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Emotion Regulation in Mexican and U.S. White Adults: Cultural and Gender Differences

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ABSTRACT

The present study aimed to clarify the relationship between (a) cultural differences (reflected in family values and family environments) and gender and (b) cognitive reappraisal and expressive suppression among Mexican and White U.S. undergraduate college students. The Emotion Regulation Questionnaire (ERQ) to assess Cognitive Reappraisal and Expressive Suppression, the Family Environment Scale (FES) to assess Cohesion, Conflict, and Expressiveness within the family environment, the Family Attitude Scale (FAS) to assess traditional values, and a demographic questionnaire were completed by 337 participants from Mexico (267 women, 70 men) and 192 White participants from the U.S. (108 women, 83 men, and 1 who did not report gender adult). Mexican respondents scored statistically significantly higher on Cognitive Reappraisal than did U.S. participants. Mexicans also scored statistically significantly lower on the Conflict and Expressiveness subscales of the FES. Regression analyses showed that higher scores on Cohesion and lower scores on Expressiveness among Mexicans were related to higher scores on Cognitive Reappraisal and lower scores on Expressive Suppression. Women in both countries scored statistically significantly lower on Expressive Suppression and higher on Cognitive Reappraisal than did men. These findings highlight how specific cultural, familial, and gender factors predict critical emotion regulation processes. Recommendations for future research and intervention are discussed.

Keywords
regulation; environment; gender; culture; diversity

RESUMEN

El presente estudio tuvo como objetivo aclarar la relación entre (a) las diferencias culturales (reflejadas en los valores familiares y los ambientes familiares) y el género y (b) la reevaluación cognitiva y la supresión expresiva entre los estudiantes universitarios mexicanos y estadounidenses blancos de los Estados Unidos. El Cuestionario de Regulación Emocional (ERQ) para evaluar la Reevaluación Cognitiva y la Supresión Expresiva; la Escala de Ambiente Familiar (FES) para evaluar la cohesión, el conflicto y la expresividad dentro del ambiente familiar; la Escala de Actitud Familiar (FAS) para evaluar los valores tradicionales; y un cuestionario demográfico fueron completados por 337 participantes de México (267 mujeres, 70 hombres) y 192 participantes blancos de los Estados Unidos (108 mujeres, 83 hombres y 1 que no declaró su sexo). Los participantes mexicanos obtuvieron puntuaciones significativamente más altas en la Reevaluación Cognitiva que los participantes estadounidenses blancos. Los mexicanos también obtuvieron puntajes significativamente más bajos en las subescalas de Conflicto y Expresividad de la FES. Los análisis de regresión mostraron que los puntajes más altos en Cohesión y los puntajes más bajos en Expresividad entre los mexicanos se relacionaron con puntajes más altos en Reevaluación Cognitiva y puntajes más bajos en Supresión Expresiva. Las mujeres de ambos países obtuvieron puntuaciones significativamente más bajas en Supresión Expresiva y más altas en Reevaluación Cognitiva que los hombres. Estos hallazgos destacan cómo factores específicos culturales, familiares y de género predicen los procesos críticos de regulación de las emociones. Se discuten las recomendaciones para futuras investigaciones e intervenciones.

Palabras clave
regulación; entorno; género; cultura; diversidad

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Regulación de las emociones en adultos mexicanos y estadounidenses blancos: Diferencias culturales y de género

Introduction

Major differences between Mexican and White American cultures have been identified in seminal works such that Mexican culture tends to be more collectivistic and family oriented, whereas White American culture is more individualistic (Díaz-Guerrero, 1978; Díaz-Guerrero & Szalay, 1991; Hofstede, 2001; Oyserman et al., 2002; Shkodriani & Gibbons, 1995). Familism is a core cultural value within Mexican and other collectivistic cultures that emphasizes familial relationships that are close and supportive and includes family obligations, seeking approval from family members, and in which familial solidarity is expected (Campos et al., 2014; Cristophe & Stein, 2022). Both positive and negative features of familism have been observed in Mexican culture; an advantage is interpersonal support, and a disadvantage is a power structure based on age and gender that can interfere with individuality and initiative (Cahill et al., 2021; Díaz-Guerrero, 1978; Díaz-Guerrero & Szalay, 1991). Indeed, these observed cultural differences map onto the critical conceptual framework of individualism–collectivism outlined by Shkodriani and Gibbons (1995), and they may play a role in emotion regulation strategies used by individuals in these countries.

Emotion Regulation

Emotion regulation is the ability to manage and modify emotions to achieve goal-directed outcomes. Gross and John (2003) in their seminal work have proposed two broad emotion regulation strategies: antecedent-focused emotion regulation, which occurs prior to emotion generation, and response-focused emotion regulation, occurring after the emotional response. Gross and John focused specifically on two such strategies: *cognitive reappraisal* and *expressive suppression*.

Cognitive reappraisal, an antecedent-focused strategy, occurs when one changes how one thinks about emotion-eliciting situations to reduce their emotional impact. For example, cognitive reappraisal might occur when someone does not receive a promotion and reframes the situation by saying that the promotion would have required too much additional work and would interfere with their personal relationships; here, reframing reduces both the intensity of negative feelings and the sense of devaluation for not being selected for the promotion. Expressive suppression, a response-focused strategy, occurs

when one inhibits one's emotional expressions. For example, expressive suppression might occur when someone tries to hide their sadness after being criticized; here, suppression reduces the expression of unpleasant emotions experienced in response to hurtful comments.

