

# Development and Validation of a Chinese Language Version of the Ruminative Thought Styles Questionnaire

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## Abstract

The Ruminative Thought Styles Questionnaire (RTS) conceptualizes rumination as repetitive, recurrent, intrusive, and uncontrollable thinking. This article outlines the development and validation of a Chinese language version of the RTS, the RTS-CH. Following independent translation, back translation, and final translation checking, the factor structure, convergent and divergent validity, and item-level congruence of the RTS-CH was examined and improved. The resultant scale showed equivalence to the RTS and had attractive psychometric properties. The RTS-CH is the first Chinese language rumination measure that does not have inherently negative or depressive content.

## Keywords

cross-cultural comparison, culture/cross-cultural, validation, ruminative thought, psychometric properties, scale development/testing, measurement

Rumination is repetitive, recurrent, intrusive, and uncontrollable thinking (Brinker & Dozios, 2009). The act of rumination is transitory (Riley, 2010), but the tendency to ruminate is stable within an individual across time (Francisco, Puterman, DeLongis, & Pomaki, 2010). A high level of rumination is associated with an array of potentially negative psychological constructs, including anxiety, depression, and negative mood (Calmes & Roberts, 2007; Hughes, Alloy, & Cogswell, 2008; Muris, Roelofs, Rassin, Franken, & Mayer, 2005; Wilkinson & Goodyer, 2006). Some studies have found that rumination invariably affects negatively on mood (Joormann & Tran, 2009), while others indicate that while repetitive thought per se is a general concomitant of negative mood, rumination predicts negative mood above and beyond this in a depressed sample (Segerstrom, Tsao, Alden, & Craske, 2000). A tendency toward ruminating is also associated with nonsuicidal self-injury (Tait, Brinker, Moller, & French, 2014; Voon, Hasking, & Martin, 2013), and suicidal ideation (Surrence, Miranda, Marroquín, & Chan, 2009).

A measure of rumination needs to be broad and context agnostic. The widely used Response Styles Questionnaire (RSQ; Butler & Nolen-Hoeksema, 1994) and its later iteration, the

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Ruminative Responses Scale (RRS; Treynor, Gonzalez, & Nolen-Hoeksema, 2003) have been criticized for containing explicitly depressive content in its quantification of rumination (Brinker & Dozios, 2009). This could erroneously inflate the apparent relationship between rumination, depression, and associated constructs such as anxiety. An example of this is where R. Y. Hong (2007) uses both the brooding and reflective subscale of the RRS to operationalize rumination in general, where it should only be used as a transdiagnostic measure of rumination, depression, and anxiety (Liao & Wei, 2011).

The 20-item self-report Ruminative Thought Styles Questionnaire (RTS; Brinker & Dozios, 2009) is distinguished from other rumination instruments in that it does not limit repetitive thought to a single domain, specifically depressive thought. It instead measures a dispositional ruminative thought style, regardless of the temporal orientation (past or future focused thought) or type of rumination (e.g., brooding or reflective). This allows for a clearer investigation between rumination and its concomitants without being purely concerned with (and thus confounded by) explicitly depressive content, either due to implicit negative content within the instrument or inappropriate application of an instrument with negative subscales.

Continually demonstrating excellent internal consistency reliability (Cronbach's  $\alpha$  typically above .90), the RTS has primarily been used in research in English-speaking countries, such as Australia (i.e., Pgdippsych & McLaren, 2011; Tanner, Hasking, & Martin, 2013; Tanner, Voon, Hasking, & Martin, 2013; Voon et al., 2013) and America (i.e., Armour et al., 2012; E. Hu, Koucky, Brown, Bruce, & Sheline, 2014). Its international applicability has been expanded by recent translations into Thai (Vatanasin, Thapinta, Thompson, & Thungjaroenkul, 2012) and Turkish (Karatepe, Yavuz, & Turkcan, 2013).

