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Parental Emotion Socialization and Adult Outcomes: The Relationships Between Parental Supportiveness, Emotion Regulation, and Trait Anxiety

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Abstract
Despite the burgeoning interest in the relationships between parental emotion socialization practices, emotion regulation (ER), and anxiety in youth, there is considerably less research focusing on the ways in which parental emotion socialization in childhood is associated with these variables in adulthood. A sample of 202 university students completed an online survey, which aimed to examine the relationships between retrospective reports of parental emotion socialization strategies in childhood, ER in adulthood, and trait anxiety. Adult perceptions of their parents' use of unsupportive emotion socialization strategies in childhood was related to lower levels of ER skills and greater use of maladaptive ER strategies in adulthood, while perceptions of parents' use of supportive strategies were related to higher levels of ER skills and greater use of adaptive ER strategies. Together, adult perceptions of unsupportive parental emotion socialization strategies in childhood and their ER skills and ER strategy use in adulthood predicted trait anxiety.

Keywords Emotion socialization · Emotion regulation · Trait anxiety

In recent years, there has been growing interest in the relationship between emotion regulation (ER) and psychosocial outcomes. ER can be conceptualized as the ways in which an individual's emotional awareness and experience are monitored, evaluated, maintained, and modified (Thompson 1994). Such processes allow individuals to influence which emotions they have, when they have them, and how these emotions are experienced and expressed (Gross 1998a). One of the essential components of successful development is learning how to regulate one's emotional responses in flexible and adaptive ways. As children progress through preschool to elementary school, they become increasingly aware of their internal experiences and learn to modulate their emotional expressions through self-regulation (Denham et al. 2003; Saarni 1990; Skibbe et al. 2013). Generally speaking, children who have difficulty managing their emotions display poorer social functioning, behaviour problems, and are at an increased risk of developing internalizing and externalizing disorders (Eisenberg et al. 2003). Consequently, childhood is a critical period for developing emotional competencies that will lay the foundation for an individual's ability to regulate emotions and function adaptively in future.

Parental Emotion Socialization and Emotion Regulation

Emotional competence is thought to arise through experiences in a child's social environment, with parents in particular exerting a strong influence on the socialization of children's ER skills (Morris et al. 2007; Saarni 1999). According to Eisenberg et al. (1998), three aspects of parenting contribute to children's emotional competence: parental modelling, which includes parents' regulation and expression of their own emotions, parents' reactions to their children's emotions, and parents' engagement with

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their children's emotions, which involves parental coaching and discussions pertaining to children's emotions. Direct instruction from parents is thought to be one of the key mechanisms by which children learn the consequences of expressing emotions and develop techniques for self-regulation (Thompson 1994). It is thought that parents who dismiss or invalidate children's emotional expressions provide an environment that is less conducive to the development of adaptive ER skills by perpetuating the notion that certain emotions are inappropriate or should be suppressed (Gottman et al. 1997). Negative emotions in particular are associated with greater levels of arousal (Cacioppo et al. 2000) and thus are more difficult for children to regulate. Consequently, youth whose parents fail to create facilitative emotional environments are less likely to develop ER strategies that would enable them to successfully negotiate stressful situations (Denham et al. 1997). On the other hand, parents who engage in supportive emotion socialization strategies discuss their children's emotional experiences, comfort children when they experience negative emotions, and engage in problem-solving to reduce distress and support the development of adaptive ER strategies (Eisenberg et al. 1998; Fabes et al. 2002).

With respect to specific ER strategies, two strategies have received substantial attention in the literature. Cognitive reappraisal involves changing the way one thinks about a situation in order to change its emotional impact and is generally considered adaptive in that it has been shown to prevent or reduce experiences of negative affect (Gross 1998b; Gross and John 2003). In contrast, expressive suppression involves concealing one's emotional reactions and is generally considered maladaptive in that it has been associated with increases in sympathetic activation and negative affect (Gross 1998b; Gross and John 2003). Over the course of development, children learn stylized ways of managing emotions. The emotion-management strategies that children come to rely on may be maintained in adolescence and adulthood and have important implications for emotional functioning. For instance, habitual reappraisers have been found to experience positive emotions more frequently and are able to build more satisfying personal relationships (John and Gross 2004). Conversely, the use of suppression has been associated with depressive symptoms in adolescents and adults (Gullone and Taffe 2012; John and Gross 2004) and higher levels of stress in an undergraduate sample (Moore et al. 2008). Similarly, habitual use of reappraisal predicted more positive outcomes in terms of depressive symptoms, life satisfaction, and affective states, while increased use of suppression predicted negative outcomes in these domains across cultures (Haga et al. 2009). Consequently, the relationship between parental emotion socialization strategies in childhood and the habitual use of ER strategies later in life is an important area of investigation.