Cognitive reappraisal is often considered an adaptive strategy for reducing negative emotionality, and it has been associated with closer partner relationships and peer likeability (Gross & John, 2003; McRae & Gross, 2020). On the other hand, expressive suppression is typically considered a maladaptive strategy because of the discrepancy between one's inner experience and outer expression (Gross & John, 2003; Megreya et al., 2018; Spaapen et al., 2014). Expressive suppression has been related to negative interpersonal relationships and conflict (Gross & John, 2003; McRae & Gross, 2020). Despite these findings, it is possible that the maladaptive nature of expressive suppression may be culturally bound, as some cultural groups apply different meanings to expressive suppression (i.e., in some countries, given their cultural values, expressive suppression is expected and valued as positive). Therefore, suppression may become normative, because many people in a given culture will engage in this emotion regulation strategy (Gross & John, 2003; McRae & Gross, 2020, Sun & Lau, 2018). Different relationships have also been reported between cognitive reappraisal and expressive suppression in countries as a function of collectivism and individualism, suggesting culture-specific effects (Matsumoto et al., 2008; Spaapen et al., 2014).

Cultural Differences in Emotion Regulation

Cultural values influence emotion regulation processes and social norms (Chen et al., 2020). For instance, cultures differ in their attention, motivation, and emotional connection to the in-group, thereby molding their perceptions, intentions, and values (Shavitt et al., 2011). Consequently, cultural values may impact the frequency with which individuals use specific emotion regulation strategies (Hofstede, 2001; McRae & Gross, 2022).

Matsumoto et al. (2008) explored the role of culture in emotion regulation and adjustment using data collected by previous researchers who administered the Emotion Regulation Questionnaire (ERQ) to university students across 23 countries, including Mexico and the U.S. To explain cultural differences in emotion regulation, they examined the relationships between ERQ country-level responses, Hofstede's (2001) cultural dimensions (i.e., individualism, collectivism, long-term orientation, and uncertainty

avoidance), and Schwartz and Ros's (1996) cultural values (i.e., egalitarianism, affective autonomy, hierarchy, and embeddedness). Matsumoto et al. (2008) found that cultures that emphasized hierarchy and maintenance of social order scored higher on expressive suppression, and in those cultures, expressive suppression and cognitive reappraisal were positively correlated. On the other hand, cultures that minimized the maintenance of social order and promoted affective autonomy and egalitarianism often scored lower on expressive suppression, and in those cultures, expressive suppression and cognitive reappraisal were negatively correlated. However, these findings should be interpreted with caution, because the data from the different sites were collected at distinct time periods and the samples varied in composition. For example, Matsumoto et al. (2008) presented data that showed considerable age differences between the Mexican and U.S. samples (Mexico: $M = 30.23$, $SD = 13.29$; U.S.: $M = 22.32$, $SD = 5.95$), and they did not report any other demographic variables such as ethnicity, race, or urban/rural location. The sociocultural differences between these two countries makes it difficult to disentangle the roles of different factors in emotion regulation. Additionally, although Matsumoto et al. reported descriptive statistics on participants' gender identity, they did not present any results for the relationship between gender identity and emotion regulation or cultural values. Therefore, Matsumoto et al.'s results may not accurately portray the role of cultural values in emotion regulation among Mexican and U.S. participants.

Nevertheless, Matsumoto et al. (2008) have provided a useful model for understanding how cultural values can shape emotion regulation. They hypothesized that the ability to regulate emotion both by reappraising the nature of eliciting events and by regulating external behavior is learned within a developmental context, such as family structures and relationships, as well as through values learned from family experiences and environments. Furthermore, they indicated that the research by Hofstede (2001) has shown that cultures can be differentiated according to the values they promote in their social relationships.

Cultural differences in expressive suppression have also been found within the U.S. (Butler et al., 2007), and they align with the collectivistic–individualistic patterns observed by Matsumoto et al. (2008). Using an ethnically diverse U.S. college sample, Butler et al. (2007) found that behavioral expressions of suppression were moderated by cultural differences in degree of identification with either Asian American or White U.S. cultural values, particularly in the domains of social complexity and the need to maintain

social order. They concluded that although suppression consistently reduced the expression of emotions and affiliation during social interactions, their negative social consequences could be moderated by cultural values.

Gender Differences in Emotion Regulation

In addition to culture, gender also plays a role in how individuals regulate their emotions (Goubet & Chrysikou, 2019). Specifically, men use expressive suppression more frequently than women do in both community and university samples from different countries with disparate cultural values (Alanis, 2018; Flynn et al., 2010; Gross & John, 2003; Haga et al., 2009; Kwon et al., 2013; Masumoto et al., 2016; Spaapen et al., 2014).

In individualistic cultures like the predominant one in the U.S., several researchers (e.g., Gross & John, 2003; Haga et al., 2009; Kwon et al., 2013) have found that men consistently use expressive suppression more frequently than women do. Although most of these studies have included participants' ethnicity, their samples were primarily White, and none reported statistical analyses by ethnic group. Notably, studies conducted in collectivist countries such as Japan, Korea, and Mexico have found higher levels of expressive suppression among men than among women (e.g., Alanis, 2018; Kwon et al., 2003; Masumoto et al., 2016).