Chinese researchers have shown a recent interest in exploring rumination (i.e., W. Hong et al., 2010; Liu, Tian, Zhou, & Lu, 2012; Wu, Sun, Miao, Yu, & Wang, 2011; X. Zhou & Wu, 2016; X. Zhou, Wu, Fu, & An, 2015). A Chinese translated version of the RSQ is the most widespread, either in its full form (Guo & Wu, 2011; Liu et al., 2012), or in its later form, the RRS (as in W. Hong et al., 2010). Other rumination measures translated into Chinese include Conway's Rumination Sadness Scale (as in Guo & Wu, 2011), the Dispositional Rumination Scale (as in Wu et al., 2011), the Chinese Anger Rumination Scale (Maxwell & Siu, 2008), and the Event Related Rumination Inventory (as in X. Zhou & Wu, 2016). Research using these measures in Chinese samples have uncovered significant associations between rumination and negative outcomes parallel to findings in Western samples (W. Hong et al., 2010; Liu et al., 2012).

Note that the instruments used in the above research may invariably include clearly negative content as a major component within the assessment of rumination. This is particularly problematic in a Chinese context, because the multifaceted concept of rumination deeply embedded in Chinese tradition has more positive connotations than its Western counterpart (Guo & Wu, 2011). An example of this positive view of rumination is "moral rumination" (as discussed in J. Zhou, 2004), a socially desirable process by which repeated thinking, evaluation, and learning about moral concepts leads to moral balance. This socially positive conceptualization of rumination is arguably incompatible with operationalization of rumination which assumes negative content. It should be noted that a positive social perception does not necessarily correspond to a positive emotional experience, hence there may be tension between social desirability effects and social values viewing rumination as positive, and the negative emotional state associated with rumination. For these reasons, Guo and Wu (2011) call for better understanding of rumination in a Chinese sample in their review of rumination in the Chinese context. This would require an instrument that does not include inherently negative or positive content, which are specific characteristics of the RTS.

A Chinese translation of the RTS (RTS-CH) is the first measure of rumination to be translated into Chinese that is not arguably confounded by negative or depressive content. Despite a

burgeoning interest in China for cross-cultural research on themes relating to mental health, research comparing rumination in Western and Chinese samples (i.e., Jose, Kramar, & Hou, 2014) is in its infancy. It is an opportune moment for the RTS-CH to foster cross-cultural research into rumination, where the same instrument is appropriate in both Western and Chinese samples. This article outlines the development and validation of the RTS-CH, beginning with investigation of conceptual equivalence, and then focusing on psychometric equivalence. The ethical aspects of all constituent studies were approved by the Australian National University Human Research Ethics Committee.

## Study 1

Cross-language statistical comparability, such as similar factor structures, is a necessary but not sufficient indicator of conceptual equivalence (Byrne & Campbell, 1999). The conceptual equivalence of the instrument and its meaning needs to be established before focusing primarily on item wording and internal consistency reliability. This can be threatened by cultural differences regarding the construct itself, or other factors such as a culturally based tendency to select less extreme scores on Likert-type items (Candell & Hulin, 1986). These threats can be clarified by the use of a bilingual sample (Sperber, Devellis, & Boehlecke, 1994). This first study sought to uncover any such potentially confounding differences by administering the English language version of the RTS to an Australian sample, and Chinese (English-Chinese bilingual) sample. Major discrepancies would be taken to indicate that the RTS may not be suitable in a Chinese context, and thus a translation of the scale would not be useful.

## Method

**Participants.** Four hundred ninety-two psychology students in Australia were recruited via posters, and participated in return for course credit. Of this sample, 369 were Australian, and spoke English as their first language, and 123 were Chinese individuals currently residing in Australia. The Australians were aged 17 to 60 years ( $M = 21$ ), 66% were female. The Chinese participants were aged 18 to 29 years ( $M = 20$ ), 72% were female.

