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Family emotion expressivity, emotion regulation, and the link to psychopathology: Examination across race

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Research has established links between parental emotion socialization behaviours and youth emotional and psychological outcomes; however, no study has simultaneously compared these relations for White, Black, and Asian individuals. In this study, emerging adults identifying as White ($n = 61$), Black ($n = 51$), or Asian ($n = 56$) retrospectively reported on parents' emotion socialization behaviours during childhood, existing emotion regulation (ER) skills, and current psychopathology symptoms. Asian participants reported fewer positive displays of emotions in their families during childhood than White and Black participants. Despite this difference, low expression of positive emotions in families during childhood did not relate to negative outcomes for Asian participants but was linked for White and Black participants. Overall, Asian participants reported more difficulties with ER than Black or White participants, and relations between ER difficulties and psychopathology varied by racial group. The findings emphasize the need to consider race when conducting research on emotion functioning with families and highlight emotion dysregulation as a potential treatment target for White, Black, and Asian individuals.

Research on children's emotional development has recently flourished, resulting in an ever-growing emphasis on how emotion-related processes, such as emotion regulation (ER), shape children's developmental trajectories (Field & Walden, 1982; Saarni, 1999). Despite a call for greater consideration of diversity in psychological research (e.g., Clark, 1987), studies integrating these two growing research areas are scarce (Cole, Tamang, & Shrestha, 2006). Racial group comparisons are essential for understanding the nature of the relations between emotion socialization, ER, and psychopathology – moving beyond '*do these constructs relate?*' to '*for whom do these constructs relate?*' The goal of this study is to explore racial differences in retrospectively reported family childhood emotional expressivity and relations to current ER methods and symptoms of psychopathology in a diverse sample of emerging adults. By doing so, this study will

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contribute to the formulation of culturally sensitive theoretical models of emotion and the refinement of prevention and intervention programs for young adults experiencing emotion dysregulation.

Family emotion environment

Parental emotion socialization, the process by which parents teach their children about the experience, expression, and modulation of emotions, is a primary way that youth learn about emotions (Field & Walden, 1982). From a social learning theory perspective (Bandura, 1977), parents' emotional expressivity should influence their children's own expressivity, emotion understanding, and ER (Halberstadt, Fox, & Jones, 1993), and a notable amount of research supports this notion (e.g., Balswick & Avertt, 1977; Eisenberg *et al*., 1991; Halberstadt, 1991). Further, emotion socialization and children's subsequent development of ER abilities occurs within context (e.g., families, communities), and diversity researchers have highlighted the necessity of considering display rules when conducting emotion research (e.g., Ekman & Friesen, 1969; Matsumoto, Yoo, & Nakagawa, 2008; Mesquita & Frijda, 1992). Display rules can be defined as social guidelines regarding acceptable and unacceptable emotional expression (Safdar *et al*., 2009). The rules vary across contexts and influence individuals' expression of and experience with emotions (Matsumoto, Kasari, & Kooken, 1999). The present study uses racial identification (i.e., White, Black, Asian) as one context in which display rules may influence emotion socialization practices.

Cross-sectional, longitudinal, and retrospective studies using predominately White samples have demonstrated that emotion parenting techniques, such as moderate levels of family expression of emotion and acceptance of children's emotional expressions, are generally associated with positive outcomes such as adaptive ER skills and few symptoms of psychopathology (Gottman, Katz, & Hooven, 1996; McDowell, Kim, O'Neil, & Parke, 2002; Rothbaum & Weisz, 1994). Contrastingly, a family emotion environment characterized by negativity, criticism, and hostility has been associated with poor child outcomes including psychopathology and emotion dysregulation (Eisenberg *et al*., 1999; Ramsden & Hubbard, 2002). Research has also demonstrated links between parents' and offsprings' emotional expressivity in childhood through young adulthood (e.g., Eisenberg *et al*., 1991; Halberstadt, 1991). Emerging research on Black mothers has primarily demonstrated similar findings (e.g., Balswick & Avertt, 1977; Cunningham, Kliewer, & Garnder, 2009; Garner, 2006). For instance, Garner (2006) found that observed maternal emotion socialization behaviours (i.e., engagement in emotion discussions, matching of child affect) were significantly related to Black preschoolers' constructive ER behaviours with peers (Garner, 2006). A study by Smith and Walden (2001) with a sample of Black preschoolers found links between maternal emotion socialization and child behaviour regulation and behaviour problems, although some findings were discrepant from findings from past research on White families. Consistent with research on White families, research using Black families found that maternal empathy was positively associated with children's emotional understanding and negatively associated with aggressive behaviour. Further, family climates characterized by negative emotional expressivity were positively related to boys' aggressive behaviour. Contrary to research documenting detrimental outcomes for punitive/negative emotion parenting behaviours for White families (e.g., Eisenberg *et al*., 1999), results also demonstrated that punitive and minimizing maternal reactions to children's negative emotions were positively

related to girls' adaptive coping and negatively related to boys' aggressive behaviour in Black families (Smith & Walden, 2001).

