

Rumination in Daily Life Is Linked to Poorer Psychological Health in the United States Than in Japan

Social Psychological and

Personality Science

2026, Vol. 17(7) 844–855

© The Author(s) 2025

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/19485506251407414

journals.sagepub.com/home/spp



Danfei Hu¹ , Yuri Miyamoto², Yulia Chentsova-Dutton³, Lisy Kaspi¹,
Renee J. Thompson⁴, Tomotaka Okuyama², and Maya Tamir¹ 

Abstract

Rumination has been linked to worse psychological health. Yet, some cross-cultural research suggests that associations between trait rumination and psychological health may be stronger in Western than East Asian cultures. This investigation tested, for the first time, whether using rumination to regulate emotions in daily life is differentially linked to psychological health in different cultural contexts. In two preregistered studies that involved baseline (trait level) and ecological momentary assessments (state level), we tested links between rumination and psychological health in college student samples from the United States ($N_s = 128$ and 105) and Japan ($N_s = 93$ and 113), at both trait and state levels. In both studies, rumination in daily life was associated with lower well-being, but these associations were stronger in the United States than in Japan. These findings emphasize the importance of culturally sensitive approaches to understanding emotion regulation and psychological health.

Keywords

rumination, emotion regulation, culture, psychological health, depressive symptoms

Handling Editor: Lora Park

Rumination refers to a cognitive response style that involves repetitively focusing on the causes and implications of one's unpleasant experiences (Nolen-Hoeksema et al., 2008). Extensive research has linked rumination to worse psychological health outcomes (Aldao et al., 2010), including prolonged periods of depression (Nolen-Hoeksema et al., 2008). These effects have guided research and clinical interventions targeting rumination (Spasojević & Alloy, 2001; Watkins et al., 2007). However, some evidence suggests that associations between trait rumination and psychological health may vary across cultures (Choi & Miyamoto, 2023; Tamir et al., 2024), potentially being stronger in Western compared with East Asian cultures. Here, we tested for the first time, whether there are cultural differences in links between rumination at the state-level and psychological health in daily life.

Rumination and Psychological Health

When it occurs unintentionally, rumination is considered a cognitive process biased by the overrepresentation of negative information in attention (Wisco et al., 2014). When it is intentionally implemented in the service of changing emotion, rumination can also be considered an emotion regulation strategy (Gross, 2015). In general, rumination

has been consistently associated with worse psychological health. Research has shown that individuals who suffer from depression tend to ruminate more (Liu & Thompson, 2017). Moreover, when people ruminate about unpleasant experiences, it tends to amplify and extend distress (Gruber et al., 2011; Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 2008). Indeed, rumination contributes to the onset, severity, and duration of depression (Nolen-Hoeksema et al., 2008), and anxiety and eating disorders (Ruscio et al., 2015; Smith et al., 2018). However, to date, rumination has been investigated primarily in Western contexts.

¹The Hebrew University of Jerusalem, Israel

²Hitotsubashi University, Tokyo, Japan

³Georgetown University, Washington, DC, USA

⁴Washington University in St. Louis, MO, USA

Corresponding Authors:

Danfei Hu, Department of Psychology, The Hebrew University of Jerusalem, Mount Scopus, Jerusalem 9190501, Israel.

Email: danfei.hu@mail.huji.ac.il,

Maya Tamir, Department of Psychology, The Hebrew University of Jerusalem, Mount Scopus, Jerusalem 9190501, Israel.

Email: tamirm@mail.huji.ac.il

Culture and Rumination

Research has highlighted the need to consider cultural differences in links between rumination and psychological health. Trait rumination has been consistently linked to worse psychological outcomes—such as higher depressive symptoms and lower life satisfaction—in Western (vs. East Asian) cultures (Bonanno et al., 2005; Chang et al., 2010; Choi & Miyamoto, 2023; Tamir et al., 2024). Such cultural differences may arise because individuals from Western cultures tend to focus more on personal traits in their reasoning and view such traits as relatively stable over time (Peng & Nisbett, 1999). In contrast, individuals from East Asian cultures tend to focus more on context in their reasoning and view personal traits as relatively dynamic and malleable (Heine et al., 2001). Thus, when people experience unpleasant emotions and ruminate on them, those from Western (vs. East Asian) cultures may be more likely to link it to self-doubt (e.g., “I am ruminating because I am incompetent”) and less likely to view rumination as an act of self-improvement (e.g., “I am ruminating to learn from my mistakes”; Choi & Miyamoto, 2023). Furthermore, people from Western cultures tend to adopt a more self-immersed (first-person) perspective when thinking about autobiographical experiences, whereas individuals from East Asian cultures tend to adopt a more self-distanced (third-person) perspective (Cohen & Gunz, 2002). Because adopting a self-immersed (rather than self-distanced) perspective while ruminating tends to intensify the emotional distress associated with rumination (Kross & Ayduk, 2011), people from Western cultures—who tend to take a more self-immersed perspective—may experience more negative consequences of rumination (cf. Grossmann & Kross, 2010). In contrast, rumination may carry fewer negative implications for people from East Asian cultures, who tend to take a more self-distanced perspective. These tendencies, therefore, are likely to render rumination more psychologically harmful in Western, compared with East Asian, cultures (for a review, see Choi & Miyamoto, 2024).

Existing evidence for cultural differences in the psychological correlates of rumination, however, has several limitations. First, such research has focused on trait rumination, as measured by versions of the Ruminative Response Scale (Nolen-Hoeksema, 1991; Treynor et al., 2003). Trait rumination captures one’s perception of their tendency to ruminate, whereas state rumination captures the act of ruminating at a particular moment in time (Watkins & Roberts, 2020). When measured by repeated momentary assessments in everyday life, state rumination can reflect repeated acts of ruminating as they occur in one’s natural environment. Trait and state rumination are only weakly correlated, differentially related to negative emotional reactivity, and linked to distinctive brain connectivity patterns (Hilt et al., 2015; Wei et al., 2024). Cultural differences in state rumination in daily life, therefore, may not necessarily replicate differences in trait rumination.

Second, no study to date has tested cultural differences in the implications of state rumination in daily life. Instead, existing studies on cultural differences in emotion regulation have relied on retrospective, global methods. Although informative, such findings may or may not capture differences in actual emotion regulatory behaviors (Koval et al., 2023). To address this limitation, it is necessary to examine rumination naturalistically. This approach allows researchers to move beyond trait-level measures, which are susceptible to recall bias and may reflect people’s beliefs rather than behaviors (Robinson & Clore, 2002).

Third, existing research has focused on associations at the between-person level. Stronger between-person associations indicate that people who ruminate more tend to have worse psychological health. An equally important question, however, is whether the same person would experience worse psychological health when they ruminate more. Such within-person associations may be independent of between-person associations (Nezlek, 2001). Testing cultural differences in between- and within-person associations requires assessing rumination and psychological health in daily life in different cultural contexts.