**Materials.** Alongside demographic questions, participants completed the English language version of the RTS.

**The RTS.** Respondents rated how well each of the 20 statements described them on a 7-point Likert-type scale, with 1 indicating *not at all* and 7 indicating *very well* (Brinker & Dozios, 2009). An example item is “I tend to replay past events as I would have liked them to happen.” Scores range from 20, indicating no trait rumination, to 140, indicating high trait rumination. The Chinese language version of this instrument is the subject of this validation process. The items were presented in a fixed order as shown in Table 1.

**Procedure.** All participants completed the RTS via an online survey.

**Statistical analysis.** Total score and internal consistency reliability was compared across samples using ANOVA and Cronbach’s alpha. To compare the measurement model across samples, we first conducted confirmatory factor analysis (CFA) using diagonally weighted least square estimation (DWLS) in model estimation to the English sample to confirm the factor model. DWLS is suitable for responses with categorical and ordinal nature (Bandalos, 2014). Next, we run a multigroup CFA to fit the factor model to both samples. We fitted a first model that allowed all parameters being freely estimated, and a second model that fixed the factor loadings to be equal

**Table 1.** Within-Subjects Item-Wise Comparisons Between RTS and RTS-CH, Study 3.

Item	<i>r</i>	<i>t</i>	<i>p</i>
1. I find that my mind often goes over things again and again	.81***	0.72	.475
2. When I have a problem, it will gnaw on my mind for a long time	.64***	-1.10	.281
3. I find that some thoughts come to mind over and over throughout the day	.88***	-2.58	.016
4. I can't stop thinking about some things	.87***	-1.15	.258
5. When I am anticipating an interaction, I will imagine every possible scenario and conversation	.87***	0.83	.415
6. I tend to replay past events as I would have liked them to happen	.59***	-1.10	.282
7. I find myself daydreaming about things I wish I had done	.70***	-3.00	.006
8. When I feel I have had a bad interaction with someone, I tend to imagine various scenarios where I would	.53***	0.80	.432
9. When trying to solve a complicated problem, I find that I just keep coming back to the beginning without	.43***	1.33	.194
10. If there is an important event coming up, I think about it so much that I work myself up	.52**	1.41	.169
11. I have never been able to distract myself from unwanted thoughts	.17	-1.49	.148
12. Even if I think about a problem for hours, I still have a hard time coming to a clear understanding	.67***	-0.66	.515
13. It is very difficult for me to come to a clear conclusion about some problems, no matter how much I think about them	.47**	-2.19	.037
14. Sometimes I realize I have been sitting and thinking about something for hours	.71***	-1.10	.282
15. When I am trying to work out a problem, it is like I have a long debate in my mind where I keep going to	.50**	-0.13	.899
16. I like to sit and reminisce about pleasant events from the past	.90***	-2.12	.043
17. When I am looking forward to an exciting event, thoughts of it interfere with what I am working on	.76***	1.57	.129
18. Sometimes even during a conversation, I find unrelated thoughts popping into my head	.90***	1.44	.161
19. When I have an important conversation coming up, I tend to go over it in my mind again and again	.84***	-0.23	.823
20. If I have an important event coming up, I can't stop thinking about it	.85***	1.76	.090

Note. *r* is the correlation between RTS and RTS-CH for each item. *t* and the associated *p* column refers to item-wise *t* test comparing RTS and RTS-CH scores. RTS = Ruminative Thought Styles Questionnaire; RTS-CH = Chinese version of RTS.

\*\**p* < .01. \*\*\**p* < .001.

for both groups. Metric invariance is satisfied if the fit indices of the second model do not significantly differ from the first model. The estimation was performed in R (version 3.0.1) and by using the lavaan (version 0.5-17) package. The latent variables are determined by fixing their variances to 1.0, with allowing for the free estimation of other parameters.