The proliferation of research documenting 'adaptive' emotion parenting behaviours has been predominately with White individuals, which begs the question of whether such emotion socialization techniques are exhibited by parents from other racial groups. Preliminary emotion socialization research suggests that emotion parenting behaviours in Asian families may be different from that in White and Black families. For instance, Lau, Fung, Wang, and Kang (2009) found that Asian college students, compared to White college students, reported that their parents used more guilt induction and love withdrawal to motivate compliant behaviour. Although individuals of Asian descent consist of a heterogeneous group of nationalities and backgrounds, certain values have traditionally been associated with individuals of Asian descent (Kim, Atkinson, & Yang, 1999; Markus & Kitayama, 1991). Commonly advocated values such as humility and collectivism might predispose Asian families to use controlling, authoritarian, and restrictive emotion socialization practices (Wu *et al*., 2002). Research by Wu and colleagues (2002) examined numerous parenting techniques in mothers of preschool-aged children in the United States (racial groups not specified) and in China, and results demonstrated that Chinese mothers use more shaming/love withdrawal and encouragement of modesty than U.S. mothers. Although these behaviours may be considered maladaptive emotion parenting in the United States, results suggested that they are normative in China and likely teach Chinese children responsibility and moral behaviour consistent with Chinese values (Wu *et al*., 2002).

Emerging research suggests that emotion socialization processes may relate to psychological outcomes through their influence on ER abilities (Suveg, Morelen, Brewer, & Thomassin, 2010); however, these relations may vary across racial groups because of differences in the experience and expression of emotions (e.g., Camras, Chen, Bakeman, Norris, & Cain, 2006). A study that examined the link between emotion socialization and alexithymia (i.e., difficulty identifying and communicating emotions) for White and Asian college students found that retrospectively reported emotion socialization behaviours of their parents mediated the relation between culture and alexithymia in emerging adulthood (Le, Berenbaum, & Raghavan, 2002). Specifically, the link between Asian status and higher levels of alexithymia (compared to White individuals) was explained by lower levels of parental emotion discussion of positive emotions and recollections of emotion socialization.

The differences between Eastern and Western values may result in greater disparities in emotion socialization behaviours in Asian families compared to White and Black families; however, few studies have included Black families specifically as a comparison group. The majority of emotion socialization research has focused on one racial group, and none of the studies that conducted comparisons across racial groups specifically examined Black families, though they may have been included in the 'Eastern values' group. Therefore, this study will compare the expression of positive emotions and negative emotions in families of White, Black, and Asian individuals during childhood.

Emotion regulation (ER)

Similar to emotion socialization research, ER research using diverse groups is scarce but growing. Enhancing this area of study is a noteworthy goal given that individuals, regardless of racial identification, experience emotions and accordingly, difficulties responding to emotion can have implications across many domains. In particular, ER

difficulties have been linked with negative outcomes across many domains such as social difficulties, poor psychological health, and physical health problems (Gratz & Roemer, 2004; Gross, 1998; Gross & John, 2003; Salovey, Rothman, Detweiler, & Steward, 2000). When considering ER comparisons across racial groups, several studies suggest that under-represented racial groups may suppress their emotions more frequently than White individuals – the group most frequently studied in the past (Gross & John, 2003; Steele, Elliot, & Phipps, 2003). A study of youth, ages 7–18, found that Black youth reported *suppressing* their anger more than White youth, whereas White youth reported *expressing* their anger more than Black youth (Steele *et al.*, 2003). The authors speculated that factors that were expected to be commonly experienced by Black youth in the United States (e.g., discrimination, social stigmatization) might contribute to racial differences in ER. Similarly, results from a cross-cultural study with adults suggested that males reported suppressing their emotions more than females across cultures, and that Black, Latino, and Asian individuals suppressed their emotions more than White individuals (Gross & John, 2003). There were no significant differences between Black, Latino, and Asian individuals, which was consistent with the authors' hypothesis that under-represented racial groups would suppress more emotions due to perceived differences in power and social status when compared with White individuals, who have historically been identified as the majority racial group.