Current Research

To test whether links between rumination and psychological health differ by culture, we conducted two studies, including a baseline assessment and 7 days of ecological momentary assessments (EMAs). At baseline, we measured trait rumination and depressive symptoms. In the EMAs, we measured state rumination and psychological health eight times a day. We hypothesized that links between rumination and psychological health would be more negative in the U.S. than in Japan, at both the trait and state levels.

Transparency and Openness. Both studies were preregistered (Study 1: <https://aspredicted.org/jp94-qnkz.pdf>; Study 2: <https://aspredicted.org/hf3m-82mp.pdf>) and approved by the ethics committees of the local universities.¹ Study materials, data, and R codes are available at https://osf.io/85xh4/overview?view_only=48302c2ba28f4b57b1ae11986a85b7b5. Below, we report how we determined sample sizes, exclusion criteria, and all relevant measures and analyses.

Method

Since both studies used similar designs, we present the methods and results of both studies together, highlighting differences between studies, where relevant. In Study 1, the U.S. sample was recruited from a private university in Washington, DC, and in Study 2, the U.S. sample was recruited from a private university in Saint Louis, Missouri. In both studies, the Japanese samples were recruited from a public, national university in Tokyo.

Participants and EMA Samples

In both studies, university students were recruited to participate in an EMA study on emotion regulation in daily life. Following our preregistrations, participants were included if they were 18 years or older, local residents, native-born, and native speakers of the local language.

Study 1. We preregistered to recruit at least 194 participants for the EMA study. Sample size estimation was based on previous EMA data from our laboratory with a similar design (i.e., comparing emotion regulation in daily life in healthy and depressed individuals; $b = 0.09$; $t = 1.94$; random slope variance, $\tau_{11} = .03$), using the summary-statistics-based power analysis (Murayama et al., 2022). At baseline, we recruited 238 participants (United States = 131 and Japan = 107) to account for possible attrition. From the 225 participants (United States = 131 and Japan = 94), who completed the EMA study, we collected a total of 8,252 eligible EMA surveys (i.e., participants answered at least one emotion-related question), and compliance rates were comparable across countries (United States: $M = 63\%$, $SD = 24\%$; Japan: $M = 68\%$, $SD = 22\%$, $p = .080$). Per our preregistration, 14 baseline responses (United States = 7 and Japan = 7) were excluded due to participants failing the attention check, resulting in a total of 224 valid baseline responses. We excluded 237 EMA surveys in which participants had zero variance in their responses, failed an attention check, or submitted repeated responses within the same sampling window (fewer than 3%), leaving 8,015 EMA surveys in the final sample.² The final EMA sample included 128 U.S. participants and 93 Japanese participants. Samples differed by gender (United States: women = 101, men = 18, other gender identities = 3, unknown = 6; Japan: women or other gender identities = 31, men = 61, unknown = 1, $p < .001$), but not by age (United States: $M = 19.89$, $SD = 1.49$; Japan: $M = 19.54$, $SD = 1.16$, $p = .064$).

Study 2. We preregistered to recruit at least 191 participants for the EMA study. Sample size was predetermined based on findings from Study 1 (i.e., cultural differences in motivated emotion regulation; $b = 0.79$; $t = 3.08$; random slope variance, $\tau_{11} = .15$), using the summary-statistics-based power analysis (Murayama et al., 2022). At baseline, we oversampled and recruited 270 participants (United States = 149 and Japan = 121). Among the 219 participants (United States = 105 and Japan = 114) who completed the EMA study, we received a total of 7,315 eligible EMA surveys (i.e., participants answered at least one emotion-related question). Compliance rates were lower in the U.S. sample ($M = 53\%$, $SD = 29\%$) compared with the Japanese sample ($M = 64\%$, $SD = 20\%$), $p < .001$. No baseline responses were excluded. Following our

preregistration, we excluded 413 EMA surveys where participants failed an attention check, had zero variance in responses, or submitted duplicated responses within the same sampling window (fewer than 6% the entire EMA sample), leaving 6,902 surveys in the final EMA sample. The final EMA sample included 105 U.S. participants and 113 Japanese participants. The groups differed by gender (United States: women = 66, men = 33, other gender identities = 3, unknown = 3; Japan: women = 44, men = 68, other gender identities = 1, $p < .001$) and age (United States: $M = 19.94$, $SD = 1.22$; Japan: $M = 19.54$, $SD = 1.12$, $p = .012$).

In both studies, to address the unbalanced gender distributions and potential sample differences in age and compliance rates, we included gender, age, and compliance rates (EMA analyses only) as covariates. Results remained consistent with or without these covariates.

Procedure

Participants completed the study in their native language (i.e., English or Japanese). Participants first completed a baseline survey, which included measures of trait rumination and depressive symptoms and demographic questions. During the EMA portion, participants received prompts to complete smartphone-based surveys measuring the use of rumination and indices of psychological health eight times daily over 7 consecutive days. Prompts were sent to participants via the SEMA3 app (O'Brien et al., 2024; used for the U.S. sample in Study 1 and the Japanese samples in both studies) or SurveySignal (Hofmann & Patel, 2015; used for the U.S. sample in Study 2). The 12 hr sampling window (10 a.m.–10 p.m.) was divided into eight intervals, such that notifications were sent at random points within each interval, ensuring a minimum of 40 min between two subsequent EMA prompts.³ Once prompted, participants had 20 min to respond. Participants received course credit or monetary compensation, based on their completion rate.

Measures

Following recommended guidelines (van de Vijver & Tanzer, 2004), we performed multiple rounds of translation and back-translation by bilingual individuals to develop the Japanese version of the study materials. Measures in Study 2 were the same as those in Study 1, except for one change (see below). We report reliability estimates, overall and by country, in Table 1.

Baseline Measures

Trait Rumination. Participants responded to 10 items, indicating what they generally do when they feel unpleasant (1 = *almost never*; 4 = *almost always*). Following

Table 1. Reliability Estimates for the Entire Sample and by Country.

Measures	Sample	Study 1		Study 2	
		α		α	
Trait rumination (baseline)	United States	.81		.83	
	Japan	.77		.73	
	Overall	.79		.78	
Depressive symptoms (baseline)	United States	.86		.81	
	Japan	.73		.79	
	Overall	.82		.79	
		ω_{within}	$\omega_{between}$	ω_{within}	$\omega_{between}$
Mean strategies (EMA)	United States	.54	.88	.68	.93
	Japan	.62	.97	.58	.96
	Overall	.57	.93	.63	.95
Well-being (EMA)	United States	.63	.93	.61	.85
	Japan	.56	.85	.55	.86
	Overall	.60	.89	.57	.86
Psychological distress (EMA)	United States	.73	.96	.68	.86
	Japan	.72	.98	.62	.92
	Overall	.72	.97	.64	.90

Choi and Miyamoto (2023), we combined the Brooding (e.g., “think ‘Why do I always react this way?’”) and Reflection (e.g., “write down what you are thinking about and analyze it.”) subscales of the Ruminative Response Scale to represent overall trait rumination (Nolen-Hoeksema, 1991).⁴

Depressive Symptoms. Participants completed the 10-item version of the Center of Epidemiological Studies Depression Scale (CES-D; Andresen et al., 1994), reporting the frequency of depressive symptoms (e.g., I felt depressed) over the past week (1 = *rarely or none of the time*; 4 = *most or all of the time*).

