chinese Journal of Clinical Psychology* 6(2): 114–115.

Yang T and Huang H (2003) An epidemiological study on stress among urban residents in social transition period. *Chinese Journal of Epidemiology* 24(9): 760–764.

Zhang H and Xu Y (2010) Reliability and validity of the Chinese Short Ruminative Responses Scale (SRRS) in Chinese undergraduates. *Psychological Research* 3(4): 34–39.

Zung WW (1971) A rating instrument for anxiety disorders. *Psychosomatics* 12(6): 371–379.