In addition to ER differences resulting from perceived discrimination or power differential, research also suggests that ER differs as a function of broader cultural values similar to those seen in the emotion socialization research. For instance, one study with emerging adults found that Asian individuals perceived that they would feel and display less desirable emotions more than non-Asian individuals, resulting in a greater attempt to minimize emotional experiences (Johnson, 2007). In regard to individualistic/collectivistic differences, one study found that women living in America who endorsed values consistent with Eastern/Asian values (e.g., interdependence) reported inhibiting their emotional expression more than Americans who endorsed Western values (e.g., individuality; Butler, Lee, & Gross, 2007). Further, cultural values moderated the link between emotion suppression and social outcomes such that emotional suppression did not elicit as negative social outcomes if women endorsed Collectivistic values compared to women who endorsed Individualistic values. Similarly, Matsumoto and colleagues (2008) found that individuals who endorsed Collectivistic values reported more emotional expression than those who endorsed Individualistic values. Additionally, emotional reappraisal and suppression were positively related for individuals with Collectivistic values but negatively related for individuals with Individualistic values. The authors concluded that based on the differing context of cultural values, suppression was a culturally normative (and adaptive) technique for some individuals but not others. Results such as these suggest that individuals from Asian cultures may be less accepting of the experience and display of emotions compared to people from Western cultures, and they may use suppression to prevent themselves from losing control of emotions that are deemed socially unacceptable in their culture. In Western culture where emotional expression is generally encouraged, this tendency to suppress emotions may inadvertently lead to increased emotional arousal and distress (e.g., Campbell-Sills, Barlow, Brown, & Hofmann, 2006; Gross & Levenson, 1997). Differences in emotional displays may be due to cultural display rules that influence an individual's decision to hide, mask, or control emotions (Fox & Calkins, 2003).

Summary and hypotheses

Research investigating how emotion socialization, ER, and psychopathology are linked across racial groups is necessary to formulate models of emotion that are culturally sensitive. Understanding such relations can also contribute to the refinement of prevention and intervention programs for young adults who are experiencing emotion dysregulation. Additionally, this study moves the field forward by specifically evaluating racial group differences in specific facets of ER that will facilitate understanding of the similarities and differences between varying racial groups in emotion-related processes.

Based on the current literature, the following hypotheses are proposed: (1) Asian individuals will report fewer displays of positive emotions in their families than White and Black individuals. No hypothesis is made regarding displays of negative emotions given that no known studies have examined racial differences in negative emotional displays. (2) In comparison to White participants, it is expected that Asian participants will report experiencing greater overall difficulty managing their emotions and less acceptance of their emotions. Given that research regarding Black individuals is mixed depending on if they are being compared to White individuals or to individuals with Collectivistic values, no specific hypotheses regarding Black participants' ER difficulties are made. Further, exploratory analyses were conducted on facets of ER that have not previously been compared between White, Black, and Asian individuals (i.e., consequence of ER difficulties, confidence in ability to control impulsive emotional urges, awareness of emotions, coping techniques for managing emotions, difficulty discerning between emotions). (3) Positive family expressivity will be negatively related to ER difficulties and psychopathology for White and Black participants, and negative family expressivity will be positively associated with ER difficulties and psychopathology for White participants. (4) ER difficulties and psychopathology will be positively related for all racial groups. Despite the fourth hypothesis that ER and psychopathology will be related regardless of racial identification, exploratory moderation analyses will be conducted to investigate whether there are racial differences in the strength of the relationship between ER and psychopathology. Exploratory analyses will examine sex by race interactions given the widely accepted notion that sex differences exist in regard to ER as well as in how parents socialize emotions (e.g., Gross & John, 2003).

Method

Participants

Participants included 168 undergraduate students, aged 18–24 ($M = 19.49$, $SD = 1.31$), from a large, public, American university who participated in exchange for partial credit towards an introductory Psychology class research requirement. Although participation was in exchange for course credit, students had the option to choose from many studies and also had the option to write a paper in lieu of research participation. The majority of students enrolled in these introductory classes are typically in their first or second year at the university (85%). On a demographic questionnaire, participants reported on their age by entering their age in years; on their race by selecting '*White, Black, Asian, Hispanic, or Other';* on their family's income during childhood by choosing one of nine choices describing income brackets in $9,000 increments (ranging from '1 – $0–$9,000' to '9 – *over* $80,000'); and on their sex.

Although 676 students participated in the original study, the sample was reduced to account for the disproportionate number of White participants ($n = 509$). Random

assignment was used to determine the final sample of White participants after controlling for sex and income of participants' families when they were children, which resulted in students identifying as White ($n = 61$, 49% female), Black ($n = 51$, 69% female), or Asian ($n = 56$, 55% female). All Black and Asian participants in the original sample were included in this study, and no significant differences on age, sex, income, or any of the measures below were found between the White participants who were excluded and those randomly selected for analyses. Additionally, there were no significant differences between age, sex, or income between any of the racial groups.

Measures

Early family emotion environment

The *Family Expressiveness Questionnaire* (FEQ; Halberstadt, 1986) is a 40-item measure of one's perception of the degree of emotional expressiveness, both negative and positive, in the home. A retrospective version of the FEQ was created and participants were asked to rate items reflecting their perception of the degree of positive and negative emotional expressiveness in their home during their elementary school years using a 9-point Likert scale (1 = *not at all in my family,* 9 = *very frequently in my family*). Retrospective reporting of family emotional environment has been shown to be a valid way to collect this data (Negy & Synder, 2006). Two broadband subscales of 20 items each were used in the present study: FEQ Positive (e.g., '*Praising someone for good work*', '*Expressing sympathy for someone's troubles*') and FEQ Negative (e.g., '*Expressing anger at someone else's carelessness*', '*Sulking over unfair treatment by a family member*'). Adequate reliability and validity have been previously established using the prospective version of the FEQ, with internal consistency ranging from .75 to .88 and test–retest reliability ranging from .89 to .91 (Halberstadt, 1986). The alphas for the Positive and Negative subscales in this study were .92 and .84, respectively.