Parental Emotion Socialization and Childhood Outcomes

Numerous studies have documented the relationship between parental emotion socialization practices and childhood outcomes. For example, supportive emotion socialization strategies have consistently been associated with higher socio-emotional competence and better ER skills in children (Blair et al. 2014; Eisenberg et al. 1996; Hurrell et al. 2015; Lunkenheimer et al. 2007). Further, evidence suggests that supportive parental reactions, rather than a lack of unsupportive reactions, are predictive of children's use of cognitive reappraisal, while unsupportive reactions specifically are associated with children's use of suppression (Gunzenhauser et al. 2014). Unsupportive emotion socialization strategies (i.e. punitive or minimizing responses to children's negative emotions) have also been associated with childhood emotion dysregulation, maladaptive coping, and the development of internalizing problems (Eisenberg et al. 1996; Hurrell et al. 2015; Jones et al. 2002; Sanders et al. 2015; Shaffer et al. 2012).

The relationship between unsupportive emotion socialization strategies, emotion dysregulation, and internalizing symptoms in children is troubling, since failure to develop ER competencies may be an important risk factor for the development of anxiety. There is evidence to suggest that children with anxiety problems display a diminished understanding of specific ER strategies, including hiding and changing their emotions, and exhibit poor emotional awareness when compared to their non-anxious counterparts (Southam-Gerow and Kendall 2000; Suveg and Zeman 2004). Further, anxious children tend to experience more difficulty managing negative emotions such as anger, worry, and sadness, and use less constructive coping mechanisms in response to these emotions (Suveg and Zeman 2004). Parental variables such as anxiety, stress, and negative affect have also been identified as direct risk factors for the development of anxiety (Pahl et al. 2012) and parents' distress responses to children's negative affect have been associated with fewer ER abilities in children (Williams and Woodruff-Borden 2015). Taken together, these findings suggest that parents' emotion socialization practices may have important implications for psychosocial outcomes, specifically those related to ER and anxiety.

Emotion Socialization and Adult Outcomes

Despite the burgeoning interest in the relationships between parental emotion socialization practices, ER, and anxiety in youth, there is considerably less research

focusing on the ways in which parental emotion socialization in childhood is associated with ER and anxiety in older populations. In a recent study of mothers and their children, Briscoe et al. (2019) found that mothers' engagement in supportive emotion socialization practices in childhood was negatively associated with children's internalizing symptoms in adolescence. Further, they also showed that unsupportive emotion socialization (i.e. punitive reactions) in childhood was associated with higher levels of negative emotionality in adolescents. In a more recent study, McKee et al. (2019) showed that "remembered" parental emotion socialization in childhood was associated with internalizing symptoms in young adults through current levels of mindfulness and cognitive reappraisal. More specifically, mothers' supportive responses to negative emotions in childhood predicted mindfulness in young adulthood, which in turn was associated with higher levels of cognitive reappraisal and lower levels of internalizing symptoms. Further, higher levels of cognitive reappraisal were also linked to lower levels of internalizing symptoms (McKee et al. 2019).

Although some other research has investigated the relationships between parental emotion socialization during childhood and emotional functioning in adulthood, these studies have generally looked to culture as the driving force behind differences in adult outcomes. For example, a few studies have examined the relationships between perceptions of parental socialization during childhood and adult adjustment across various ethnic groups (Leerkes et al. 2015; Lugo-Candelas et al. 2015; Perry et al. 2017). Taken together, evidence suggests that remembered parental emotion socialization can have an influence on emerging adults' mental health symptoms (Leerkes et al. 2015; Lugo-Candelas et al. 2015), trait anger (Leerkes et al. 2015), and feelings of shame (Perry et al. 2017). However, the specific effects on mental health symptoms and feelings of shame varied depending on ethnic group membership, while the effect of unsupportive emotion socialization on trait anger appeared to be stable across ethnic groups (Leerkes et al. 2015). As such, it remains unclear whether parental emotion socialization practices have an influence on other adult outcomes, independent of cultural influences.