EMA Measures

State Rumination. To measure state-level rumination, using a 9-point scale (1 = *not at all*; 9 = *to a great extent*), participants indicated the extent to which they focused on what was making them feel bad and thought about it over and over since the last assessment.

In addition to rumination, we measured the extent to which participants used six other strategies to influence their emotions, including distraction, situation selection, acceptance, cognitive reappraisal, social support seeking, and expressive suppression (see Study Materials for item wording; adapted from Kalokerinos et al., 2017). Following published recommendations (Matthews et al., 2021; Mueller et al., 2024), to ensure we are not capturing overall effort in emotion regulation, we computed the mean intensity use of all strategies and entered it as a covariate in our analyses. Results held even when the rumination item was excluded from mean strategy scores.

Psychological Health. To assess psychological health in daily life, we measured well-being and psychological distress in each EMA survey. Participants indicated (1 = *not at all*; 9 = *very much*) how much they felt various indices of well-being (i.e., satisfied with life, have purpose in life, close and connected to others, physically healthy) and psychological distress (i.e., depressed, hopeless, lonely, and physical pain or discomfort). The “physical pain or discomfort” item was included only in Study 2. To test whether these captured different aspects of psychological health, we conducted a multilevel factor analysis. The analysis supported a two-factor solution, with no cross-loadings between factors. Therefore, following our preregistrations, we aggregated items to compute a score of well-being and a score of psychological distress.

Culture-Related Response Biases and Measurement Equivalence

In cross-cultural studies, it is necessary to test for possible response biases and cultural measurement equivalence. Response biases refer to consistent tendencies that respondents exhibit in self-reports, which might vary by culture and, therefore, undermine measurement validity. Measurement equivalence refers to the extent to which scores reflect the same latent construct in each culture (He & van de Vijver, 2012).

At baseline, we selected measures of trait rumination (Van Doren et al., 2021) and depressive symptoms (Crockett et al., 2005) that have been previously validated as equivalent across cultures. Nonetheless, we tested for possible response biases in the data. To this end, we summed all cases where participants chose a low or high

endpoint of the rating scale, separately (Harzing, 2006). In both studies, Japanese participants (Study 1: $M = 6.35$, $SD = 3.30$; Study 2: $M = 6.48$, $SD = 3.76$) were more likely to choose the low endpoint of the scale than U.S. participants (Study 1: $M = 5.42$, $SD = 3.59$; Study 2: $M = 5.04$, $SD = 3.09$), $p = .003$ in Study 1 and $p = .029$ in Study 2. In Study 1, U.S. participants ($M = 3.10$, $SD = 2.85$) were also more likely to choose the high endpoint of the scale than Japanese participants ($M = 1.74$, $SD = 2.26$), $p < .001$, but in Study 2, the two samples (Japan: $M = 2.74$, $SD = 2.34$; United States: $M = 2.90$, $SD = 2.04$) did not differ in their likelihood of choosing the high endpoint, $p = .591$. Following published recommendations (He & Van de Vijver, 2016), we corrected for differences in response styles by recoding responses of 1 and 2 as 0, and responses of 3 and 4 as 1. To summarize the data in their original units, raw scores were used for descriptive statistics, but bias-corrected scores were used in all the analyses. Analyses and results using raw scores are presented in the Supplemental Materials.

In the EMA data, we first used multilevel multigroup confirmatory factor analyses to test the measurement equivalence of the psychological health measure. We could not test the measurement equivalence of our state-level rumination measure, as this test requires a minimum of three items per measure. We evaluated multiple goodness-of-fit indices—such as the root mean square of error of approximation (RMSEA $\leq .08$), standardized root-mean-square residual (SRMR $\leq .08$), and comparative fit index (CFI $\geq .90$)—and followed the majority rule to assess and compare models for configural, metric, and scalar equivalence. In both studies, the psychological health measures achieved partial metric invariance (see Supplemental Materials), which is adequate to test relationships between constructs across groups (Byrne et al., 1989). Next, we tested for response biases in the EMA data. We found no cultural differences in the tendency to use extreme responses (Study 1: $M = 3.01$, $SD = 3.16$ for U.S. participants, $M = 2.81$, $SD = 3.63$ for Japanese participants, $p = .563$; Study 2: $M = 5.33$, $SD = 4.03$ for U.S. participants, $M = 4.40$, $SD = 4.22$ for Japanese participants, $p = .101$), suggesting the absence of response biases in the EMA data.

Analysis Plan

All data analyses were conducted in *R* (Version 4.1.1).

Trait-Level Analysis. To test for cultural differences in the associations between trait rumination and depressive symptoms, we fitted a linear regression model, entering trait rumination, country, and their interaction as predictors, with depressive symptoms entered as the outcome. We used `partial_eta_squared()` from the *rstatix* package to evaluate effect sizes. Given the sample differences, we controlled for

participants' gender and age. These covariates did not change the pattern of the results.

State-Level Analysis. We used two-level multilevel models to account for the hierarchical structure of the EMA data, using the *lme4* and *lmerTest* packages. We used the package *r2glmm* and *effectsize* to evaluate effect sizes. First, to test whether the association between state rumination and daily psychological health varied by culture, we conducted moderation analyses, entering state rumination at Level 1 (i.e., the moment level), culture at Level 2 (i.e., the person level), and their cross-level interaction as predictors, and daily psychological health (i.e., well-being and psychological distress, separately) at Level 1 as the outcome. Second, to test whether potential observed patterns were attributed to state rumination, rather than overall regulatory effort, we added mean strategy use as a covariate. This adjustment typically decreases effect sizes but helps separate the contribution of individual strategies (Matthews et al., 2021; Mueller et al., 2024). Third, we controlled for psychological health at the previous assessment (i.e., within-day). The inclusion of this lagged variable helps account for any pre-existing differences in psychological health between Japan and the United States and reduces residual variance, providing more accurate parameter estimates (Hamaker et al., 2023). Fourth, given the sample differences, we controlled for participants' gender, age, and EMA compliance rates to ensure that any observed patterns were not attributed to these factors. We included random slopes for all Level-1 predictors (person-mean-centered). Continuous Level-2 predictors were grand-mean-centered. When models did not converge, we re-ran them using the "bobyqa" optimizer. We report results of the strictest model in the main text. Results were similar when tested without covariates.⁵

Results

Table 2 displays descriptive statistics and correlations between key variables, by country. Importantly, trait rumination was not significantly correlated with state rumination, except for a weak, positive correlation in Japanese participants in Study 2. This highlights the importance of separately assessing trait- and state-level rumination and psychological health.

