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Exploring Cultural Differences in Expressive Suppression and Emotion Recognition

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Abstract

Previous research has shown that the habit of suppressing emotional expressions is associated with long-term, general reductions in social cognitive abilities and interpersonal adjustment. This may be because theoretically, habitual suppression requires the fixation of attention to the self instead of to others. The present research explored the association between the habitual tendency to suppress one's own emotions and accuracy in recognizing the emotions of others. Emotion recognition accuracy was tested across two tasks, a limited-channel task that presents limited emotional information and a multimodal full-channel task. We further explored cultural differences in this association given that expressive suppression may be normative for individuals of Asian descent due to cultural motivations toward social harmony and interdependence. Our findings revealed few cultural group differences. U.S.-born Asian Americans outperformed foreign-born Asian Americans and European Americans in limited-channel emotion recognition. However, the three groups did not differ in terms of interdependent self-construal, habitual emotion suppression, and full-channel emotion recognition ability. Interdependent self-construal was related to greater habitual suppression and emotion recognition accuracy in the full-channel task. Habitual emotion suppression was negatively related to limited-channel but not full-channel emotion recognition. There was no evidence of cultural differences in the link between habitual suppression and emotion recognition.

Keywords

expressive suppression; emotion recognition; culture; emotion regulation; Asian American

Gross posits that expressive suppression involves a continuous focusing of attention toward the self to prevent the activation of expressive responses, and this is a major reason for why it is considered maladaptive (Gross, 2015). Such reasoning can be sourced back to theories regarding the inverse relationship between self-focus and environment-focus (Ellis & Ashbrook, 1989). This reasoning explains why individuals who habitually engage in

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expressive suppression exhibit various interpersonal impairments (Gross & John, 2003), such as the reduced development of relationship closeness (Srivastava, Tamir, McGonigal, John, & Gross, 2009), degraded memory for socially relevant information (Richards & Gross, 2000), and studies that report similar results (e.g., Goldin, McRae, Ramel, & Gross, 2008; Richards, Butler, & Gross, 2003; Richards & Gross, 1999). In this study, we explored the possibility that habitual expressive suppression could be associated with emotion recognition in the laboratory. If habitual suppression does breed tendency toward self-focused attention, it could plausibly reduce the ability to recognize emotions in others.

Any such reduction in ability with suppression may not generalize to cultural contexts in which suppression is normative and well-practiced. Cultures vary in how most individuals in those cultures construe themselves (Markus & Kitayama, 1991). The independent self-construal, most prevalent in Western cultures, is a view of the self as an autonomous entity with a set of stable attributes. The interdependent self-construal by contrast tends to be more relational, prioritizing the maintenance of social harmony over drawing attention to oneself (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997). Compared with individuals that hold independent self-construals, individuals who hold interdependent self-construals seem to show greater facility in expressive suppression, potentially attenuating the penalties associated with this emotion regulatory strategy. Asian American adults are more likely to report higher levels of habitual expressive suppression (Gross & John, 2003) and rate emotional expression as less appropriate (Matsumoto, 1993). When instructed to suppress emotion, East Asians, relative to European Americans, show attenuated physiological arousal and subjective negative affect (Butler, Lee, & Gross, 2007; Murata, Moser, & Kitayama, 2013). Turkish immigrants in Germany exhibit better mental health profiles with higher levels of habitual suppression than native Germans (Arens, Balkir, & Barnow, 2013). To the extent that the negative adjustment sequelae of emotion suppression are bounded by culture, levels of emotion recognition ability may be relatively unaffected by habitual suppression among individuals from cultures such as East Asians.