Regarding cognitive reappraisal, most studies have failed to find statistically significant gender differences. Studies in the U.S., Japan, Norway, Australia, Korea, and Mexico have found that women and men do not differ in the degree to which they reappraise their thinking about an emotion-eliciting situation (Alanis, 2018; Flynn et al., 2010; Gross & John, 2003; Haga et al., 2009; Kwon et al., 2013; Masumoto et al., 2016). An exception is Spaapen et al. (2014), who recruited a diverse group of participants from Australia and the United Kingdom and found that women used cognitive reappraisal statistically significantly more frequently than did men. Even though Spaapen et al.'s sample size was the same for both countries, the ethnic composition in each country varied statistically significantly; about 40% of the participants from Australia identified themselves as Western European, whereas about 95% of those from the United Kingdom identified themselves as White British and Irish. Different patterns may emerge when statistical analyses are disaggregated by ethnicity, but to our knowledge, no study has made this distinction.

In summary, very few studies have conducted research examining cultural and gender differences in emotion regulation (Haga et al., 2009; Kwon et al., 2013; Spaapen

et al., 2014), and, to our knowledge, no study has yet explored these with Mexican and White U.S. samples.

Study Purpose

The purpose of the present study was to clarify the general cultural differences between and within U.S. and Mexican college students on the relationship between (a) gender and cultural factors and (b) the emotion regulation processes of cognitive reappraisal and expressive suppression, given the methodological and conceptual limitations of previous literature noted above. Additionally, an important limitation of past research consists of varied and macro (i.e., country-level) frameworks that have been used to conceptualize cultural differences between the U.S. and Mexico, such as collectivistic–individualistic, hierarchical versus nonhierarchical, familistic versus individualistic, and competitive versus cooperative. Thus, a major contribution of the present study is that it framed cultural differences as socialization variables in the family context (cohesion, expressiveness, and conflict) that are related to the origins of culturally-bound emotion regulation. Thus, our three hypotheses were as follows:

H1: Given the emphasis on hierarchy and maintenance of social order in collectivistic cultures such as that of Mexico, we hypothesized that Mexican college students would report higher cognitive reappraisal and expressive suppression than would U.S. White college students. Additionally, we hypothesized that Mexican college students would report higher cohesion, but lower conflict and expressiveness than would U.S. White college students.

H2: Consistent with previous findings across countries, we hypothesized that women would report higher cognitive reappraisal but lower expressive suppression than would men. And we hypothesized that women would score higher on expressiveness than would men.

H3: Aligning with the greater value that is placed on family in collectivistic cultures such as Mexico, we hypothesized that after accounting for gender differences in emotion regulation, the variables of family cohesion, conflict, and expressiveness would be stronger predictors of cognitive reappraisal and expressive suppression among Mexican college students, than among U.S. White college students.

Method

Participants

We recruited college students from the U.S. and Mexico, resulting in a total sample of N = 761. Approximately 41% of the participants (n = 310) were from a large public university in the southeastern U.S., and the other 59% (n = 451) were from a large private university in northeast Mexico. We restricted our final sample to undergraduate college students, aged 18–22, who had never been married, because these are more common demographics of college students. Therefore, we excluded participants, in the following order, who: were not undergraduate students (n = 18), did not report their age (n = 19), were younger than 18 (n = 14), were older than 22 (n = 61), were married (n = 2), or were divorced (n = 2). We also excluded data from Mexican participants who did not identify as Latinx/Hispanic (n = 5) and who emerged as a multivariate outlier on the study variables (using the Mahalanobis distance criterion of $p < .001$; n = 1). Additionally, we excluded data from U.S. participants who did not identify as White (n = 87) or did not answer the racial identity question (n = 1). After all exclusions, the final sample consisted of 529 participants (Mexico sample: n = 337; U.S. sample: n = 192).

Mexican participants' mean age was 19.78 years (SD = 1.27), with a greater number of women (79%, n = 267 women; 21%, n = 70 men). U.S. participants' mean age was 19.23 years (SD = 1.08), also with a greater number of women (56%, n = 108 women; 49%, n = 83 men; <1%, n = 1 who did not report gender).

Measures

The following measures were completed by participants via an online survey tool.

Emotion Regulation

The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) is a 10-item scale that assesses the use of specific emotion regulation strategies. The ERQ has two subscales: Cognitive Reappraisal, with six items (e.g., "I control my emotions by changing the way I think about the situation I'm in"), and Expressive Suppression, with four items (e.g., "I keep my emotions to myself"), each on a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The original English version (Gross & John, 2003) and the Spanish version (Alanis, 2018) have shown acceptable internal consistency

for both subscales. We calculated a mean composite score for each subscale and observed good internal consistency in Cognitive Reappraisal (α = .84, Mexico and U.S.) and in Expressive Suppression (α = .73, α = .80, Mexico and U.S., respectively).