Did Associations Between Trait Rumination and Depressive Symptoms Differ by Culture?

As Table 3 presents, in Study 1, there was a significant interaction between trait rumination and culture on depressive symptoms, $F(1, 216) = 5.71$, $p = .018$, $\eta_p^2 = 0.03$. Simple slopes analysis revealed that trait rumination was linked to higher depressive symptoms among U.S. participants, $B = 0.55$, $SE = 0.09$, $p < .001$, 95% CI = [0.37, 0.74], but not among Japanese participants, $B = 0.20$, SE

Table 2. Descriptive Statistics and Correlations Between Key Variables by Country.

Variables	M	SD _{within}	SD _{between}	ICC	1	2	3	4	5	6
Study 1										
Japan										
1. Trait rumination	2.26	—	0.56	—	—	—	—	—	—	—
2. CES-D	1.90	—	0.43	—	.18 [†]	—	—	—	—	—
3. State rumination	3.93	1.48	1.60	0.49	.19 [†]	.22*	—	.46***	.02	.31***
4. Mean strategy use	4.35	0.85	1.39	0.71	.20 [†]	.19 [†]	.89***	—	.27***	.21***
5. Well-being	5.80	0.76	1.25	0.69	-.10	-.38***	.24*	.28**	—	-.17***
6. Distress	3.47	1.08	1.70	0.63	.17	.37***	.77***	.65***	-.14	—
United States										
1. Trait rumination	2.44	—	0.59	—	—	—	—	—	—	—
2. CES-D	2.03	—	0.58	—	.49***	—	—	—	—	—
3. State rumination	3.89	1.74	1.37	0.36	-.04	-.15 [†]	—	.35***	-.17***	.35***
4. Mean strategy use	4.39	0.87	1.04	0.55	.00	.00	.68***	—	.17***	.07***
5. Well-being	5.63	0.83	1.50	0.74	.05	.13	-.20*	.12	—	-.46***
6. Distress	2.97	0.99	1.54	0.63	-.04	-.16 [†]	.57***	.35***	-.65***	—
Study 2										
Japan										
1. Trait rumination	2.45	—	0.57	—	—	—	—	—	—	—
2. CES-D	1.81	—	0.43	—	.35***	—	—	—	—	—
3. State rumination	3.70	1.59	1.68	0.47	.22*	.07	—	.49***	.02	.22***
4. Mean strategy use	4.13	0.90	1.45	0.70	.18 [†]	.02	.92***	—	.23***	.22***
5. Well-being	5.29	0.99	1.35	0.64	-.09	-.33***	.35***	.49***	—	-.11***
6. Distress	2.89	1.01	1.23	0.56	.28**	.39***	.57***	.49***	-.16 [†]	—
United States										
1. Trait rumination	2.37	—	0.63	—	—	—	—	—	—	—
2. CES-D	1.95	—	0.47	—	.47***	—	—	—	—	—
3. State rumination	2.97	1.49	1.70	0.45	.16	.20*	—	.45***	-.05*	.34***
4. Mean strategy use	3.61	1.00	1.37	0.58	.20*	.25*	.79***	—	.20***	.23***
5. Well-being	5.64	0.90	1.36	0.65	-.25*	-.43***	-.03	.13	—	-.17***
6. Distress	2.50	0.85	1.16	0.54	.29**	.40***	.58***	.51***	-.42***	—

Note. CES-D = depressive symptoms. ICC = intraclass correlation coefficient, which indicates the proportion of variance resides at the between-person level. Descriptives and correlations were computed using the psych package in R (statsBy function; Revelle, 2025). Descriptives were computed based on the raw scores (before correcting for response biases in baseline measures), and correlations were computed based on the bias-corrected scores for baseline measures. Numbers below the diagonal are between-person correlations. Numbers above the diagonal are within-person correlations.

[†] $p < .10$. ** $p < .01$. *** $p < .001$.

Table 3. Associations Between Trait Rumination and Depressive Symptoms in Japan and United States: Baseline Analyses.

Variables	df	F	p	η_p^2
Study 1				
Trait rumination	1	34.91	<.001	0.14
Country	1	0.08	.782	0.00
Gender	2	0.26	.769	0.00
Age	1	0.45	.502	0.00
Trait rumination × culture	1	5.71	.018	0.03
Study 2				
Trait rumination	1	59.41	<.001	0.19
Country	1	12.97	<.001	0.05
Gender	2	0.72	.487	0.01
Age	1	0.71	.401	0.00
Trait rumination × culture	1	0.99	.322	0.00

Note. Culture: -1 = United States, 1 = Japan. Gender: -1 = female or other gender identities, 0 = unknown, 1 = male. Continuous variables were centered.

= 0.12, $p = .088$, 95% CI = [-0.03, 0.43]. In Study 2, however, the trait rumination × culture interaction was not significant, $F(1, 256) = 0.99$, $p = .322$, $\eta_p^2 = 0.00$. The main effect of trait rumination was significant in both studies, p s < .001, such that trait rumination was associated with higher depressive symptoms. The main effect of culture was not significant in Study 1 ($p = .782$), but significant in Study 2 ($p < .001$), such that depressive symptoms were higher in the U.S. than in the Japanese sample.

Did Associations Between State Rumination and Psychological Health Differ by Culture in Daily Life?

Well-Being. As Table 4 shows, the interaction between state rumination and culture was significant in both studies ($p = .006$ in Study 1 and $p = .011$ in Study 2). As Figure 1 shows, state rumination was negatively linked to well-being in U.S. participants – even after controlling for well-being

Table 4. Associations Between State Rumination and Daily Psychological Health in Japan and United States: Fixed Effects From Multilevel Models.