In the current study, we extend the literature on emotion recognition by exploring its associations with culture and habitual expressive suppression. First, we explored differences in interdependent self-construal, expressive suppression, and emotion recognition across cultural samples that differ in their exposure to mainstream American culture: European Americans, U.S.-born Asian Americans, and foreign-born Asian Americans. Second, we examined the links between interdependent self-construal, habitual suppression, and emotion recognition performance on a limited-channel and a full-channel emotion recognition task. The limited-channel task presented participants with only photographs of the eyes of an emotion expresser, whereas the full-channel task is more ecologically valid, presenting emotion through video clips of emotion expressers with full facial expression, body language, vocal expression, and speech content. Finally, we explored the cross-cultural generalizability of these associations, given the premise that habitual expressive suppression may be more syntonetic for individuals from more interdependent cultural backgrounds, that is, Asian Americans. Our analyses are exploratory given the paucity of direct research on the relationship between habitual emotion suppression and self-versus other-directed attention.

Method

A sample of 296 undergraduates was drawn from an undergraduate psychology subject pool in a public research university and received course credit for their participation. Eighteen participants identified as either mixed-race, or neither Asian American nor European American, and were removed. This left 278 who were included in the analyses. The sample included 159 (67.30% male) self-identified Asian Americans, 71 (40.11%) of which were U.S.-born and 88 (49.72%) of which were foreign-born. Among the foreign-born Asian Americans, 60 (68.18%) were foreign students and 10 (11.36%) were permanent U.S. residents. Our European Americans consisted of 119 (30.25% male) participants. Criteria for participation in the study included proficiency in English. The study was approved by the university's institutional review board, and all participants provided written informed consent prior to enrollment.

Participants completed a brief online questionnaire and were then scheduled to complete a Reading the Mind in the Eyes task (RME) and a video emotion recognition task (VERT). A computer running Inquisit 4 controlled the task presentation and data capture, and task order was randomized for each participant. Tasks were administered on a 20-inch (50.80 cm) monitor situated approximately 16 inches away from the participant.

Self-Report Measures of Habitual Suppression and Self-Construal

We used the Emotion Regulation Questionnaire—Suppression Subscale to measure habitual expressive suppression (ERQ; Gross & John, 2003; internal consistency: $\alpha = .75$ for European Americans, $\alpha = .73$ for U.S.-born Asian Americans, and $\alpha = .82$ for foreign-born Asian Americans). We used the Self-Construal Scale to measure relative interdependent versus independent self-construal by subtracting the Independent subscale from the Interdependent subscale (SCS; Singelis, 1994; $\alpha = .74$ for European Americans, $\alpha = .83$ for U.S.-born Asian Americans, and $\alpha = .75$ for foreign-born Asian Americans).

Limited-Channel Emotion Recognition

We assessed limited-channel emotion recognition through percentage accuracy from 0% to 100% on the 72-item RME (Adams et al., 2010; $\alpha = .72$ for European Americans, $\alpha = .74$ for U.S.-born Asian Americans, and $\alpha = .71$ for foreign-born Asian Americans). The task stimuli features a set of 36 eyes from Caucasian individuals and 36 eyes from Asian individuals sourced from Japanese media.

Full-Channel Emotion Recognition

We assessed full-channel emotion recognition also through percentage accuracy on the 14-item VERT (Kang, 2012). The task stimuli include seven video excerpts from Caucasian undergraduate students and seven video excerpts from Asian undergraduate students of varying ethnicities (two Chinese, two Vietnamese, one Filipino, one Japanese, and one Thai). The validity of the VERT has been established in previous studies for European American and Asian American young adults (Lau, Fung, Wang, & Kang, 2009), and in the current sample through its significant association with the RME, $r(275) = .19, p < .01$.

Results

Preliminary Analyses

Pearson's correlations revealed a significant negative correlation between habitual expressive suppression and RME accuracy, $r(275) = -.14, p < .05$, but no significant correlation was found between suppression and VERT score. Higher levels of interdependent relative to independent self-construal was associated with habitual expressive suppression, $r(275) = .24, p < .01$, and VERT scores, $r(275) = .14, p < .02$, but not RME scores, $r(275) = .01, p = .80$. Zero-order correlations of main study variables are presented in Table 1.