## Results and Discussion

ANOVA revealed RTS scores in the Chinese ( $M = 88$ ,  $SD = 21$ ) and English ( $M = 87$ ,  $SD = 20$ ) samples were not significantly different. Results of the CFA indicated that a single-factor model with allowing 10 correlated residuals pairs<sup>1</sup> achieved the optimal model fit in the Australian sample,  $\chi^2(160) = 767.60$ ,  $p < .001$ , comparative fit index (CFI) = 0.980, Tucker–Lewis Index (TLI) = 0.976, root mean square error of approximation (RMSEA) = 0.102,  $\omega = 0.89$ ; as well as in the Chinese sample,  $\chi^2(160) = 201.20$ ,  $p < .001$ , CFI = 0.988, TLI = 0.986, RMSEA = 0.085,  $\omega = 0.91$ . This model achieved sufficient model fit for both samples when parameters were allowed to be different across samples,  $\chi^2(320) = 1,068.79$ ,  $p < .001$ , CFI = 0.982, TLI = 0.979, RMSEA = 0.098. The model fit statistics for a model that constrained the factor loadings to be equal across groups were  $\chi^2(339) = 1,106.7$ ,  $p < .001$ , CFI = 0.982, TLI = 0.979, RMSEA = 0.096. The model fit measured by  $\chi^2$  changed significantly,  $\Delta\chi^2 = 37.89$ ,  $p = .006$ . However, there was no substantial decrease in other model fit indices, for example,  $\Delta\text{CFI} = 0$  and  $\Delta\text{RMSEA} = 0.002$ .

The scores, internal consistency reliability (measured by coefficient  $\omega$ ), and factor structures for both samples were similar to those reported by Brinker and Dozios (2009) in the initial development of the RTS. This analysis revealed no substantial difference in the RTS between the Chinese and Australian samples, supporting the validity of subsequent Chinese language translation.

## Translation Procedure

The initial version of the RTS-CH was developed in three stages, by three native Chinese speakers who were also fluent in English, working independently. In the first stage, L. Wan translated the instrument from English into Chinese. Following the gold standard outlined in Brislin (1970), back translation into English was carried out by a different person (Stage 2, Y. Shou), and the congruence between the original, translated and back-translated versions was explored by a third person (Stage 3, H. Lin). Any discrepancies were then discussed with the authors of the article, including J. Brinker (the author of the original RTS) and the translation was adjusted. During this initial translation, and later modifications, we followed the recommendations of Harkness and Shoua-Glusberg (1998): Where a literal translation conflicted with the intended meaning of the question, a translation according to the meaning was chosen. Across subsequent studies, the RTS-CH was then iteratively improved by comparison with the English language RTS, and examined in terms of convergent and divergent validity, and internal scale structure (this process can be followed in the supplementary materials). Simplified and traditional Chinese character variants of the RTS-CH were created. This was done to reach as wide an audience as possible; though simplified and traditional Chinese characters do not have different meanings, people from different regions may be expected to be more fluent in one or the other.

## Study 2

This study focused on the factor structure of the RTS-CH, and convergent and divergent validity. In both the Western and Chinese literatures, there is an established link between rumination and negative affect (W. Hong et al., 2010), but not positive affect. Convergent and divergent validity of the RTS translation was ascertained by correlating the total RTS-CH scores with the Chinese language version of the Positive Affect Negative Affect Schedule (PANAS). The expectation was that the RTS should correlate significantly and positively with the negative axis of the PANAS (PANAS-NA), but not significantly with the positive axis (PANAS-PA).

## Method

**Participants.** One hundred sixty-one members of the general public in China were recruited via social media, and participated via a Chinese survey website (sojump.com) which offers chances to win prizes as an incentive. Participants were required to be age 18 or above to participate in this study. Aged 18 to 60 ( $M = 31$ ), 52% of participants were female. Most (78%) were living in the top four most developed provinces in China (Beijing, Shanghai, Guangdong, and Zhejiang).

**Materials.** Alongside demographic questions, participants completed the Chinese language versions of the RTS (fixed item order) and the PANAS.