Variables	DV = well-being				DV = psychological distress			
	B (SE)	p	β std., 95% CI	R ²	B (SE)	p	β std., 95% CI	R ²
Study 1								
Level-1 predictors								
(Intercept)	5.76 (0.10)	<.001	0.02 [−0.10, 0.15]	—	3.14 (0.11)	<.001	0.03 [−0.09, 0.15]	—
State rumination	−0.08 (0.01)	<.001	−0.09 [−0.11, −0.07]	0.03	0.14 (0.01)	<.001	0.13 [0.10, 0.15]	0.04
Mean strategy use	0.26 (0.02)	<.001	0.15 [0.12, 0.17]	0.07	−0.01 (0.03)	.811	0.00 [−0.03, 0.02]	0.00
DV _{t−1}	0.27 (0.02)	<.001	0.14 [0.12, 0.16]	0.07	0.29 (0.02)	<.001	0.17 [0.15, 0.19]	0.09
Level-2 predictors								
Culture	−0.19 (0.11)	.096	−0.12 [−0.26, 0.02]	0.04	−0.18 (0.13)	.163	−0.09 [−0.23, 0.04]	0.02
Gender	−0.22 (0.11)	.061	−0.13 [−0.27, 0.01]	0.05	0.21 (0.13)	.101	0.11 [−0.02, 0.24]	0.03
Age	−0.07 (0.07)	.333	−0.06 [−0.17, 0.06]	0.01	0.09 (0.08)	.236	0.07 [−0.04, 0.17]	0.01
Compliance	0.01 (0.01)	.118	0.07 [−0.02, 0.16]	0.02	−0.02 (0.01)	.036	−0.09 [−0.17, −0.01]	0.03
Cross-level interaction								
State rumination × culture	−0.02 (0.01)	.006	−0.02 [−0.04, −0.01]	0.00	0.01 (0.01)	.381	0.01 [−0.01, 0.03]	0.00
Study 2								
Level-1 predictors								
(Intercept)	5.41 (0.10)	<.001	−0.01 [−0.13, 0.11]	—	2.58 (0.08)	<.001	0.02 [−0.10, 0.13]	—
State rumination	−0.07 (0.01)	<.001	−0.07 [−0.09, −0.04]	0.01	0.09 (0.01)	<.001	0.10 [0.07, 0.13]	0.02
Mean strategy use	0.25 (0.02)	<.001	0.14 [0.11, 0.17]	0.04	0.12 (0.03)	<.001	0.08 [0.04, 0.11]	0.01
DV _{t−1}	0.22 (0.02)	<.001	0.13 [0.10, 0.15]	0.05	0.22 (0.02)	<.001	0.14 [0.12, 0.17]	0.05
Level-2 predictors								
Culture	0.16 (0.10)	.109	0.10 [−0.02, 0.21]	0.02	−0.22 (0.08)	.010	−0.15 [−0.26, −0.04]	0.04
Gender	0.11 (0.10)	.266	0.06 [−0.05, 0.18]	0.01	0.08 (0.08)	.356	0.05 [−0.06, 0.16]	0.01
Age	0.03 (0.08)	.741	0.02 [−0.10, 0.14]	0.00	−0.10 (0.07)	.156	−0.08 [−0.19, 0.03]	0.02
Compliance	−0.01 (0.01)	.290	−0.04 [−0.13, 0.04]	0.01	−0.01 (0.01)	.258	−0.05 [−0.12, 0.03]	0.01
Cross-level interaction								
State rumination × culture	−0.03 (0.01)	.011	−0.03 [−0.05, −0.01]	0.00	0.01 (0.01)	.293	0.01 [−0.01, 0.04]	0.00

Note. Culture: −1 = United States, 1 = Japan. Gender: −1 = female or other gender identities, 0 = unknown, 1 = male. B(SE) = raw regression coefficient (standard error). $\beta_{std.}$, 95% CI = standardized coefficient and its 95% confidence interval. Level-1 continuous variables were person-mean-centered. Level-2 continuous variables were grand-mean-centered.

at the previous assessment – in both Study 1, $B = -0.11$, $SE = 0.01$, $p < .001$, 95% CI = $[-0.13, -0.09]$ and Study 2, $B = -0.10$, $SE = 0.02$, $p < .001$, 95% CI = $[-0.13, -0.06]$. However, this association was weaker among Japanese participants in both studies (Study 1: $B = -0.06$, $SE = 0.01$, $p < .001$, 95% CI = $[-0.09, -0.04]$; Study 2: $B = -0.04$, $SE = 0.01$, $p = .007$, 95% CI = $[-0.07, -0.01]$). These interactions qualified significant

main effects of state rumination in both studies, $ps < .001$, such that using more rumination in daily life was associated with lower well-being. The main effect of culture was not significant in either study ($p = .096$ in Study 1 and $p = .109$ in Study 2).

Psychological Distress. In both studies and both samples, state rumination was associated with higher psychological

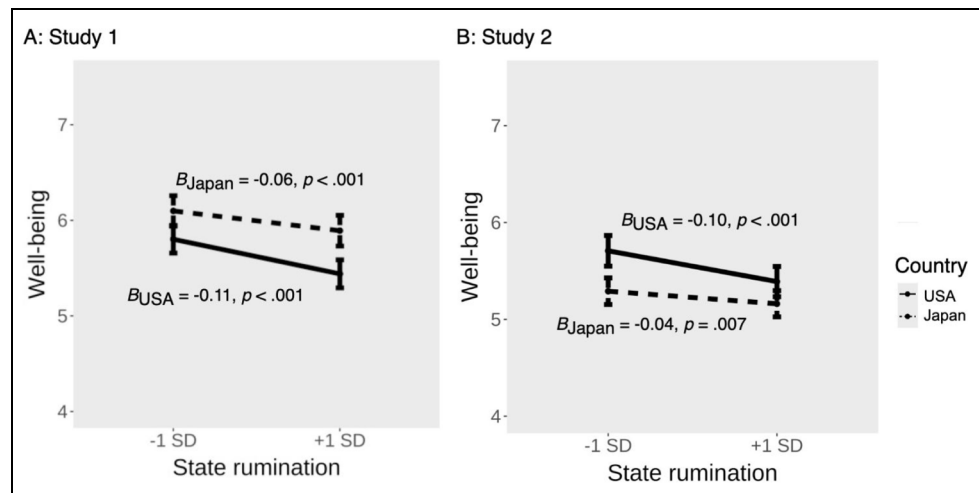


Figure 1. Associations Between State Rumination and Daily Well-Being in Japan and United States.

distress, $ps < .001$. The interaction between culture and state rumination was not significant in either study ($p = .381$ and $.293$, in Studies 1 and 2, respectively). The main effect of culture was not significant in Study 1 ($p = .163$), but significant in Study 2 ($p = .010$), such that Japanese participants experienced more psychological distress than U.S. participants.

General Discussion

In two preregistered studies, associations between rumination and psychological health were more negative in the United States than in Japan, both at the trait and state levels. Consistent with prior work (Wei et al., 2024), we found that trait rumination and state rumination were weakly correlated, highlighting the importance of assessing them separately. This finding not only corroborates the conceptualization that rumination is a multifaceted construct involving both trait-level characteristics and state-level fluctuations but also highlights the importance of understanding the implications of these factors separately.

At the trait level, we replicated prior findings in Study 1 (but not in Study 2), showing that trait rumination was more strongly associated with higher depressive symptoms among U.S. (vs. Japanese) participants. At the state level, we provide the first evidence, replicated in two separate studies, that rumination in daily life is more strongly associated with moment-to-moment decreases in well-being in the United States than in Japan, and this association was independent of pre-existing cultural differences in well-being.