Emotion regulation (ER)

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS is a 36-item self-report measure of current, clinically relevant difficulties with ER. Participants were asked to rate items on a 5-point Likert scale (1 = *almost never*, 4 = *almost always*) according to the frequency with which the statement applied to them. The measure yields an overall score (i.e., DERS Total; a sum of all items) and six subscales: Non-acceptance – high scores on this subscale indicate low acceptance of emotions (e.g., '*When I'm upset, I feel ashamed with myself for feeling that way*'), Goals – high scores on this subscale reflect emotional interference of goal-directed behaviour (e.g., '*When I'm upset, I have difficulty getting work done*'), Impulse – high scores on this subscale reflect difficulties refraining from impulsive behaviour (e.g., '*When I'm upset, I lose control over my behaviors*'), Awareness – high scores on this subscale reflect low levels of emotional awareness and understanding (e.g., '*When I'm upset, I take time to figure out what I'm really feeling*', reverse scored), Strategies – high scores on this subscale reflect limited access to emotion coping strategies perceived as effective (e.g., '*When I'm upset, I believe that there is nothing I can do to make myself feel better*'), and Clarity – high scores on this subscale on this subscale reflect confusion about emotional experiences (e.g., '*I am confused about how I feel*'). Overall, higher scores are indicative of more ER difficulties. High reliability and acceptable construct and predictive validity (e.g., internal consistencies ranging from .80 to .89) have been

established for the overall scale (Gratz & Roemer, 2004). The internal consistency for the DERS total score in the current study was .92, and the alphas for the six subscales ranged from .82 (Awareness) to .88 (Goals).

Psychological distress

The *Symptom Checklist-90-Revised* (SCL-90-R; Derogatis, 1994) is a 90-item questionnaire that assesses current symptoms of adult psychopathology. Participants were instructed to indicate on a 5-point Likert scale (0 = *not at all*, 4 = *extremely*) how much they were distressed by a variety of symptoms in the last week. There are nine subscales: Somatization (e.g., '*Pains in the heart or chest*'), Obsessive Compulsive (e.g., '*Worried about sloppiness or carelessness*'), Interpersonal Sensitivity (e.g., '*Your feelings being easily hurt*'), Depression (e.g., '*Feeling blue*'), Anxiety (e.g., '*Feeling fearful*'), Hostility (e.g., '*Temper outbursts that you could not control*'), Phobic Anxiety (e.g., '*Feeling afraid to go out of your house alone*'), Paranoid Ideation (e.g., '*Feeling that most people cannot be trusted*'), and Psychoticism (e.g., '*Hearing voices others cannot hear*'). To obtain an overall measure of psychological distress, the Total Psychopathology score, a sum of all items, was used for the current study ($\alpha = .97$).

Procedure

Study measures were presented (in the order above) to participants online via Survey Monkey following consent. Survey Monkey meets the US Department of Commerce's Safe Harbor Privacy Standards. All procedures were in accordance with the mandates of the sponsoring university's Institutional Review Board.

Data analysis

A series of MANOVAs were conducted to test for group differences in family emotion environment (i.e., expression of positive and negative emotions) and ER difficulties. Cohen's *d* was used as a measure of effect size where appropriate with values equal to or greater than .2, .4, and .8 representing small, medium, and large effect sizes, respectively (Cohen, 1977). Correlations were computed to evaluate the relations between family emotion environment, ER, and psychopathology for each of the three racial groups. Multiple regressions were used to examine whether racial identification moderated the link between ER and psychopathology.

Results

Preliminary analyses

Preliminary analyses revealed no significant differences in participants' age, sex, or income across racial groups. There was a significant difference on level of overall psychopathology symptoms ($F[2, 144] = 6.28$, $p = .002$) such that Asian participants reported experiencing a significantly greater number of psychopathology symptoms than White and Black participants. See Table 1 for mean scores, standard deviations, and alphas by race.