One-way ANOVA was conducted to assess group differences between European Americans, U.S.-born Asian Americans, and foreign-born Asian Americans (presented in Table 2). As expected, we found significant differences in the average number of years each cultural group lived in the United States, $F(2, 275) = 170.99, p < .01$. A marginal age difference was also observed across cultural groups, $F(2, 275) = 2.66, p < .10$. Chi-square tests revealed significant differences across groups in gender ratio, $\chi^2(2) = 37.39, p < .01$. Asian American participants were more interdependent relative to independent than European Americans, but contrary to our hypothesis, there were no significant differences. Habitual expressive suppression, $F(2, 275) = 4.34, p = .01$, RME, $F(2, 275) = 6.60, p < .01$, and VERT scores, $F(2, 275) = 4.79, p < .01$, were significantly different across our cultural groups. Given the group differences in gender ratios, mean age, and mean number of years in the United States, we used one-way ANCOVA to covary for those factors as we assessed between-group differences in habitual expressive suppression, RME, and VERT scores. The ANCOVA revealed no significant cultural group differences for habitual suppression after accounting for gender, $F(5, 272) = 11.25, p = .003, \eta^2 = .03$, and no significant cultural group differences found for VERT scores after accounting for age, $F(5, 272) = 4.06, p = .04, \eta^2 = .01$, and years in the United States, $F(5, 272) = 11.31, p = .001, \eta^2 = .04$. Cultural group differences in RME scores remained, $F(5, 272) = 2.87, p = .05, \eta^2 = .02$, after covarying for gender, $F(5, 272) = 8.73, p = .003, \eta^2 = .03$, and years in the United States, $F(5, 272) = 7.76, p = .006, \eta^2 = .04$. No covariates were found to be significant other than those mentioned. Post hoc pairwise Scheffé tests were conducted to examine RME group differences accounting for the fact that the *ns* in each group were not equivalent. These tests revealed that European Americans and U.S.-born Asian Americans did not perform significantly differently. However, U.S.-born Asian Americans (RME: $M = 0.73, SD = 0.09$), $t(275) = 3.54, p < .01$, and European Americans (RME: $M = 0.71, SD = 0.10$), $t(275) = 2.51, p < .05$, outperformed foreign-born Asian Americans (RME: $M = 0.68, SD = 0.09$) (see Table 2).

Hierarchical Multiple Regression With Tests of Cultural Moderation

Hierarchical multiple regression analyses were conducted predicting both RME and VERT performance. In the first step of each model, emotion recognition was predicted from habitual expressive suppression, self-construal, and two dummy-coded variables representing U.S.-born Asian Americans and foreign-born Asian Americans relative to the European American reference group. We also covaried for age, sex, and years living in the

United States. The second step tested for moderation by culture. The interaction terms for each dummy-coded Cultural Group Variable \times Habitual Expressive Suppression and the Self-Construal \times Habitual Expressive Suppression interaction term were added to assess this moderation.¹ Continuous variables were centered prior to computing interaction terms.² We detail the specifics of each model below, and the results of each model can be found in Table 3.

RME—The first step of the model predicting RME performance accounted for a significant amount of variance ($R^2 = .12, p < .01$). We observed significant associations for sex such that women performed better than men ($\beta = .12, p = .03$), for cultural exposure such that performance increased with more years spent living in the United States ($\beta = .25, p < .01$), and for cultural group such that U.S.-born Asians performed significantly better than their European American counterparts ($\beta = .15, p = .03$). Foreign-born Asians were not found to perform significantly differently than European Americans ($\beta = .15, p = .14$). Age was marginally associated with lower RME scores ($\beta = -.11, p < .06$). No significant association was found for self-construal. Habitual expressive suppression remained significantly associated with lower scores after controlling for the above variables ($\beta = -.13, p < .04$). The second step of the model including interactions between cultural variables and emotion suppression did not explain a significant amount of additional variance ($R^2 = .01, p = .30$).