Theoretical and Applied Implications

These findings add to the growing evidence for cultural differences in emotion regulation (Tamir et al., 2024). They

are the first to demonstrate cultural differences in associations between the use of rumination and psychological health as they unfold in real time, in response to personally relevant events. From a theoretical perspective, these findings further corroborate the idea that links between emotion regulation strategies and psychological health are context-dependent and can vary, in part, as a function of cultural values, beliefs, and affordances. In Western cultural contexts, rumination is considered a maladaptive strategy that has been implicated in depression and targeted in interventions to improve psychological health (Spasojević & Alloy, 2001; Watkins et al., 2007). Although rumination was linked to poorer psychological health in both the U.S. and Japanese samples, this association was significantly stronger in the United States. This suggests that decreasing rumination may be more effective for promoting psychological health in the United States than in other cultural contexts, such as Japan.

Limitations and Future Directions

Our studies have several limitations. First, although EMA methods track experiences as they occur in real life and we controlled for well-being at prior time, these methods still provide correlational evidence. The findings could suggest that the implications of rumination for psychological health differ across cultures, or that the likelihood of engaging in rumination at different levels of psychological health differs across cultures. Future research could test these possibilities, by manipulating rumination and testing its implications across cultures.

Second, in two preregistered studies, we tested whether associations between rumination and psychological health differed between the United States and Japan, both at the trait and state levels. While we consistently found that the link between state rumination and positive indices of

psychological health (i.e., well-being) was weaker in Japan (vs. United States), such cultural differences were not observed for negative indices (i.e., psychological distress). Instead, we found a main effect of state rumination on psychological distress in both studies. These findings may suggest that although it can be distressing, ruminating in daily life may also involve purposeful engagement (e.g., meaning-making) in Japan. Such purposeful engagement is likely associated with greater well-being. These patterns are somewhat consistent with existing cross-sectional evidence (Tamir et al., 2024), pointing to stronger evidence for cultural differences in the associations between rumination (as an emotion regulation strategy) and indices of well-being (i.e., life satisfaction) than psychological distress (e.g., depressive symptoms). Overall, it is possible that ruminating on unpleasant events carries distinct implications for psychological distress and well-being. Although rumination may be associated with distress regardless of culture (Kaiser et al., 2015), it might contribute more to meaning-making and well-being in Japan than in the United States—potentially by facilitating self-improvement rather than self-doubt (Choi & Miyamoto, 2023). Future research could test why cultural differences are specific to associations between rumination and positive, rather than negative, indices of psychological health.

There was another inconsistency in our findings. In Study 1, replicating prior research (Chang et al., 2010; Choi & Miyamoto, 2023), we found that the positive association between trait rumination and depressive symptoms was stronger in the United States than in Japan. This effect, however, was not replicated in Study 2. One possible explanation may lie in sample differences. While the Japanese participants were recruited from the same university in both studies, the U.S. participants were drawn from two different universities in two different cities. Hence, it is possible that the American samples were not identical in the two studies, which may have led to different patterns at the trait level.

Third, our operationalization of state rumination measure targeted general repetitive thinking about what made one feel bad. While we intentionally kept this language broad to capture the wide range of possible targets of ruminative thoughts in daily life, the measure did not explicitly assess whether participants were ruminating about their emotions. Also, although state rumination was measured within a short timeframe in daily life, it was not assessed in relation to a specific event in time. Moreover, rumination involves two components, which might carry different implications. Brooding involves passive and judgmental pondering of one's unpleasant experiences and is generally harmful for well-being, whereas reflection involves purposeful pondering of one's unpleasant experiences with a focus on problem solving and may be less harmful (Treyner et al., 2003). We think our results may be driven by cultural differences in the brooding component of

rumination. When examining rumination at the trait level, our analyses revealed cultural differences in associations between brooding, but not reflection, and psychological health (see Supplemental Materials; see also Choi & Miyamoto, 2023 for a similar pattern). Future research should further test cultural differences in brooding and reflection, particularly in daily life.

Fourth, we did not examine why links between rumination and psychological health differ across cultures. One possible explanation is that in Western independent cultures, there is an emphasis on individual agency and personal responsibility; and in such cultures, rumination may be more likely to reflect self-doubt than in East Asian countries (Choi & Miyamoto, 2023), which renders it more costly to well-being. Alternatively, cultural differences in views toward unpleasant affect may play a role. Since unpleasant affect is viewed more negatively in Western (vs. East Asian) countries (Seow et al., 2024), and such negative views tend to amplify the link between unpleasant affect and psychological health (Luong et al., 2016), rumination may also be more strongly associated with it. Future studies could test what underlies such cultural differences.

Finally, our studies compared U.S. and Japanese samples, as potential representatives of Western and East Asian cultures, respectively. However, differences between the United States and Japan may not extend to other Western and East Asian cultures (see Kaspi et al., 2025). Future research should test links between emotion regulation strategies and psychological health in daily life in other cultural contexts, striving for samples that are equivalent in demographic characteristics.

Conclusion

In two preregistered studies, we found that both trait and state rumination were negatively associated with psychological health, but the strength of these associations was stronger among U.S. participants than among Japanese participants. These findings highlight the importance of considering cultural contexts when examining emotion regulation and psychological health.

ORCID iDs

Danfei Hu  <https://orcid.org/0000-0001-6228-692X>

Maya Tamir  <https://orcid.org/0000-0002-2675-8042>

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was funded by a collaborative grant from the Japan Society for the Promotion of Science (Grant No. 120228402) and the Israel Science Foundation (Grant No. 138/22), granted to M.T. and Y.M., and supported by the Artery Chair in Personality

Studies endowed to M.T., as well as the Azrieli International Postdoctoral Fellowship granted to D.H.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Supplemental Material

Supplemental material for this article is available online.

Notes

1. Our hypothesis about cultural differences in links between state-level rumination and psychological health was mentioned as exploratory in Study 1 and preregistered in Study 2. In Study 1, but not in Study 2, we also preregistered to examine potential cultural differences in mean levels of rumination. Across both studies, we found no consistent evidence of cultural differences in the degree to which people ruminate. These results are reported in the Supplemental Materials.
2. In Study 1, we preregistered to exclude careless EMA responses submitted in under 650 ms (Geeraerts & Kuppens, n.d.). This cutoff, however, was based on EMA studies conducted in Germanic languages (e.g., English) and was not suitable for Japanese. Therefore, we did not apply it.
3. Due to technical issues, some EMA surveys (85 in Study 1 and 8 in Study 2) fell outside the sampling window. Including or excluding them did not change the results.
4. We report separate analyses of brooding and reflection in Supplemental Materials. Cultural differences were replicated for brooding, but not for reflection.
5. We also repeated the state-level analyses, adding trait rumination as a Level-2 predictor to test whether effects were unique to state rumination. The results remained unchanged.