Table 1. Means, standard deviations, ranges, and alpha coefficients of measures for White, Black, and Asian participants

	White			Black			Asian		
	M (SD)	Range	α	*M (SD)*	Range	α	*M (SD)*	Range	α
FEQ Positive	128.9 (23.9)	80–171	.92	130.7 (27.7)	61–172	.93	115.1 (28.8)	50–173	.93
FEQ Negative	88.8 (16.2)	56–133	.77	91.1 (24.4)	56–180	.85	90.3 (23.1)	45–158	.86
DERS Total	2.06 (.43)	1.22–3.19	.90	1.93 (.55)	1.00–3.03	.92	2.35 (.57)	1.32–3.91	.92
DERS Non-acceptance	1.82 (.68)	1.00–3.83	.86	1.55 (.60)	1.00–3.33	.83	2.26 (.86)	1.00–4.17	.84
DERS Goals	2.56 (.80)	1.20–4.80	.82	2.67 (1.16)	1.00–5.00	.91	3.16 (.94)	1.20–5.00	.85
DERS Impulse	1.58 (.64)	1.00–3.83	.83	1.57 (.64)	1.00–3.83	.82	1.83 (.81)	1.00–4.17	.86
DERS Awareness	2.53 (.70)	1.17–4.50	.79	2.22 (.91)	1.00–4.33	.87	2.57 (.78)	1.00–4.00	.76
DERS Strategies	1.83 (.55)	1.00–3.50	.77	1.71 (.62)	1.00–3.50	.82	2.06 (.78)	1.00–4.00	.86
DERS Clarity	2.05 (.60)	1.00–3.60	.80	1.87 (.72)	1.00–3.80	.82	2.23 (.80)	1.00–4.40	.85
SCL Total	51.9 (35.1)	3.0–148	.96	47.1 (29.8)	6.0–128	.95	73.9 (48.0)	0–220	.97

Family emotion environment

To test hypothesis one, a 2 (sex) × 3 (race) MANOVA was conducted with the four FEQ subscales as dependent variables. There was a significant multivariate effect of race, $F(4, 280) = 2.36$, $p = .05$, with a significant univariate effect for the FEQ Positive subscale ($F[2, 148] = 4.70$, $p = .01$). Tukey's *post hoc* pairwise comparisons revealed that Asian participants reported fewer displays of positive emotions in their families during childhood than Black ($d = .57$, $p = .009$) and White ($d = .54$, $p = .03$) participants. There were no significant main or interactive effects for sex.

Current ER

A 2 (sex) × 3 (race) MANOVA was conducted with the Total DERS and six subscales as dependent variables to conduct exploratory analyses related to ER and to test the following hypotheses: (1) in comparison to White participants, Asian participants will report experiencing greater overall difficulty managing their emotions and less acceptance of their emotions, and (2) males will report less emotional awareness but greater overall adaptive emotional control than females, whereas females will report more difficulties with ER than males. Results indicated a significant multivariate main effect of race, $F(12, 308) = 2.70$, $p < .01$; univariate tests revealed differences on the Total ($F[2, 159] = 8.10$, $p < .001$), Non-acceptance ($F[2, 159] = 11.30$, $p < .001$), Goals ($F[2, 159] = 6.51$, $p < .01$), and Strategies subscales ($F[2, 159] = 3.38$, $p < .05$). Tukey's *post hoc* pairwise comparisons revealed that overall, Asian participants reported experiencing more maladaptive ER (i.e., DERS Total) than White ($d = .57$) and Black participants ($d = .74$). Regarding specific differences on individual subscales, Asian participants reported less acceptance of their emotional experiences (i.e., Non-acceptance) than White ($d = .55$) and Black participants ($d = 1.0$); more interference with their goals as a result of emotion dysregulation (i.e., Goals) than White ($d = .69$) and Black participants ($d = .45$); and less implementation of coping strategies (i.e., Strategies) than Black participants ($d = .47$). There were no significant differences between White and Black participants on the DERS Total or any of the subscales. Results also revealed

Table 2. Inter-correlations between family emotion environment, ER, and psychological symptoms for White, Black, and Asian participants

	White				Black				Asian			
Measure	1	2	3	4	1	2	3	4	1	2	3	4
FEQ Positive	1				1				1			
FEQ Negative	−.12	1			−.15	1			.18	1		
DERS Total	−.48*	.27**	1		−.16	.00	1		−.15	.19	1	
SCL Total	−.22	.38**	.61*	1	−.31**	−.19	.41**	1	−.02	.10	.64*	1

Note. $^{*}p \leq .001$, $^{**}p < .05$.
FEQ = Family Expressiveness Questionnaire; DERS = Difficulties in Emotion Regulation Scale; SCL = Symptom Checklist-90-Revised.

a significant multivariate main effect of sex, $F(6, 154) = 2.53$, $p < .05$. Univariate tests revealed a difference on the Goals subscale, $F(1, 159) = 7.92$, $p < .01$, such that females reported more difficulty achieving their goals due to emotion dysregulation ($M = 2.97$, $SD = 1.04$) than males ($M = 2.57$, $SD = .91$, $d = .41$).

Emotion socialization, ER, and emotional/psychological outcomes

For hypotheses three and four, correlations were computed separately by racial group to examine the relations between measures (see Table 2). Only the DERS Total was used as a measure of ER difficulties to decrease the likelihood of type I error. Hypothesis three was partially supported such that, for White participants, significant positive correlations were found between displays of negative emotions in their childhood homes (FEQ Negative) and ER difficulties (DERS Total) and psychopathology (SCL Total). Additionally, there were significant negative correlations between positive emotional displays in their childhood homes (FEQ Positive) and ER difficulties for White participants and psychological symptoms for Black participants. There was a significant positive correlation between SCL Total and the DERS Total across all three racial groups, which provided full support for hypothesis four.