Aside from the aforementioned studies, only four other studies to our knowledge have examined parental emotion socialization retrospectively (Garside and Klimes-Dougan 2002; Guo et al. 2016; Klimes-Dougan et al. 2007; O'Neal and Magai 2005) and only one of these studies focused on adult outcomes. More specifically, Garside and Klimes-Dougan (2002) found that perceptions of unsupportive parental emotion socialization were positively correlated with psychological distress in young adults. Further, although all four of these studies utilized the Emotions as a Child Scale (Magai and O'Neal 1997) to assess parental emotion socialization retrospectively, no studies as of yet have examined the predictive utility of the 2-factor model proposed by Guo et al. (2016) for emotion-related outcomes in adulthood.

Goals of the Present Study

The present study aims to address the gaps in the extant literature by exploring the relationships between remembered parental emotion socialization in childhood and adult outcomes using the 2-factor model proposed by Guo et al. (2016). More specifically, we investigated whether perceptions of parental emotion socialization strategies in childhood were predictive of ER skills, ER strategies, and trait anxiety in a population of university students. Emerging adulthood, which generally refers to the period between the ages of 18 and 25 (Arnett 2000, 2004), is characterized by greater levels of instability and identity exploration, which in turn can generate anxiety (Arnett 2007a). The variance in mental health functioning becomes broader over the course of emerging adulthood (Arnett 2007b), making it increasingly important to study factors such as emotion regulation that can either enable or hinder an individual's ability to adapt successfully to developmental challenges.

In the present study, it was hypothesized that:

(1) Perceptions of unsupportive emotion socialization in childhood would predict lower levels of ER skills in adulthood, while perceptions of supportive emotion socialization would predict higher levels of ER skills.
(2) Perceptions of unsupportive emotion socialization would predict greater habitual use of suppression, which is considered maladaptive (Gross and John 2003; Haga et al. 2009; Moore et al. 2008). In contrast, remembered supportive emotion socialization was expected to predict greater use of cognitive reappraisal.
(3) Perceptions of unsupportive emotion socialization strategies in childhood, in conjunction with poor ER in adulthood, were expected to be positively associated with trait anxiety, which is defined as the tendency to attend to, experience, and report feelings of anxiety across situations (Gidron 2013). Additionally, it was hypothesized that the relationship between unsupportive emotion socialization in childhood and trait anxiety in adulthood would be mediated by adult's current levels of ER.

Methods

Participants

A total of 202 university students (174 women, 25 men, 3 non-binary gender identity) participated in the present

study. Participants were recruited through advertisements on a university campus in a large, metropolitan Canadian city, as well as through social media pages affiliated with the university. The majority of participants (89.6%) reported that their age range was between 18 and 24, while the remainder (10.4%) were between the ages of 25 and 34. With respect to ethnicity, participants identified themselves as Caucasian (60.4%), Asian (30.2%), mixed or other ethnicity (6.9%), and Black (2.5%). The majority of participants held a Bachelor's degree (59.4%), while the remainder reported high school (5.9%), college (13.4%), master's (17.8%), PhD (3%), and postdoctoral studies (.5%) as their highest level of education.