VERT—The first step of the model predicting VERT performance also accounted for a significant amount of variance ($R^2 = .10, p < .01$). We observed significant associations of cultural exposure such that performance increased with more years living in the United States ($\beta = .39, p < .01$), and interdependence relative to independent self-construal ($\beta = .15, p = .02$). Age was marginally associated with lower scores ($\beta = -.13, p = .06$). No significant associations were found for cultural groups. Contrary to our hypothesis, no significant association was found for habitual expressive suppression. The second step of the model once again did not explain a significant amount of additional variance ($R^2 = .002, p = .89$).

Exploratory Path Analysis for Emotion Recognition

To explore the potential role of habitual suppression in explaining cultural differences in emotion recognition, we conducted a path analysis with cultural group dummy codes and self-construal as the primary exogenous variables, RME and VERT as endogenous variables, and habitual suppression as an intervening variable. All estimates were adjusted, covarying for age, sex, and years in the United States. Model fit was excellent: $\chi^2(26, N = 276) = 121.22, p < .0001$, root mean square error of approximation (RMSEA) = 0.00, comparative fit index (CFI) = 1.00, standardized root mean square residual (SRMR) = 0.00. The results are shown in Figure 1 and a full effects decomposition table can be found in Table 1 of the Supplemental Materials. Results suggested that higher levels of interdependence relative to

¹We also ran analyses testing whether differences were found between the two ethnic groups (European American compared with the combined U.S.-born and foreign-born Asian American group), and likewise found no significant interactions between cultural group and expressive suppression in prediction emotion recognition performance accuracy.

²To assess for possible multicollinearity in regression models, we computed the variance inflation factor (VIF) for all predictors with VIFs greater than 4 excluded from the model. No problematic VIF scores were observed.

independence was associated with higher levels of habitual suppression ($\beta = .24, p < .001$). Furthermore, the indirect effect of interdependent self-construal on RME through habitual suppression approached significance ($\beta = -.03, p = .06$). No other significant associations emerged outside those found in previous analyses.

Discussion

The current study explored the potential role self-reported habitual expressive suppression plays in accuracy of emotion recognition in two types of laboratory emotion recognition tasks across cultural groups. The limited-channel RME Task featured few affective cues (black-and-white still photographs of only the eyes), whereas the full-channel VERT featured affective cues from multiple channels (full facial expression, body language, vocal expression, and speech content). Our study is, to our knowledge, the first of its kind to examine the relationship between habitual emotion suppression and emotion recognition while featuring participant samples that varied in ethnicity and cultural exposure levels.

Despite prior literature on the negative associations between habitual expressive suppression with socially relevant outcomes, we found limited support for the idea that habitual suppression was associated with lower emotion recognition accuracy in the laboratory. Individuals who reported higher levels of habitual expressive suppression exhibited lower scores on only limited-channel emotion recognition, and the magnitude of this association was small. This may suggest that habitual expressive suppression slightly impinges on emotion recognition but only when affective cues that facilitate recognition are sparse. When ample cues were available, impingement was not apparent.

We conducted this study with groups of European Americans, U.S.-born Asian Americans, and foreign-born Asian Americans, assuming that expressive suppression is culturally syntonic for individuals of East Asian descent due to cultural orientations toward interdependent self-construal. In support of this idea, levels of habitual expressive suppression were greater for individuals who reported higher levels of interdependent relative to independent self-views. However, our Asian American groups did not report higher levels of interdependence relative to European Americans. This may be due to group differences in comparative social references (Heine, Lehman, Peng, & Greenholtz, 2002), as self-construal scores were near zero after being grand mean centered. In addition, we found no differences in habitual expressive suppression between Asian Americans and European Americans after covarying for age, sex, and cultural exposure to American society. Individuals who reported higher levels of interdependent relative to independent self-views scored higher on the full-channel emotion recognition task but not the limited-channel task. Interdependence, therefore, may be a proxy for prioritizing interpersonal attunement, which may have a direct effect on emotion recognition accuracy. This prioritization appears to be less useful when there is little affective information available to be attuned to (i.e., in the limited-channel context). However, given the observed trend, the current study may have been underpowered for uncovering the possibility that interdependence is partially associated with limited-channel emotion recognition indirectly through habitual suppression.