Multiple regressions were used to examine whether racial identification moderated the link between ER (i.e., ER difficulties) and psychopathology. Sex was originally included as a potential moderator in both regression models, but when no significant interactive effects of sex were found, the interaction terms were removed and sex was kept as a covariate. Dummy coding was used to calculate interaction terms between ER (DERS Total) and race. For the first hierarchical regression, Asian participants were used as the comparison group resulting in two interactions terms: one comparing White to Asian participants and one comparing Black to Asian participants. For the second hierarchical regression, another dummy code was created that made White participants the reference group in order to compare them to Black participants. Model two also had two interaction terms: one comparing Black participants to White participants and one comparing Asian participants to White participants. The comparison of Asian to White participants was present in model one, but both interaction terms were necessary for the dummy coding to be effective (making model two slightly redundant yet still necessary).

Both regression models were significant at steps one and two, suggesting that inclusion of the interaction terms of race and ER was significant ($F[2, 140] = 18.43$,

Table 3. Multiple regression analyses for ER, ethnicity, and the interaction of ER and ethnicity-predicting psychopathology

	B	SE B	ß	*p*
Step 1[a]				
Sex	−16.23	5.22	−.21	.002
ER	40.02	5.06	.54	<.001
Ethnicity_W	−8.63	6.27	−.11	.17
Ethnicity_B	−12.01	6.95	.54	.09
Step 2				
Sex	−15.74	5.22	−.20	.003
ER	48.14	8.21	.65	<.001
Ethnicity_W	−8.20	27.52	−.10	.77
Ethnicity_B	42.04	26.53	1.59	.12
Ethnicity_WvsA × ER	.98	12.19	.03	.94
Ethnicity_BvsA × ER	−26.04	11.91	−2.19	.03
Ethnicity_BvsW × ER[b]	−27.02	12.52	−.64	.03

Note. [a]The values in steps one and two are from the model using Asians as the reference group except for the final interaction term.

[b]This interaction term was derived from computing a different multiple regression model with Whites as the reference group and has been added to this table so that the comparison between Black and White participants is reported. The information from this second model is redundant with that presented in the table, therefore only the interaction term provides new information.

ER = emotion regulation; Ethnicity_W = dummy-coded variable where White = 1 and Black and Asian = 0; Ethnicity_B = dummy-coded variable where Black = 1 and White and Asian = 0; Ethnicity_WvsA × ER = interaction term comparing White and Asian individuals, Ethnicity_BvsA × ER = interaction term comparing Black and Asian individuals; Ethnicity_BvsW × ER = interaction term comparing Black and White individuals.

$p = .046$, $R^2 = .44$, R^2 change = .025) above and beyond the contribution of sex, ER, and race alone (see Table 3). As can be seen in Table 3, the interaction between Black participants and ER was significant in both models, suggesting that race was a significant moderator of the link between ER and psychopathology such that Black participants differed from White and Asian participants. To examine this interaction, simple effects analyses were used to determine the regression weights for each racial group. Though ER was a significant predictor of psychopathology for all three racial groups, the regression weight for Black participants was smaller than that for Asian and White participants (whose regression weights were not significantly different from each other, see Table 4). This indicates that the strength of the relation between ER difficulties and psychopathology was weaker for Black participants compared to White and Asian participants.

Discussion

No studies have simultaneously compared relations between parental emotion socialization and emotional and psychological outcomes for White, Black, and Asian individuals. The goal of this study was to explore race differences in retrospectively reported childhood family emotional expressivity and relations to current ER methods

Table 4. Simple regression analyses for ER-predicting psychopathology conducted separately by ethnic group

	B	SE B	ß	*p*
Black				
Sex	−19.94	8.68	−.31	.027
ER	21.73	7.63	.38	.007
Asian				
Sex	−19.29	12.22	−.20	.12
ER	46.92	10.64	.56	<.001
White				
Sex	−11.07	7.15	−.16	.13
ER	48.98	8.30	.61	<.001

Note. ER = emotion regulation

and symptoms of psychopathology in a sample of emerging adults. Study hypotheses were partially supported. Overall, Asian individuals reported lower levels of positive expressivity in their families during childhood, higher rates of ER difficulties, and higher psychopathology than White and Black individuals. There was a positive link between ER difficulties and psychopathology across racial groups, but the strength of the relation was stronger for White and Asian participants compared to Black participants.