References

- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical psychology review, 30*(2), 217–237. <https://doi.org/10.1016/j.cpr.2009.11.004>
- Andresen, E. M., Malmgren, J. A., Carter, W. B., & Patrick, D. L. (1994). Screening for depression in well older adults: Evaluation of a short form of the CES-D. *American Journal of Preventive Medicine, 10*(2), 77–84.
- Bonanno, G. A., Papa, A., Lalande, K., Zhang, N., & Noll, J. G. (2005). Grief processing and deliberate grief avoidance: A prospective comparison of bereaved spouses and parents in the United States and the People's Republic of China. *Journal of Consulting and Clinical Psychology, 73*(1), 86–98. <https://doi.org/10.1037/0022-006X.73.1.86>
- Byrne, B. M., Shavelson, R. J., & Muthén, B. (1989). Testing for the equivalence of factor covariance and mean structures: The issue of partial measurement invariance. *Psychological Bulletin, 105*(3), 456–466. <https://doi.org/10.1037/0033-2909.105.3.456>
- Chang, E. C., Tsai, W., & Sanna, L. J. (2010). Examining the relations between rumination and adjustment: Do ethnic differences exist between Asian and European Americans? *Asian American Journal of Psychology, 1*(1), 46–56. <https://doi.org/10.1037/a0018821>
- Choi, J. H., & Miyamoto, Y. (2023). Cultural differences in rumination psychological correlates: The role of attribution. *Personality Social Psychology Bulletin, 49*(8), 1213–1230. <https://doi.org/10.1177/01461672221089061>
- Choi, J. H., & Miyamoto, Y. (2024). Revisiting negative experiences: A sociocultural cognitive framework. *Social and Personality Psychology Compass, 18*(1), e12811. <https://doi.org/10.1111/spc3.12811>
- Cohen, D., & Gunz, A. (2002). As seen by the other...: Perspectives on the self in the memories and emotional perceptions of Easterners and Westerners. *Psychological Science, 13*(1), 55–59. <https://doi.org/10.1111/1467-9280.00409c>
- Crockett, L. J., Randall, B. A., Shen, Y.-L., Russell, S. T., & Driscoll, A. K. (2005). Measurement equivalence of the Center for Epidemiological Studies Depression Scale for Latino and Anglo adolescents: A national study. *Journal of Consulting and Clinical Psychology, 73*(1), 47–58. <https://doi.org/10.1037/0022-006X.73.1.47>
- Geeraerts, J., & Kuppens, P. (n.d.). *Investigating careless responding detection techniques in experience sampling methods (ESM)*. OSF. <https://osf.io/8ymh5/download>
- Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry, 26*(1), 1–26. <https://doi.org/10.1080/1047840X.2014.940781>
- Grossmann, I., & Kross, E. (2010). The impact of culture on adaptive versus maladaptive self-reflection. *Psychological Science, 21*(8), 1150–1157. <https://doi.org/10.1177/0956797610376655>
- Gruber, J., Eidelman, P., Johnson, S. L., Smith, B., & Harvey, A. G. (2011). Hooked on a feeling: Rumination about positive and negative emotion in inter-episode bipolar disorder. *Journal of Abnormal Psychology, 120*(4), 956–961. <https://doi.org/10.1037/a0023667>
- Hamaker, E. L., Asparouhov, T., & Muthén, B. (2023). Dynamic structural equation modeling as a combination of time series modeling, multilevel modeling, and structural equation modeling. In R. H. Hoyle (Ed.), *The handbook of structural equation modeling* (2nd ed., pp. 576–596). The Guilford Press.
- Harzing, A.-W. (2006). Response styles in cross-national survey research: A 26-country study. *International Journal of Cross Cultural Management, 6*(2), 243–266. <https://doi.org/10.1177/1470595806066332>
- He, J., & van de Vijver, F. (2012). Bias and equivalence in cross-cultural research. *Online Readings in Psychology and Culture, 2*(2), 8. <https://doi.org/10.9707/2307-0919.1111>
- He, J., & Van de Vijver, F. J. (2016). Response styles in factual items: Personal, contextual and cultural correlates. *International Journal of Psychology, 51*(6), 445–452. <https://doi.org/10.1002/ijop.12263>
- Heine, S. J., Kitayama, S., Lehman, D. R., Takata, T., Ide, E., Leung, C., & Matsumoto, H. (2001). Divergent consequences of success and failure in Japan and North America: An investigation of self-improving motivations and malleable selves. *Journal of Personality and Social Psychology, 81*(4), 599–615. <https://doi.org/10.1037/0022-3514.81.4.599>