**The PANAS.** This consists of a series of 20 adjectives (Watson, Clark, & Tellegen, 1988). Respondents rated how much they experienced like those adjectives on a 5-point unipolar Likert-type scale, with 1 = *very slightly/not at all*, and 5 = *extremely*, for the past month. The PANAS yields a positive affect score (PANAS\_PA) and a negative affect (PANAS\_NA) score. Both scores range from 10 (*does not at all describe the participant*) to 50 (*very much describes the participant*). Sourced from Huang, Tingzhong, and Ji (2003), the Chinese language version of the PANAS has been validated and achieved acceptable reliability in Chinese samples (Guo & Gan, 2010).

**Procedure.** Participation was via online survey. Participants provided demographic information, then completed the RTS and PANAS, in that order, without item order randomization. The remaining section of the survey was not relevant to the current study, so is not discussed here.

**Statistical analysis.** CFA with DWLS estimation was used to measure the fit of the one-factor model identified in Study 1. Correlations between the total scores of RTS with other scales was used to establish whether the pattern of convergent and divergent validity was consistent across English and Chinese versions.

## Results and Discussion

Model fit statistics of a CFA indicated that the factor model in Study 1 was sufficient for the RTS-CH,  $\chi^2(160) = 445.97$ ,  $p < .001$ , CFI = 0.969, TLI = 0.964, RMSEA = 0.106,  $\omega = 0.89$ . Cronbach's  $\alpha$  for PANAS-PA was 0.90, and for PANAS-NA was 0.90. The RTS-CH total scores correlated significantly with the Chinese language PANAS-NA ( $r = .33$ ,  $p < .001$ ) but not the PANAS-PA ( $r < .02$ ,  $p = .831$ ), suggesting appropriate convergent and divergent validity. This indicates the RTS-CH has comparable psychometric and theoretical properties as the English language RTS. Though the overall questionnaire performed well, three items has low loadings. These unsatisfactory items were reworded by the team involved in the initial translation.

## Study 3

Having established the RTS-CH performed well in terms of overall factor structure, this study sought to more closely examine item-wise equivalence. As per Sperber et al. (1994), Chinese-English bilingual participants were used to allow a clear within-subject comparison of the RTS and RTS-CH.

## Method

**Participants.** Twenty-nine Chinese-English bilingual students currently studying at the Australian National University completed both the English RTS and the Chinese RTS. Aged 19 to 36 years ( $M = 25$ ), 76% of participants were female.

**Materials.** Participants completed both the RTS and the RTS-CH (simplified characters).

**Procedure.** Participants completed the RTS and RTS-CH in pencil-and-paper format. The order (English or Chinese language first) was randomized, and participants were required to have a minimum of 30-min interval between the two language versions of RTS. Subjects were allowed to do self-directed distraction tasks during the interval.

**Statistical analysis.** Item-wise correspondence was established by paired correlation and *t* tests examining the within-subject similarity between RTS and RTS-CH responses for each item. If correlation or *t* tests indicate differences between scales (nonsignificant correlation or significant *t* test at  $\alpha = .05$ ), item rewording will be discussed.

## Results

RTS total score means were 82.56 ( $SD = 17.16$ ) for English RTS, and 83.61 ( $SD = 16.19$ ) for RTS-CN. Cronbach's  $\alpha$  was .90 for both English RTS and Chinese RTS. Paired correlation and *t* tests were used to examine the similarity between RTS and RTS-CH responses for each item (Table 1). All items had strong, significant positive correlations across the two language versions, except for the unsatisfactory Item 11, which was reworded to better reflect the original RTS Item 11's connotations of distraction. Turning to *t* tests, Items 3, 7, and 13 had weak differences in means. However, all three items also had strong, significant positive correlations with their English language counterparts, and no clear unintended wording connotations. For these reasons, these three items were not altered.