Measures

Parental Emotion Socialization

The Emotions as a Child Scale Youth Report (EAC Youth Report; Magai and O'Neal 1997) was administered in order to measure participants' perceptions of parental emotion socialization strategies in response to negative emotions they experienced in childhood. The youth-report version of the questionnaire has a total of 45 items, 15 items for each of the three negative emotions including sadness, anger, and fear/anxiety. For example, "When I was sad/angry/fearful as a child, my caregiver comforted me". Participants are asked to rate how frequently their caregiver responded in the particular way listed on a 5-point Likert-type scale (1 = Never, 5 = Very Often). The measure consists of five subscales that are reflective of parental emotion socialization strategies including neglect (parent ignores or dismisses the child's emotions), punish (parent gives negative consequences for the child's emotional displays), magnify (parent matches or exceeds the child's emotions), override (parent distracts the child or instructs them to change their emotion), and reward (parent acknowledges and validates the child's emotions). A 2-factor model (supportive and unsupportive socialization strategies) of the abbreviated EAC has been shown to be a good alternative to the original 5-factor structure in late adolescence and emerging adulthood with Cronbach's α's ranging from .90 to .91 for Supportive subscales and .69–.79 for Unsupportive subscales for sadness, anger, and fear/anxiety, respectively (see Guo et al. 2016 for factor structure). In order to create global indices of parental emotion socialization, Supportive and Unsupportive subscales were averaged across the three emotions to create a total score for Supportive ($\alpha = .87$) and Unsupportive strategies ($\alpha = .90$).

Emotion Regulation Skills

The ERSQ (ERSQ; Berking and Znoj 2008; English version) is a 27-item measure that assesses the use of adaptive ER skills. For example, "I was able to influence my negative feelings". Each skill is assessed with three items and yields nine subscales including: Attention Toward Feelings, Clarity, Understanding, Sensations, Modification, Acceptance, Tolerance, Self-Support, and Readiness to Confront Distressing Emotions. Respondents are asked to indicate how often they dealt with their emotions in the particular way specified over the last week. Responses are recorded on a 5-point Likert-type scale (0 = Not at all, 4 = Almost always). In addition to the subscale scores, a total score for the ERSQ is computed using the mean of all 27 items. Several studies have shown that the German version of the ERSQ has adequate-to-good internal consistencies ($\alpha = .90$ for the total score, and $\alpha = .61$–$.81$ for the subscale scores), adequate test–retest reliability ($r = .75$), and good convergent and discriminant validity (Berking et al. 2012, 2014; Berking and Znoj 2008; Wirtz et al. 2014). The English version of the ERSQ is currently being validated by Berking and colleagues. In the present study, the total score of the ERSQ displayed excellent internal consistency ($\alpha = .96$).

Emotion Regulation Strategies

The Emotion Regulation Questionnaire (ERQ; Gross and John 2003) was administered to assess participants' use of two ER strategies. The ERQ is a 10-item questionnaire measuring an individual's tendency to regulate their emotions using Cognitive Reappraisal (6 items) and Expressive Suppression (4 items). Each item consists of a statement about how emotions are regulated. For example, "I keep my emotions to myself" (Expressive Suppression) or "I control my emotions by changing the way I think about the situation I'm in" (Cognitive Reappraisal). Responses are recorded on a 7-point Likert-type scale, ranging from one (Strongly Disagree) to seven (Strongly Agree). The test–retest reliability of the ERQ is .69 over 3 months, and the measure has good internal consistency for both Cognitive Reappraisal ($\alpha = .79$) and Expressive Suppression ($\alpha = .73$) subscales (Gross and John 2003). Internal consistencies in the present study were $\alpha = .81$ and $\alpha = .82$ for the Cognitive Reappraisal and Expressive Suppression subscales, respectively.

Trait Anxiety

The State-Trait Inventory for Cognitive and Somatic Anxiety (STICSA; Ree et al. 2008) was administered to assess trait anxiety. The STICSA trait scale requires participants to indicate, in general, how often a series of 21 statements is true of them on a 4-point Likert-type scale ranging from one (Not At All) to four (Very Much So). Statements include both cognitive ("I think that others won't approve of me") and somatic ("My muscles are tense") symptoms of anxiety. Psychometric analyses suggest that the STICSA is a reliable and valid measure of anxiety symptomology specifically, in

that it is more strongly correlated with other measures of anxiety and less strongly correlated with depression when compared to the State-Trait Anxiety Inventory (Grös et al. 2007). A total score for trait anxiety, calculated as the sum of all 21 items, was used in the present study and was found to have good internal consistency ($\alpha = .93$).