- Hilt, L. M., Aldao, A., & Fischer, K. (2015). Rumination and multi-modal emotional reactivity. *Cognition and Emotion*, 29(8), 1486–1495. <https://doi.org/10.1080/02699931.2014.989816>
- Hofmann, W., & Patel, P. V. (2015). SurveySignal: A convenient solution for experience sampling research using participants' own smartphones. *Social Science Computer Review*, 33(2), 235–253. <https://doi.org/10.1177/0894439314525117>
- Kaiser, B. N., Haroz, E. E., Kohrt, B. A., Bolton, P. A., Bass, J. K., & Hinton, D. E. (2015). "Thinking too much": A systematic review of a common idiom of distress. *Social Science & Medicine*, 147, 170–183. <https://doi.org/10.1016/j.socscimed.2015.10.044>
- Kalokerinos, E. K., Résibois, M., Verduyn, P., & Kuppens, P. (2017). The temporal deployment of emotion regulation strategies during negative emotional episodes. *Emotion*, 17(3), 450–458. <https://doi.org/10.1037/emo0000248>
- Kaspi, L., Hu, D., Vishkin, A., Chentsova-Dutton, Y., Miyamoto, Y., Ciecuch, J., Cohen, A., Uchida, Y., Kim, M. Y., Wang, X., Qiu, J., Riediger, M., Rauters, A., Hanoch, Y., & Tamir, M. (2025). Motivated to feel better and doing something about it: Cross-cultural differences in motivated emotion regulation during COVID-19. *Emotion*, 25(1), 1–17. <https://doi.org/10.1037/emo0001403>
- Koval, P., Kalokerinos, E. K., Greenaway, K. H., Medland, H., Kuppens, P., Nezlek, J. B., Hinton, J. D. X., & Gross, J. J. (2023). Emotion regulation in everyday life: Mapping global self-reports to daily processes. *Emotion*, 23(2), 357–374. <https://doi.org/10.1037/emo0001097>
- Kross, E., & Ayduk, O. (2011). Making meaning out of negative experiences by self-distancing. *Current Directions in Psychological Science*, 20(3), 187–191. <https://doi.org/10.1177/0963721411408883>
- Liu, D. Y., & Thompson, R. J. (2017). Selection and implementation of emotion regulation strategies in major depressive disorder: An integrative review. *Clinical Psychology Review*, 57, 183–194. <https://doi.org/10.1016/j.cpr.2017.07.004>
- Luong, G., Wrzus, C., Wagner, G. G., & Riediger, M. (2016). When bad moods may not be so bad: Valuing negative affect is associated with weakened affect-health links. *Emotion*, 16(3), 387–401. <https://doi.org/10.1037/emo0000132>
- Matthews, M., Webb, T. L., Shafir, R., Snow, M., & Sheppes, G. (2021). Identifying the determinants of emotion regulation choice: A systematic review with meta-analysis. *Cognition and Emotion*, 35(6), 1056–1084. <https://doi.org/10.1080/02699931.2021.1945538>
- Mueller, I., Pruessner, L., Holt, D. V., Zimmermann, V., Schulze, K., Strakosch, A.-M., & Barnow, S. (2024). If it ain't broke, don't fix it: Positive versus negative emotion regulation in daily life and depressive symptoms. *Journal of Affective Disorders*, 348, 398–408. <https://doi.org/10.1016/j.jad.2023.12.037>
- Murayama, K., Usami, S., & Sakaki, M. (2022). Summary-statistics-based power analysis: A new and practical method to determine sample size for mixed-effects modeling. *Psychological Methods*, 27(6), 1014–1038. <https://doi.org/10.1037/met0000330>
- Nezlek, J. B. (2001). Multilevel random coefficient analyses of event- and interval-contingent data in social and personality psychology research. *Personality and Social Psychology Bulletin*, 27(7), 771–785. <https://doi.org/10.1177/0146167201277001>
- Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology*, 100(4), 569–582. <https://doi.org/10.1037/0021-843X.100.4.569>
- Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science*, 3(5), 400–424. <https://doi.org/10.1111/j.1745-6924.2008.00088.x>
- O'Brien, S. T., Dozo, N., Hinton, J. D., Moeck, E. K., Susanto, R., Jayaputera, G. T., Sinnott, R. O., Vu, D., Alvarez-Jimenez, M., Gleeson, J., & Koval, P. (2024). SEMA3: A free smartphone platform for daily life surveys. *Behavior Research Methods*, 56(7), 7691–7706. <https://doi.org/10.3758/s13428-024-02445-w>
- Peng, K., & Nisbett, R. E. (1999). Culture, dialectics, and reasoning about contradiction. *American Psychologist*, 54(9), 741–754. <https://doi.org/10.1037/0003-066X.54.9.741>
- Revelle, W. (2025). psych: Procedures for psychological, psychometric, and personality research (Version 2.5.6) [Computer software]. Northwestern University. <https://CRAN.R-project.org/package=psych>
- Robinson, M. D., & Clore, G. L. (2002). Belief and feeling: Evidence for an accessibility model of emotional self-report. *Psychological Bulletin*, 128(6), 934–960. <https://doi.org/10.1037/0033-2909.128.6.934>
- Ruscio, A. M., Gentes, E. L., Jones, J. D., Hallion, L. S., Coleman, E. S., & Swendsen, J. (2015). Rumination predicts heightened responding to stressful life events in major depressive disorder and generalized anxiety disorder. *Journal of Abnormal Psychology*, 124(1), 17–26. <https://doi.org/10.1037/abn0000025>
- Seow, J. H., Du, H., & Koopmann-Holm, B. (2024). What is a compassionate face? Avoided negative affect explains differences between U.S. Americans and Chinese. *Cognition and Emotion*, 39(3), 704–713. <https://doi.org/10.1080/02699931.2024.2385708>
- Smith, K. E., Mason, T. B., & Lavender, J. M. (2018). Rumination and eating disorder psychopathology: A meta-analysis. *Clinical Psychology Review*, 61, 9–23. <https://doi.org/10.1016/j.cpr.2018.03.004>
- Spasojević, J., & Alloy, L. B. (2001). Rumination as a common mechanism relating depressive risk factors to depression. *Emotion*, 1(1), 25–37. <https://doi.org/10.1037/1528-3542.1.1.25>
- Tamir, M., Ito, A., Miyamoto, Y., Chentsova-Dutton, Y., Choi, J. H., Ciecuch, J., Riediger, M., Rauters, A., Padun, M., Kim, M. Y., Solak, N., Qiu, J., Wang, X., Alvarez-Risco, A., Hanoch, Y., Uchida, Y., Torres, C., Nascimento, T. G., Afshar Jahanshahi, A., . . . Gari Ibarra, V. J. (2024). Emotion regulation strategies and psychological health across cultures. *American Psychologist*, 79(5), 748–764. <https://doi.org/10.1037/amp0001237>
- Treynor, W., Gonzalez, R., & Nolen-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research*, 27, 247–259. <https://doi.org/10.1023/A:1023910315561>
- van de Vijver, F., & Tanzer, N. K. (2004). Bias and equivalence in cross-cultural assessment: An overview. *European Review of Applied Psychology / Revue Européenne de Psychologie Appliquée*, 54(2), 119–135. <https://doi.org/10.1016/j.erap.2003.12.004>
- Van Doren, N., Zainal, N. H., & Newman, M. G. (2021). Cross-cultural and gender invariance of emotion regulation in the United States and India. *Journal of Affective Disorders*, 295, 1360–1370. <https://doi.org/10.1016/j.jad.2021.04.089>
- Watkins, E. R., & Roberts, H. (2020). Reflecting on rumination: Consequences, causes, mechanisms and treatment of

- rumination. *Behaviour Research and Therapy*, 127, 103573. <https://doi.org/10.1016/j.brat.2020.103573>
- Watkins, E. R., Scott, J., Wingrove, J., Rimes, K., Bathurst, N., Steiner, H., Kennell-Webb, S., Moulds, M., & Malliaris, Y. (2007). Rumination-focused cognitive behaviour therapy for residual depression: A case series. *Behaviour Research and Therapy*, 45(9), 2144–2154. <https://doi.org/10.1016/j.brat.2006.09.018>
- Wei, L., Dong, H., Ding, F., Luo, C., Wang, C., Baeken, C., & Wu, G. R. (2024). Shared and distinctive brain networks underlying trait and state rumination. *Behavioural Brain Research*, 472, 115144. <https://doi.org/10.1016/j.bbr.2024.115144>
- Wisco, B. E., Gilbert, K. E., & Marroquín, B. (2014). Maladaptive processing of maladaptive content: Rumination as a mechanism linking cognitive biases to depressive symptoms. *Journal of Experimental Psychopathology*, 5(3), 329–350. <https://doi.org/10.5127/jep.038213>
- Yuri Miyamoto** is a professor in the Graduate School of Social Sciences at Hitotsubashi University.
- Yulia Chentsova-Dutton** is an associate professor in the Department of Psychology at Georgetown University.
- Lisya Kaspi** is a PhD student in the Department of Psychology at the Hebrew University of Jerusalem.
- Renee J. Thompson** is an associate professor in the Department of Psychological and Brain Sciences at Washington University in St. Louis.
- Tomotaka Okuyama** is a PhD student in the Graduate School of Social Sciences at Hitotsubashi University.

Author Biographies

Danfei Hu is a postdoctoral research fellow in the Department of Psychology at the Hebrew University of Jerusalem.

Maya Tamir is a professor of Psychology at the Hebrew University of Jerusalem.