## Study 4

Having established construct validity, convergent and divergent validity, and acceptable item-level equivalence in previous studies, this final study established both the construct and psychometric validity of the final version of the RTS-CH. Convergent validity was examined here by way of the Patient Health Questionnaire-9 (PHQ-9; Kroenke, Spitzer, & Williams, 2001) as a measure of anxiety and depression, and the Suicidal Ideation Attributes Scale (SIDAS; Van Spijker et al., 2014), as depression, anxiety, and suicidal ideation have been related to rumination in the literature (Hughes et al., 2008; Surrence et al., 2009).

## Method

**Participants.** As part of a larger study, 255 students at the Central Normal University were notified via teachers' invitation in class, and participated in an online survey in return for course credit. Participants were aged between 18 and 27 years ( $M = 19.54$ ), and 80% were female.

**Materials.** In addition to the RTS-CH (simplified characters; randomized item order), participants completed two other scales in Chinese to establish convergent validity.

**The PHQ-9.** This was used to measure depression and anxiety (Kroenke et al., 2001). The PHQ-9 is the depression module of the PHQ that includes nine *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994) criteria. Each item is scored from 0 (*not at all*) to 3 (*nearly every day*). The total score of PHQ-9 was used to represent the severity of depressed mood.

**Table 2.** Standardized RTS-CH Factor Loadings for the One-Factor Model, Study 4.

Item	$\lambda$	SE	p	Confidence interval	
				Lower	Upper
(1)	0.817	0.022	<.001	0.773	0.861
(2)	0.756	0.027	<.001	0.703	0.809
(3)	0.774	0.026	<.001	0.723	0.824
(4)	0.78	0.024	<.001	0.734	0.827
(5)	0.714	0.031	<.001	0.654	0.774
(6)	0.765	0.026	<.001	0.715	0.815
(7)	0.770	0.026	<.001	0.718	0.822
(8)	0.711	0.03	<.001	0.653	0.77
(9)	0.622	0.036	<.001	0.551	0.693
(10)	0.762	0.028	<.001	0.708	0.816
(11)	0.671	0.032	<.001	0.608	0.734
(12)	0.676	0.033	<.001	0.611	0.74
(13)	0.712	0.03	<.001	0.653	0.772
(14)	0.522	0.039	<.001	0.446	0.597
(15)	0.744	0.03	<.001	0.686	0.802
(16)	0.587	0.04	<.001	0.508	0.665
(17)	0.723	0.029	<.001	0.667	0.779
(18)	0.705	0.031	<.001	0.645	0.765
(19)	0.708	0.03	<.001	0.649	0.766
(20)	0.796	0.023	<.001	0.752	0.84

Note. The item number corresponds to the item number in Table 1. Confidence intervals refer to  $\lambda$ .

*Generalized Anxiety Disorder–7 items (GAD-7)*. This was used to measure anxiety (Spitzer, Kroenke, Williams, & Löwe, 2006). The GAD-7 scores seven common anxiety symptoms. The total scores of the two scales were used as measures of depression and anxiety.

*The SIDAS*. This is a five-item scale that measured the severity of suicidal ideation (Van Spijker et al., 2014). The five items assess the frequency, controllability, closeness to attempt, distress, and interference with daily activities. Each item was rated on a 10-point scale. The total scores of the five items were used to indicate suicidal tendency.

*Procedure*. Subjects accessed the survey via the online survey platform LIME. As part of a larger study, participants completed the PHQ-9, General Anxiety Diagnosis-7, SIDAS, and RTS, in order. To balance fatigue effects, all instruments were administered with randomized question order.

## Results and Discussion

The mean RTS-CH mean score was 90.33 ( $SD = 22.53$ ). The measurement model of the RTS-CH was explored, before turning to convergent validity. Model fit statistics of a CFA indicated that the factor model in Study 1 was sufficient for the RTS-CH  $\chi^2(160) = 330.91$ ,  $p < .001$ , CFI = 0.995, TLI = 0.994, RMSEA = 0.069,  $\omega = 0.94$ . As shown in Table 2, all items were significantly loaded on the single factor.