We also explored the possibility that suppression-recognition associations could differ depending on culture, either it be by group (i.e., for Asian American relative to European American participants) or by levels of interdependence relative to independent self-construal. The computed standardized regression coefficients are 0.1 or smaller for all interactions, suggesting that the cultural interactions truly are null or near-null. This suggests that the effects of habitual suppression may be agnostic to culture when it comes to limited-channel emotion recognition. However, the lack of differences across cultural groups in the suppression-recognition link could be due to an insufficient accounting for acculturation. In our study, although we did assess the number of years spent in the United States as a measure of cultural exposure, this is not an ideal acculturation proxy. Future work should measure the degree of adoption of mainstream American beliefs and attitudes.

Regarding cultural differences in emotion recognition, two findings emerged. First, U.S.-born Asian Americans outperformed their foreign-born counterparts as well as their European American counterparts in limited-channel emotion recognition. Second, higher levels of interdependent self-construal was associated with higher levels of full-channel emotion recognition, but was not associated with limited-channel emotion recognition. We did not find that habitual suppression played a significant explanatory role. First, there were no significant cultural group differences in habitual expressive suppression. Furthermore, although there was an association between self-construal and both habitual expressive suppression and full-channel emotion recognition, given that habitual expressive suppression was not associated with full-channel emotion recognition, it could not explain the cultural association. Any reduction in limited-channel emotion recognition performance associated with increases in habitual suppression occurs over and above the presently examined cultural influences. Perhaps, instead of promoting any one emotion regulatory strategy, some cultural contexts may promote regulatory flexibility. Early work suggests that this flexibility may have particular effectiveness for individuals who hold interdependent self-construal (e.g., Bonanno, Papa, Lalande, Zhang, & Noll, 2005), and this may be due to those individuals carrying more dialectical beliefs about the valence of emotion and its regulation (Miyamoto & Ma, 2011). Habitual expressive suppression may be in part reflective of regulatory inflexibility, and it is this inflexibility that is more predictive of emotion recognition. It will, therefore, be important to know to what extent habitual suppression can coincide with other healthy uses of other emotion regulatory strategies and if dialectical beliefs are cultural explanations for greater regulatory flexibility.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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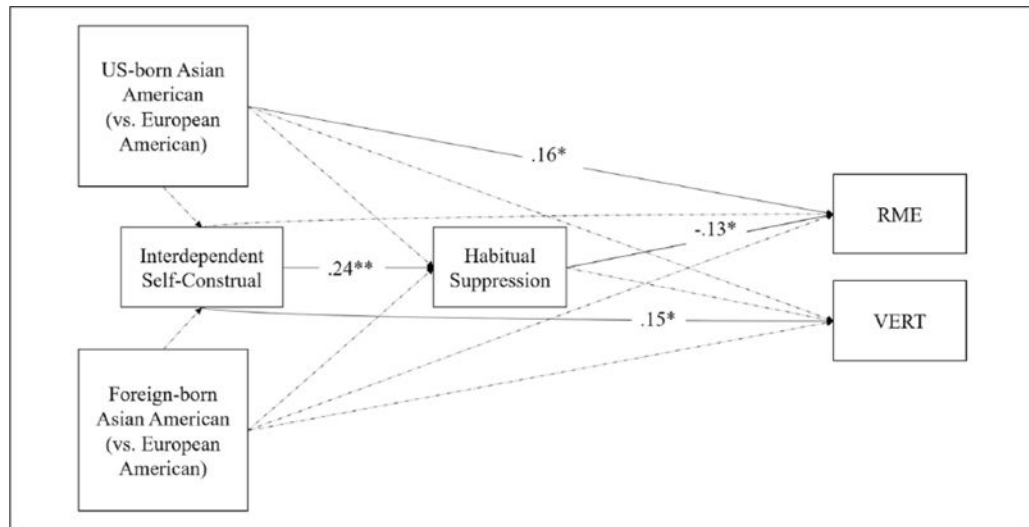


Figure 1.
Exploratory path analysis.