Traditional Values

The Family Attitude Scale Revised **(**FAS; Ramirez, 1967, 1999) is a 28-item scale that assesses degree of identification with traditional, collectivistic, Mexican, and Mexican American values in areas such as family hierarchy, loyalty, child-rearing, and gender roles using a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Example items include, *"*Uncles, aunts, cousins, and other relatives should always be considered more important than friends," and "All adults should be respected." Higher scores reflect greater alignment with Mexican culture. Ramirez (1999) reported good internal consistency of the FAS for Anglo American, Mexican, and Mexican American samples. We calculated a mean score of the FAS for each sample. Preliminary coefficient alphas for the entire scale showed acceptable internal consistency in both the Mexican and U.S. samples (α = .78 α = .81). However, given the breadth of domains covered in the FAS, we conducted subsequent reliability analyses to determine whether all items performed similarly in both samples. We excluded one item at each step that improved reliability in both samples. Consequently, we excluded three items (e.g., "We must live for today; who knows what tomorrow may bring") that were primarily focused on present time orientation and less so on other more central domains in the FAS (e.g., family hierarchy, child-rearing). After these exclusions, the resulting reliability alphas were strengthened (Mexican and U.S. samples: α = .80, α = .83, respectively). Although the FAS has not yet been validated for Mexican samples, we followed guidelines outlined by the World Health Organization (WHO, 2016) to culturally adapt this measure to Spanish.

Family Environment

The Family Environment Scale (FES; Moos, 1974; Moos & Moos, 1994) is one of the most widely used measures for assessing family social climate and family dynamics. The FES is a 90-item scale comprised of 10 subscales with nine items, using a true (scored as 1) or false (scored as 0) response format. Items are summed together within subscales and subscales are then categorized into three dimensions: Relationship, Personal Growth, and System Maintenance. For this study, only the Relationship

dimension subscales—Cohesion, Conflict, and Expressiveness—were included. These three subscales assess the degree of commitment, help, and support that family members provide to one another, the degree of conflict occurring within the family, and the degree to which family members are encouraged to act openly and to be expressive of their feelings. Low to acceptable internal consistencies for the Relationship dimension have been observed in past research (Moos & Moos, 1994; Negy & Snyder, 2006). We followed WHO (2016) guidelines to culturally adapt the FES to Spanish.

We evaluated reliability for each country separately: Family Cohesion (α = .76, Mexican sample; α = .71, U.S. sample); Family Conflict (α = .68, Mexican sample; α = .80, U.S. sample); and Family Expressiveness (α = .33, Mexican sample; α = .58, U.S. sample). Although the reliability estimates for Family Expressiveness were low, we kept the three subscales of the Relationship dimension in order to maintain the integrity of the Relationship dimension and to allow comparisons with other previously published findings that used all three subscales when analyzing the Relationship dimension (Boyd et al., 1997; Chevrier & Lannegrand, 2022; Dardas et al., 2022; Morishita-Kawahara et al., 2022). These low reliabilities are consistent with those observed by Boyd et al. (1997) who found that the Family Expressiveness subscale demonstrated some of the lowest Cronbach alphas (.36 - .41) by age and gender for FES subscales, and they are also consistent with research (Cheung et al., 2019; Chevrier & Lannegrand, 2022; Stolarski et al., 2021) showing that within the Relationship dimension, the Family Expressiveness subscale was the only subscale with a Cronbach's alpha below .70, with alphas ranging from .36 - .62—similar to what we observed in the present study. Additionally, our decision to keep the FES subscales in the current study, particularly the Family Expressiveness subscale was due to its conceptual appeal as the measure has a strong conceptual and empirical development (Boyd et al., 1997; Moos, 1990). The modest internal consistencies of the FES have been observed and questioned by other researchers (Fok et al., 2014; Negy & Snyder, 2006; Roosa & Beals, 1990). Nevertheless, the Relationship dimension subscale has shown good test–retest reliability over a 2-month period (Moos & Moos, 1994).

Demographics

We asked participants to report the following demographics: gender identity, age, race, ethnicity, education level, and marital status.

Procedure

Participants were recruited by asking university professors to share the information of the study with their students. After signing up via a web-based survey platform (Google Forms in Mexico, Qualtrics in the U.S.), participants provided consent and then completed the survey online, followed by a debriefing statement. The survey took approximately 45 minutes to be completed and there was no incentive for participation and no participant checks in place. The study was reviewed and approved by the IRB at each institution.

Data Diagnostics

Missing data accounted for 0.12% of all items. Little's Missing Completely at Random (MCAR) test, $\chi^2(15) = 16.93$, $p = .32$, revealed a pattern of values missing completely at random. The limited missing data did not warrant data imputation. We examined the data for univariate and multivariate outliers by country and gender. We found five univariate outliers that upon inspection were plausible values within the range of possible values, so we kept these in the data set as supported by Leys et al. (2019). We identified and deleted one multivariate outlier using the Mahalanobis distance metric. We examined normality by country and gender at the subscale level of the ERQ and FES, and at the scale level of the FAS using cutoff critical values of 2.0 for skewness and 7.0 for kurtosis (West et al., 1995). None of the measures exceeded the cutoff for skewness and for kurtosis. We found no evidence of multicollinearity.