A correlation analysis using the total scores of RTS was conducted to measure the convergent validity of RTS with PHQ-9, GAD-7, and suicidal tendency. Cronbach's alpha for PHQ-9 was

.83, and for GAD-7 was .90. The RTS-CH was significantly and positively correlated with general depression ( $r = .23, p < .001$ ) and anxiety ( $r = .25, p < .001$ ). The RTS-CH was not correlated with suicidal tendency ( $r = 0.5, p = .460$ ), likely because very few (only 6%) of the sample indicated they had thought about suicide.

## General Discussion

This article outlined the development and validation of the RTS-CH, a Chinese language version of Brinker and Dozios's (2009) rumination questionnaire, the RTS. Translation to create the RTS-CH was undertaken following the procedure outlined in Brislin (1970), with initial translation, back translation, and checking undertaken by three independent bilingual individuals. As per Harkness and Shoua-Glusberg (1998), translation proceeded with an emphasis on translating meaning rather than literal wording, with consultation with the original RTS developer to ensure meaning was preserved.

The resultant RTS-CH performs comparably with the English language RTS, with a clear single-factor solution, and excellent internal consistency reliability. Similarity in within-subject administration, and patterns of convergent and divergent validity, suggests the RTS-CH also demonstrates construct validity. It does not correlate with positive affect, and is significantly positively associated with negative affect, anxiety, and depression, in line with what may be expected given both the Western and Chinese literature (W. Hong et al., 2010; Hughes et al., 2008; Muris et al., 2005; Wilkinson & Goodyer, 2006). Together, these results suggest that the scale is capturing the construct of rumination well, without inadvertently tapping unexpected psychological phenomena.

Given the relationship between suicidal ideation and rumination in the Western (Surrence et al., 2009) and Chinese (Liu et al., 2012) literatures, we had expected the RTS-CH would be significantly associated with suicidal thoughts and behaviors. This was not the case, perhaps because too few participants reported suicidality. Alternatively, a possible confound between negative thought and depression in extant Chinese language rumination measures may have biased previous conclusions. Either explicitly or implicitly, current Chinese language rumination questionnaires tend to measure negative content more akin to the "brooding" subtype. The way in which the RTS-CH is significantly associated with negative mood and anxiety, but not suicidality, suggests that the suicidality literature may be skewed due to the depressive content of rumination instruments being used. This is an important avenue for future suicidality research in both English- and Chinese-speaking countries.

The primary limitation of the development of the RTS-CH was sampling. The majority of participants were sourced from nonclinical settings, such as the general population and university student populations. Future research should investigate how the RTS-CH performs among individuals from a clinical population, as more extreme scores may reveal undetected psychometric problems with the RTS-CH. In addition, the majority of the Chinese participants came from urban, relatively wealthy areas. There are marked cultural differences across China, particularly between urban and rural areas (Hesketh & Ding, 2005), so accordingly the applicability of the RTS-CH in rural China should be evaluated in future research.

The RTS is a measure of rumination, operationalized as repetitive, recurrent, intrusive, and uncontrollable thinking. Its attractive psychometric properties and lack of inherently negative or depressive content make it a useful tool for rumination research. Due to its links with depression and suicidal thoughts and behaviors, there is growing interest in rumination in Chinese samples. This article outlined the translation and development of the RTS-CH, a Chinese language version of the RTS. The RTS-CH is the first Chinese language rumination measure that does not have inherently negative or depressive content. It also has attractive psychometric properties in terms of internal consistency reliability, and convergent and divergent validity. The RTS-CH is

consequently well placed to meaningfully contribute to future research into rumination in a Chinese context.

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### Authors' Note

The ethical aspects of this research have been approved by the Australian National University Human Research Ethics Committee.

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### Note

1. The item order in this study was not randomized. The correlated residuals included four subgroups of items clustering together as a result of order effect. The four groups are (a) Item Pairs 1-3, 2-3, and 3-4; (b) Item Pairs 6-7, 6-8, and 7-8; (c) Item Pair 12-13, and (d) Item Pairs 16-17, 17-20, and 19-20.

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