Family emotion environment

The first hypothesis that Asian individuals would report lower displays of positive emotions in their families than White and Black individuals was fully supported. This finding is consistent with past literature (e.g., Lau *et al*., 2009, Wu *et al*., 2002) and may reflect differences in display rule norms given that Asian families may view children's displays of negative emotions as disobedient or disrespectful (Argyle, Henderson, Bond, Iizuka, & Contarello, 1986; Matsumoto *et al*., 1999). Commensurately, previous research found that collectivistic cultures value emotional inhibition, and this norm is reflected in Asian families' through emotion socialization tendencies such as exhibiting low levels of positive emotions and using shame to motivate compliance in children (e.g., Kim *et al*., 1999; Lau *et al*., 2009). Assuming Asian individuals are more likely to hold Collectivistic values than White or Black individuals, one explanation for the race difference in positive emotion expression could be that in Asian families, positive emotions associated with individual experience may be less emphasized because they take the attention away from the collectivistic focus on group harmony. Most items on the measure of positive expressivity used in the current study reflect attention to an individual such as praising someone for good work, expressing excitement over one's future plans, and expressing exhilaration after a triumph. Thus, it may be that Asians display positive emotions for relational harmony but are not encouraged to display positive emotions that are solely the experience of one individual. This possible interpretation is consistent with the notion that Asian individuals tend to hold more Collectivistic values than White or Black individuals and these values result in an emphasis on group harmony rather than on individual attainment (e.g., Argyle *et al*., 1986; Matsumoto *et al*., 2008).

Family emotion environment and emotional/psychological outcomes

The question that then follows is whether Asians experience negative developmental outcomes due to lower levels of expressed positive affect in their homes. The correlations found in our study demonstrated that no negative outcomes were associated with positive emotional expressivity in Asian families, suggesting that low positive expressivity may not be particularly impactful for Asian individuals' psychological or emotional functioning. Interestingly, this was not true for White participants whose responses reflected a significant negative relation between positive emotional expressivity and ER difficulties, or for Black participants whose responses reflected a negative relation between positive emotional expressivity and psychopathology. Similarly, there were no racial differences in mean levels of expressed negative emotion in childhood homes yet, this variable was positively related to ER difficulties and psychopathology for White participants only. Pulling from the literatures on social learning (Bandura, 1977) and display rules (Matsumoto *et al*., 1999; Safdar *et al*., 2009), one interpretation of these findings is that parents express emotions in a manner consistent with display rules, and parental expression is one influence on children's internalization of display rules. These display rules provide a framework through which children learn when and how to express (or inhibit) certain emotions (Safdar *et al*., 2009). It follows that low positive expressivity in the homes of Asian families might not result in negative psychological/emotional outcomes because that emotion climate is normative for certain groups of individuals but not for others.

Though this study examined only one aspect of family emotion environment, emotional expressivity in childhood homes, the fact that relations differed by racial groups is noteworthy. Research such as this not only has the potential to influence future research and theory, but also has the potential to influence how parents, caregivers, counsellors, and other professionals who are concerned with child development think about emotion climates. All children grow up in emotion-laden environments, and increasing awareness of what is potentially helpful or hurtful for children's emotional development is a worthy plight. Blindly increasing awareness without the consideration of contextual factors, such as racial identity, has the potential to do harm. The results of the present study demonstrate that emotion socialization components important for healthy psychological functioning vary by racial group and add further emphasis to the need for emotion socialization research to consider contextual factors (e.g., Matsumoto *et al*., 2008). Future research would benefit from considering what specific types of psychopathology relate to certain types of family emotion climates. Overall then, the hypothesis that positive family expressivity would be negatively related to ER difficulties and psychopathology for White and Black participants, and negative family expressivity would be positively associated with ER difficulties and psychopathology for White participants was partially supported.

Emotion regulation (ER)

Regarding ER, it was expected that Asian participants would report experiencing greater difficulty managing their emotions and less acceptance of their emotions than White participants. This hypothesis was fully supported; Asian participants demonstrated differences on the total ER difficulties score and the Non-acceptance subscale when compared to White and Black participants. Asian participants also differed from White and/or Black participants on the Goals and Strategies subscales. There were no significant ER differences between White and Black participants overall or on any of the subscales.

These results are consistent with previous findings that individuals with Asian values endorse greater inhibition of emotional experiences than those with Western values (Butler *et al*., 2007) and engage in greater attempts to minimize emotional experiences than individuals who do not come from Asian decent (Johnson, 2007). Such behaviour can be attributed to display rules that place value on maintaining harmony in the community (e.g., an interdependent culture) over the private emotional experience of an individual (e.g., Kim *et al*., 1999; Lau *et al*., 2009; Liem, Lim, & Liem, 2000; Markus and Kitayama, 1991; Wu *et al*., 2002). Given the reduced acceptance of emotional expression common in Asian cultures, it could be that Asian individuals experience difficulties managing their emotional arousal due to fewer opportunities to learn and use effective coping strategies. Results from the present study suggest that broader cultural differences (e.g., Eastern vs. Western) may result in differing ER patterns more so than racial status. Though this study was intended to be a preliminary study exploring racial differences, it will be important for future research to assess which facets of racial identity result in ER differences and similarities.