Results

H1 and H2: Country and Gender Differences on the ERQ and FES

We conducted a two-way MANOVA with two independent variables (country and gender) and five dependent variables (ERQ Cognitive Reappraisal, ERQ Expressive Suppression, FES Cohesion, FES Conflict, and FES Expressiveness). We found a statistically significant country main effect, $F(5, 515) = 6.37$, $p < .001$, Wilks' $\Lambda = .94$, partial $\eta^2 = .06$, and a statistically significant gender main effect, $F(5, 515) = 5.59$, $p < .001$, Wilks' $\Lambda = .95$, partial $\eta^2 = .05$. However, we found no interaction between gender and country, $F(5, 515) = 0.76$ $p = .577$, Wilks' $\Lambda = .99$, partial $\eta^2 = .01$.

To follow-up on the multivariate main effects of country and gender, we examined the corresponding univariate main effects. As seen in Table 1, the main effect of country showed that Mexican students scored significantly higher than U.S. White students on ERQ Cognitive Reappraisal ($F(1, 519) = 13.82$, $p < .001$, partial $\eta^2 = .03$) but lower than White students on both FES Conflict ($F(1, 519) = 5.16$, $p = .024$, partial $\eta^2 = .01$) and FES Expressiveness ($F(1, 519) = 4.32$, $p = .038$, partial $\eta^2 = .01$). A statistically significant univariate main effect of gender on ERQ Cognitive Reappraisal ($F(1, 519) = 5.36$, $p = .021$, partial $\eta^2 = .01$) and ERQ Expressive Suppression ($F(1, 519) = 16.37$, $p < .001$, partial $\eta^2 = .03$) revealed that women scored higher on both ERQ Cognitive Reappraisal and FES Expressiveness, but lower on ERQ Expressive Suppression than did men ($F(1, 519) = 9.63$, $p = .002$, partial $\eta^2 = .02$).

Table 1

Descriptive Statistics by Country and Gender

Variable	Mexico (n = 337)	United States (n = 192)	Combined Countries (n = 529)
	M (SD)	*M (SD)*	*M (SD)*
Age	19.78 (1.27)	19.23 (1.08)	19.58 (1.23)
Emotion Regulation Questionnaire (ERQ)			
ERQ Cognitive Reappraisal	5.07 (1.17)	4.65 (1.01)	4.92 (1.13)
Women	5.10 (1.15)	4.83 (0.98)	5.02 (1.11)
Men	4.97 (1.25)	4.43 (1.00)	4.68 (1.15)
ERQ Expressive Suppression	3.60 (1.28)	3.68 (1.29)	3.63 (1.29)
Women	3.52 (1.25)	3.40 (1.28)	3.49 (1.26)
Men	3.90 (1.36)	4.04 (1.24)	3.98 (1.29)
Family Environmental Scale (FES)			
FES Cohesion	7.13 (2.05)	7.24 (1.90)	7.17 (2.00)
Women	7.16 (2.14)	7.24 (1.97)	7.18 (2.09)
Men	7.01 (1.67)	7.24 (1.82)	7.14 (1.75)
FES Expressiveness	5.00 (1.74)	5.33 (2.07)	5.12 (1.87)
Women	5.10 (1.71)	5.63 (1.99)	5.24 (1.81)
Men	4.67 (1.81)	4.95 (2.14)	4.82 (1.99)
FES Conflict	2.59 (2.00)	3.07 (2.54)	2.76 (2.22)
Women	2.61 (2.03)	3.10 (2.55)	2.74 (2.20)
Men	2.50 (1.87)	3.06 (2.55)	2.80 (2.27)
Family Attitudes Scale Revised (FAS)			
FAS Values	2.84 (0.47)	2.75 (0.47)	2.81 (0.47)
Women	2.87 (0.46)	2.72 (0.47)	2.82 (0.47)
Men	2.73 (0.49)	2.78 (0.45)	2.76 (0.47)

Note. One U.S. participant ($n = 1$) did not report gender.

H3: Predicting ERQ Cognitive Reappraisal and ERQ Expressive Suppression by Country

To confirm differences between the Mexican and U.S. samples on the FAS composite score, we conducted a one-tailed independent-samples *t*-test. Results showed statistically significant differences by country on the FAS composite score, indicating differences in identification with traditional, collectivistic values between Mexican and U.S. students. Students from Mexico (M = 2.84, SD = 0.47) scored higher on the FAS than did students from the U.S. (M = 2.75, SD = 0.47), $t(527) = 2.01$, $p = .02$, 95% CI [0.002, 0.168], $d = 0.47$.

Given the observed country differences in traditional cultural values, we conducted separate regression analyses by country to explore the relative contribution of gender and to examine the FES relationship dimensions to predicting ERQ Cognitive Reappraisal and ERQ Expressive Suppression. For each country (Mexico and the U.S.), we performed two hierarchical multiple regressions, one for each dependent variable (ERQ Cognitive Reappraisal and ERQ Expressive Suppression) with the following predictors: gender, FES Cohesion, FES Conflict, FES Expressiveness, and the three two-way interactions between gender and the FES relationship dimensions (gender x FES Cohesion, gender x FES Conflict, and gender x FES Expressiveness). We did not test higher order interactions, and we restricted our interpretation of lower-level interactions between gender and each of the FES relationship dimensions to explore gender effects within each country. We entered predictor variables in three steps. In Step 1, we entered gender. In Step 2, we entered the three FES relationship dimensions (FES Cohesion, FES Conflict, and FES Expressiveness). In Step 3, we entered the three gender X FES relationship dimension interaction terms (gender x FES Cohesion, gender x FES Conflict, and gender x FES Expressiveness). In each step, we examined the contribution of individual predictors only if the entire step statistically significantly increased the proportion of variance accounted for.