Note. Covariates of age, sex, and years in the United States are not shown. RME = Reading the Mind in the Eyes; VERT = Video Emotion Recognition Task.

* $p < .05$. ** $p < .01$.

Table 1

Summary of Zero-Order Cross-Correlations Between Main Study Variables.

Variable	1	2	3	4	5	6	7
1. Age	—						
2. Years living in the United States	.33**	—					
3. Sex ^a	-.02	.15**	—				
4. Expressive suppression	-.08	-.10	-.24**	—			
5. Interdependent versus independent self-construal ^b	-.16**	-.14*	.10 [†]	.24**	—		
6. Reading the mind in the eyes ^c	-.03	.23**	.16**	-.12*	.01	—	
7. Video emotion recognition ^c	-.04	.24**	.12*	-.03	.14**	.20*	—

^aMales are coded 0, females are coded 1.^bHigher scores indicate greater interdependent relative to independent self-construal.^cReflects proportion correct.[†] $p < .10$.* $p < .05$.** $p < .01$.

Table 2

Cultural Group Differences on Main Study Variables.

Variable	European Americans (<i>n</i> = 119)		U.S.-born Asians (<i>n</i> = 71)		Foreign-born Asians (<i>n</i> = 88)		F^c	η^2
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)		
Sex								$\chi^2 = 37.39^{**}$
Male	30.25%		67.61%		67.05%			
Female	69.75%		32.39%		32.95%			
Age	21.52 (5.84)		19.97 (1.38)		21.17 (4.18)		39.63 ^{**}	.22
Years living in the United States	20.11 (6.07)		19.25 (3.50)		6.21 (6.56)		241.51 ^{**}	.64
Expressive suppression	3.41 (1.16)		3.82 (1.08)		3.83 (1.19)		<i>ns</i>	
Interdependent versus independent self-construal ^a	-0.03 (1.00)		0.08 (0.79)		0.01 (0.85)		<i>ns</i>	
Reading the mind in the eyes ^b	0.71 (0.10)		0.73 (0.09)		0.68 (0.09)		2.87 [*]	.02
Video emotion recognition ^b	0.64 (0.11)		0.64 (0.13)		0.60 (0.13)		<i>ns</i>	

^aVariable is centered at zero.^bReflects proportion correct.^c*F* values are computed from ANCOVAs covarying for background variables (i.e., sex, age, and years living in the United States).

Table 3

Hierarchical Multiple Regression Analyses for Both Limited- and Full-Channel Emotion Recognition.

Variable	Emotion recognition task			
	Reading the mind in the eyes		Video emotion recognition task	
	R^2	β	R^2	β
Step 1	.12 [*]		.10 [*]	
Age		-.12 [†]		-.13 [†]
Sex		.16 [*]		.07
Years living in the United States		.35 ^{**}		.39 ^{**}
EA versus AA1		.16 [*]		.02
EA versus AA2		.17 [†]		.14
Self-construal ^a		.02		.15 [*]
Suppression		-.13 [*]		-.06
Step 2	.01		.00	
Age		-.12 [†]		-.14 [†]
Sex		.16 [*]		.07
Years living in the United States		.35 ^{**}		.39 ^{**}
EA versus AA1		.15 [*]		-.02
EA versus AA2		.18 [†]		.14
Self-construal ^a		.03		.15 [*]
Suppression		-.20 [*]		-.04
+EA Versus AA1 × Suppression		.10		.01
+EA Versus AA2 × Suppression		.02		-.04
+Self-Construal ^a × Suppression		-.08		.02

Note. EA = European American; AA1 = U.S.-born Asian; AA2 = Foreign-born Asian.

^aHigher scores indicate greater interdependent relative to independent self-construal.

* $p < .05$.

** $p < .01$.