The hypothesis that ER difficulties and psychopathology would be positively related for all groups was supported. Increased self-reported difficulties in ER were associated with increased psychopathology across racial groups, consistent with previous research documenting a fundamental role of ER in psychological functioning (e.g., Barlow, Allen, & Choate, 2004; Samoilov & Goldfriend, 2000). In recent years, the field of clinical psychology has increased its attention on emotional processes in the research and treatment of psychopathology and has documented a fundamental role of ER in psychological functioning (e.g., Barlow, Allen, & Choate, 2004; Cicchetti, Ackerman, & Izard, 1995; Cole, Michel, & Teti, 1994; Samoilov & Goldfriend, 2000). Subsequently, application of emotion theory to treatment has also been on the rise (Suveg, Southam-Gerow, Goodman, & Kendall, 2007). Treatment outcome studies for both children and adults have begun to demonstrate positive outcomes of incorporating emotion-related factors into treatment (see Suveg *et al*., 2007 for a review of child therapies and Mennin & Farach, 2007 for a review of adult therapies). The present study's findings reinforce this trend and add to the existing literature by documenting the link between ER and psychopathology across multiple ethnic groups.

Though the relation between ER and psychopathology was significant for all individuals regardless of race, exploratory moderational analyses revealed that the association was significantly stronger for White and Asian participants compared to Black participants. One explanation for this finding is that Black participants reported significantly lower levels of psychopathology than Asian participants (and lower mean levels of psychopathology than White participants, but this difference was not significant). Given the literature documenting that Black individuals may be less likely to disclose emotional/psychiatric problems than White individuals (e.g., Jenkins, 1990; Morrison & Downey, 2000), it is possible that Black participants in this study might have under-reported psychological problems. If psychological problems were under-reported, that could have deflated the potential link between ER and psychopathology. Another possible interpretation is that Black participants truly experienced fewer psychological problems than White and Asian participants (and fewer difficulties with ER than Asian participants) and that resulted in a weaker relation between the two variables. Future research would benefit from considering specific types of psychopathology and utilizing clinical samples.

Interestingly, there were no main or interaction effects regarding participant sex and ER. It may be that racial differences in ER overshadow sex differences. It may also be that

the present study did not assess certain facets of ER shown in past literature to capture sex differences. For instance, research has demonstrated that, in Western cultures, there are sex differences in how anger and sadness are regulated across age groups (e.g., Hosie, Milne, & McArthur, 2005; Thomsen, Mehlsen, Viidik, Sommerlund, & Zachariae, 2005; Zeman & Garber, 1996), but the present study did not assess ER difficulties by emotion type.

Limitations and future directions

This study contributes to the literature by demonstrating similarities and differences in emotion socialization, ER, and the link to psychopathology among White, Black, and Asian individuals, but limitations are noted. This study cannot make statements of causality since it did not use a longitudinal design. Additionally, this study utilized retrospective measures of early family emotion environment and thus, findings reflect participants' interpretations of those experiences, which may have been influenced by other life experiences. Nevertheless, research has documented the validity of retrospective reports of childhood experiences (Yancura & Baldwin, 2009) and early family emotion environments (Negy & Snyder, 2006). The single reporter method also limits this study, which may have resulted in social desirability biases by different racial groups to avoid commonly held stereotypes. Although all participants were attending an American university, no measure of length of stay in America was included. Notably, despite the simplicity of the method used to classify racial groups in the present study, group differences still emerged. Future studies should ascertain racial differences in terms of acculturation when examining the relation between children's emotional development and psychological outcomes. Overall, continued exploration of differences between racial groups is necessary to avoid over-generalizations based on research conducted on homogenous samples. The results in this study provide a springboard from which many new research questions can be generated. For example, what potential aspects of racial identity account for why low expressed positive affect appears to be detrimental for White and Black individuals but not for Asian individuals? What other aspects of emotion socialization have differential influence depending on one's racial identification? How does acculturation influence the links between emotion socialization, ER, and psychopathology? Understanding *where* there are and are not racial differences in these relations is necessary but insufficient for understanding *why* there are racial differences. Answers to these and other questions have the potential for practical applications given the link between healthy emotional functioning and physical health, interpersonal functioning, and mental health (Gratz & Roemer, 2004; Gross & John, 2003; Salovey *et al*., 2000). Prevention programs, interventions, parenting recommendations, and public perceptions of 'adaptive' emotion-related behaviour could all benefit from culturally sensitive research.

Despite the limitations of this study, the results are a meaningful contribution to the emotion literature given that previous studies have not simultaneously compared emotion socialization, ER, and links between these emotion variables and psychopathology across White, Black, and Asian participants. The findings add to the foundation of research that has documented racial differences in parental emotion socialization practices and highlight the need for additional research that includes diverse populations to enhance our understanding of racial similarities and differences. This study contributes to the formulation of culturally sensitive theoretical models of emotion and poses questions that can help further the development of such models.

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