ERQ Cognitive Reappraisal

For the Mexico sample, the regression equation for predicting ERQ Cognitive Reappraisal accounted for 6% of the variance, $F(7, 329) = 3.18$, $p = .003$. Step 1 was not statistically significant, $\Delta R^2 = .002$, $\Delta F(1, 335) = 0.68$, $p = .411$. Step 2 was statistically significant, $\Delta R^2 = .05$, $\Delta F(3, 332) = 5.94$, $p = .001$. FES Cohesion predicted unique variance in ERQ Cognitive Reappraisal, $B = 0.09$, $SE = 0.04$, $p = .031$, over and above the other variables in the equation. After controlling for gender, FES Conflict, and FES Expressiveness, participants with higher FES Cohesion reported higher ERQ Cognitive Reappraisal. Step 3 was not statistically significant, $\Delta R^2 = .01$, $\Delta F(3, 329) = 1.24$, $p = .296$.

For the U.S. sample, the regression equation for predicting ERQ Cognitive Reappraisal accounted for 9% of the variance, $F(7, 178) = 2.37$, $p = .024$. Step 1 was statistically significant, $\Delta R^2 = .04$, $\Delta F(1, 184) = 7.13$, $p = .008$. Gender predicted ERQ cognitive reappraisal, $B = 0.38$, $SE = 0.14$, $p = .008$, with women reporting higher ERQ Cognitive Reappraisal than did men. Steps 2 and 3 were not statistically significant, $\Delta R^2 = .02$, $\Delta F(3, 181) = 1.18$, $p = .320$, and $\Delta R^2 = .03$, $\Delta F(3, 1798) = 1.91$, $p = .130$, respectively.

ERQ Expressive Suppression

For the Mexico sample, the regression equation for predicting ERQ Expressive Suppression accounted for 7% of the variance, $F(7, 329) = 3.76$, $p = .001$. Step 1 was statistically significant, $\Delta R^2 = .01$, $\Delta F(1, 335) = 4.90$, $p = .028$. Gender predicted ERQ Expressive Suppression, $B = -0.38$, $SE = 0.17$, $p = .028$; ERQ Expressive Suppression was lower for women than for men. Step 2 was statistically significant, $\Delta R^2 = .05$, $\Delta F(3, 332) = 5.38$, $p = .001$. FES Cohesion, $B = -0.09$, $SE = 0.04$, $p = .029$, and FES Expressiveness, $B = -0.11$, $SE = 0.04$, $p = .012$, predicted ERQ Expressive Suppression, over and above the other variables in the model. After controlling for gender, FES Conflict, and FES Expressiveness, participants with higher FES Cohesion reported lower ERQ Expressive Suppression. Additionally, after controlling for gender, FES Cohesion, and FES Conflict, participants with higher FES Expressiveness reported lower ERQ

Expressive Suppression. Step 3 was not statistically significant, $\Delta R^2 = .01$, $\Delta F(3, 329) = 1.65$, $p = .177$.

For the U.S. sample, the regression equation predicting ERQ Expressive Suppression accounted for 16% of the variance, $F(7, 178) = 4.88$, $p < .001$. Step 1 was statistically significant, $\Delta R^2 = .064$, $\Delta F(1, 184) = 12.07$, $p = .001$. Gender predicted ERQ Expressive Suppression ($B = -0.65$, $SE = 0.19$, $p = .001$), with U.S. women reporting lower ERQ Expressive Suppression than U.S. men. Step 2 was statistically significant, $\Delta R^2 = .08$, $\Delta F(3, 181) = 5.45$, $p = .001$. FES Expressiveness, $B = -0.13$, $SE = 0.05$, $p = .011$, predicted ERQ Expressive Suppression, over and above the other variables in the regression equation. After controlling for gender, FES Cohesion, and FES Conflict, participants with higher levels of FES Expressiveness reported lower ERQ Expressive Suppression. Step 3 was not statistically significant, ΔR^2 .02, $\Delta F(3, 178) = 1.52$, $p = .210$.

Lastly, to explore the possibility of a relationship between Cognitive Reappraisal and Expressive Suppression, we computed a two-tailed Pearson's correlation coefficient and found no statistically significant relationship between the two ERQ subscales for either the Mexican sample, $r(336) = .03$, $p = .607$, or the U.S. sample, $r(190) = -.08$, $p = .294$.

Discussion

In the present study, we compared Mexican and U.S. White college students on their use of cognitive reappraisal and expressive suppression and on their perceptions of family environment using the FES relationship dimension. In addition, for each country, we explored the degree to which gender and the subscales of the FES relationship dimension (Cohesion, Conflict, and Expressiveness) predicted cognitive reappraisal and expressive suppression.

Cultural Differences in Emotion Regulation

Consistent with H1, self-reported cognitive reappraisal differed between the two countries, indicating greater cognitive reappraisal among Mexican college students than among U.S. White college students. This finding was expected, given the established relationship between cultural values and emotion regulation (Hampton et al., 2021;

Hofstede, 2001). Perhaps Mexican college students engage more frequently in cognitive reappraisal because of the strong emphasis that collectivistic cultures place on obedience and social order, which are often accompanied by values of long-term orientation, embeddedness, and hierarchy—in contrast to U.S. White culture, in which affective autonomy and egalitarianism are highly valued (Díaz-Guerrero, 1978; Hofstede, 2001; Shkodriani & Gibbons, 1995). Mexican college students, when interacting with authority figures such as professors, parents and family relatives older in age, may often find it necessary to regularly reassess a situation and provide a different meaning or interpretation in order to respond in a way that does not compromise social harmony. Mexican college students also reported lower levels of family conflict when compared to the U.S. White college students. This finding could be explained by the central emphasis given to family unity and harmony in a collectivistic culture, such as that found in Mexico (Diaz-Guerrero & Szalay, 1991). Cognitive reappraisal has also been associated with greater intimacy in partner relationships and greater peer likeability (Gross & John, 2003); and particularly in Mexico, Rivera-Aragón et al. (2018) found that the use of emotion regulation strategies such as cognitive reappraisal are fundamental for positive and satisfying relationships. They further explained how cognitive reappraisal may lead to more effective communication, thus serving an adaptive function. As Mexican college students navigate through socially complex environments, they may engage in cognitive reappraisal to maintain family unity and achieve harmony in their relationships, particularly with their partners and family members.

Mexican college students, as expected, also reported lower levels of expressiveness in the family context in comparison with U.S. White college students. Their lower family expressiveness scores may reflect the greater autocratic character of the traditional Mexican family, within which children are expected to be “seen but not heard” (Díaz-Guerrero, 1978). Mexican culture encourages identification with traditional values of obedience, respect, and interdependence, providing a strong source of social orientation (Diaz-Guerrero & Szalay, 1991). Contrary to H1, the frequency of expressive suppression did not differ between the two countries, and is not consistent with previous research (e.g., Butler et al., 2007; Matsumoto et al., 2008). This finding might be related to the fact that our Mexican participants were from a large city in Mexico located close

to the U.S.–Mexico border, and that they were younger than participants in previous studies. Perhaps college-aged Mexican students, especially those living closer to the U.S., are more influenced by White American values and thus more emotionally expressive. It is also possible that Mexican culture fosters the expression of positive emotions for group cohesion, whereas expressive suppression maintains social harmony to avoid conflict (Hampton et al., 2021).

Generational impacts may also account for this, as "Generation Z" college students worldwide, embraced a different set of values than younger generations. For example, Johnson and Sveen (2020) found that personalization, technology, and career preparedness were key values identified at every stage of the students´ college journey, and will require a paradigm shift from educational institutions to meet their needs and expectations. Particularly in Mexico, Generation Z students have experienced a cultural shift by being more attentive to diversity, inclusion, equity, and self-expression than previous generations (Sutton et al., 2021). Future research is needed to address this question.

Gender Differences in Emotion Regulation

Consistent with H2, our results showed that in both cultures, men engaged in expressive suppression more than women did. This replicates findings from previous studies with community and university samples in countries with disparate cultural values (Alanis, 2018; Flynn et al., 2010; Gross & John, 2003; Haga et al., 2009; Kwon et al., 2013; Masumoto et al., 2016; Spaapen et al., 2014). Furthermore, as hypothesized, our results demonstrated that in both countries, women reported higher levels of expressiveness within the family environment. Thus, the movement toward gender equality that has been so evident in the U.S. during the past 20 years also seems to be influencing Mexican culture, supporting evidence found by Peck and Diaz-Guerrero (1967) for diffusion of cultural values across the Mexico–U.S. border.

Research has consistently shown that men suppress their emotions more than women do, regardless of country of origin, participants' generational levels, or specific measures of emotion regulation (e.g., Gross & John, 2003; Spaapen et al., 2014). Biological, social, and developmental factors may play an important role in this respect (Carter, 2014; Chaplin, 2015). Chaplin (2015) proposed a bio-psycho-social developmental model of gender differences in emotion expression, suggesting that gender

differences emerge through a combination of biology, socialization, social context, and expectations. In this model, children learn and adopt gender-role consistent behaviors over time by observing their environment, developing schemas (foundational beliefs and feelings about oneself and the environment) associated with their gender, and selecting activities that fit those schemas. Agents of socialization such as parents reinforce this process by modeling and encouraging certain behaviors. Girls, for example, are often expected to display more emotions, whereas boys are expected to show less "warm emotions," reinforcing the social expectation for women to maintain close relationships, and men to be assertive and independent (Carter, 2014; Chaplin, 2015).

With respect to cognitive reappraisal, our results supported H2: in both cultures, levels of cognitive reappraisal were higher among women than among men. This pattern supports past cross-cultural research (Matsumoto et al., 2008; Spaapen et al., 2014). In both Mexican and U.S. White families, parents socialize daughters in ways that may promote internalization of negative emotions and social harmony (Carter, 2014; Chaplin, 2015; Raffaelli & Ontai, 2014). As Carter (2014) has observed, the family is usually the first socialization unit for children, and parents' behaviors and disposition strongly influence children's traits and conduct. For example, the language used to describe boys typically focuses more on strength and agility, whereas the language for girls usually emphasizes affection and fragility. The parental criterion for acceptable behavior also aligns with gender-based roles. Girls are often encouraged to be quiet, cooperative, and be of service, and they are highly praised when they display empathy and sympathy for others, facilitating closeness in their relationships (Chaplin, 2015). Consequently, parents and other agents of socialization may encourage cognitive reappraisal in women to achieve what is socially valued. Overall, gender differences in expressive suppression and cognitive reappraisal do not seem to be country-specific, and gender identity as a social and cultural construct may be impacted by values and other cultural phenomena. It is possible, as Peck and Diaz-Guerrero (1967) and Gerber (2020) observed, that countries that share borders tend to experience "spill-over" effects in which they influence each other's values.

FES Relationship Dimensions as Predictors of Emotion Regulation

This study's results partially support H3. Cohesion in the family context predicted cognitive reappraisal and expressive suppression only for Mexican college students.

Mexican college students with higher levels of Cohesion in the family showed higher levels of cognitive reappraisal and lower levels of expressive suppression. This is consistent with the strong emphasis that collectivistic cultures, such as Mexican culture, place on family unity and the maintenance of social harmony (Díaz-Guerrero; 1978; Díaz-Guerrero & Szalay 1991; Hofstede, 2001). In addition, higher levels of Expressiveness within the family predicted lower levels of expressive in both countries, suggesting a possible positive advantage of family as a support system in which feelings can be openly expressed (Díaz-Guerrero, 1978).

We also explored gender effects within each country, and we found that among U.S. White college students, women reported higher levels of cognitive reappraisal and lower levels of expressive suppression than did men. In more individualistic cultures such as White culture in the U.S., greater value may be given to egalitarianism and affective autonomy; thus, emotion regulation in this cultural context appears to be related to a combination of individual and family factors (Hofstede, 2001; Schwartz & Ros, 1996).

In general, although there were no statistically significant differences between the two countries in Cohesion in the family context, Cohesion was predictive of emotion regulation only in Mexican participants. The high value of family cohesion vis-à-vis emotion regulation in the present study contributes to our knowledge that, especially in collectivistic cultures, family can function as a positive factor in emotional adjustment. The fact that in some respects such as gender, Mexico and the U.S. are very similar may indicate that the roles of gender *and* a country's culture need to be given attention in cross-cultural research, and that such differences are of a small-to-medium magnitude as observed in the present study.

Strengths, Limitations, and Future Directions

To our knowledge, our study is the first to explore the relationship between family characteristics and emotion regulation in Mexico and the U.S. Another strength is that we also defined our sample with very specific criteria (e.g., ethnicity, age, marital status) within each country, whereas other research studies have used samples that differ in such characteristics. Furthermore, we measured, as opposed to assumed, traditional family values by country.

Despite these important strengths, our study findings should be considered in the context of methodological limitations. All participants were college students, which may

limit generalizability to older adults in both countries. Additionally, the Mexican participants were from a private university, and the U.S. participants were from a public university; there may be differences between college students who attend private versus public institutions, with associated economic differences between the two. Furthermore, there may be regional differences between participants from both countries: the White participants attended college in the southeastern U.S., and the Mexican participants were from a university in northern Mexico close to the U.S.–Mexico border. The samples from both countries were also predominantly female. Only one participant id not report gender; we were only able to explore emotion regulation in participants who identified as women or men.

In addition, our study is limited by its sole reliance on self-reported data. Additionally, we observed low Cronbach's alphas for the U.S. and Mexico sample on the FES Expressiveness subscale, but we maintained the original structure of this subscale to facilitate comparisons with previously published findings and due to the measure´s strong conceptual framework. Nonetheless, other researchers have raised concerns about the internal consistencies of the FES (Negy & Snyder; 2006; Roosa & Beals, 1990). Thus, the findings associated with the FES Expressiveness subscale should be considered tentative.

Our research findings may be helpful in informing culturally-sensitive and gender-sensitive interventions in both countries. In Mexico, it may be important for therapeutic interventions to be geared not only at the individual level, but particularly at the family level, because promoting family cohesion and lower family conflict is critical in maintaining family unity and harmony. In both countries, interventions should focus on helping men cultivate openness in expressing their feelings and emotions so that they can engage in less expressive suppression in their personal and family relationships.

Future research should continue exploring cross-cultural differences in emotion regulation with different samples, measures and constructs. For example, it will be important to study if there are specific differences between countries for positive and negative emotions separately, and their association with mental health outcomes. Further research could also examine emotion regulation across the age spectrum to see whether specific groups (e.g., "millennials") differ in how they regulate their emotions in comparison with older adults (e.g., "baby boomers"; Isaacowitz et al., 2017; Young & Mikels, 2020). It will be interesting to study these age differences within each country and between countries to see the role of generation and culture in a more detailed way.

A longitudinal approach can also be used to study how emotion regulation strategies evolve across the life span. Additional to a broader age range, we encourage future research to include a more representative sample for each country, including participants from rural and urban areas, private and public universities and selecting key regions from different parts of each country. Because most of the current research relies on self-report measures, we recommend using a mixed-methods approach. By incorporating qualitative interviews and/or focus groups, we can gain valuable insights as to how participants experience emotion regulation in their daily lives, thus enhancing our understanding of the quantitative results. Including other measures to also evaluate mental health outcomes, coping skills and self-construal may be particularly important in order better understand the mechanisms and processes under the cross-cultural differences observed. Finally, future cross-cultural research including other countries besides U.S. and Mexico is highly encouraged.

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