Procedure

All measures were compiled to form a single survey, which was hosted on LimeSurvey (Limesurvey GmbH./LimeSurvey: An Open Source survey tool/LimeSurvey GmbH, Hamburg, Germany. http://www.limesurvey.org). Participants were able to click on the anonymous link contained in our online advertisements and complete the survey at home at any time of day. After consent was obtained online, participants were directed to the questionnaires, which took a total of 20–35 min to complete. Upon completing the survey, participants were asked to provide their e-mail addresses in order to receive compensation, which consisted of an e-gift card valued at five dollars. In order to ensure confidentiality, participants were given discrete ID numbers and the e-mail addresses provided for compensation were stored separately from the data in a password-protected document.

Data Analysis

Four hierarchical regression analyses followed by a mediation analysis were conducted in order to examine the relationships between parental emotion socialization in childhood, ER skills, ER strategies, and trait anxiety in adulthood, while controlling for age, gender, education, and ethnicity. Each of the aforementioned covariates was entered simultaneously into the first step of each of the following hierarchical regressions. First, a hierarchical regression analysis was conducted in order to examine whether parental emotion socialization in childhood would predict participants' level of ER skills in adulthood. Subsequently, given the unique associations between supportive emotion socialization and cognitive reappraisal as well as unsupportive emotion socialization and suppression (Gunzenhauser et al. 2014), two hierarchical regression analyses were carried out to test the predictive ability of unsupportive emotion socialization on participants' use of expressive suppression and supportive emotion socialization on participants' use of cognitive reappraisal. Next, given the relationships between unsupportive parental emotion socialization, ER, and internalizing difficulties in youth (Hurrell et al. 2015; Shaffer et al. 2012), a hierarchical regression analysis was performed wherein unsupportive emotion socialization in childhood, ER skills in adulthood, and ER strategies (i.e. cognitive reappraisal and expressive suppression) were entered simultaneously as predictors of trait anxiety in adulthood. Lastly, a mediation analysis was conducted using PROCESS macro to explore whether ER mediated the relationship between unsupportive ES in childhood and adult trait anxiety. All analyses were conducted using SPSS version 24.

Results

Prior to analysing the data, all variables were tested to ensure that no assumptions were violated. Eight cases were excluded as they were determined to be careless responders, based on the recommended minimum criterion of 2 seconds per item (Huang et al. 2012). One case was later excluded after being identified as a multivariate outlier through a Mahalanobis Distance test. Box-plots were used to test for univariate outliers, and although some were present, all univariate outliers were retained since they did not have a significant impact on the results of the analyses after being removed. Scatterplots were created to test for linearity, and this assumption was met for all analyses. Multicollinearity was assessed for each regression conducted, and collinearity diagnostics fell within the acceptable range ($VIF < 1.59$). Visual examination of Q–Q plots and histograms indicated that the variables were normally distributed, and skewness and kurtosis values were within the acceptable range based on a cut-off point of ± 2 (George and Mallery 2010). Lastly, visual examination of plots of standardized residuals indicated that the assumption of homoscedasticity was met.

Parental Emotion Socialization and Emotion Regulation Skills in Adulthood

Supportive ($M = 24.74$, $SD = 4.78$) and unsupportive ($M = 10.83$, $SD = 3.64$) emotion socialization (ES) were entered simultaneously into a two-stage hierarchical regression model to predict emotion regulation (ER) skills ($M = 2.46$, $SD = .72$) while controlling for age, gender, education, and ethnicity. Our covariates were added to the first model with the overall model not being significant, $F(4, 188) = 2.13$, $p = .08$. The second model was significant, $F(2, 186) = 15.98$, $p < .001$, with parental ES accounting for 14% of the variance in ER skills ($R^2 = .14$). The hypothesis that parental ES strategies in childhood would predict ER skills in adulthood was supported. Firstly, unsupportive ES in childhood was inversely related to ER skills ($B = -.028$, $p < .05$) in adulthood when controlling for supportive ES, education, gender, ethnicity, and age. Secondly, higher levels of supportive ES in childhood were a significant predictor of higher levels of ER skills ($B = .047$, $p < .001$) in adulthood when controlling for unsupportive ES, education, gender, ethnicity, and age. Examination of the standardized coefficients revealed that supportive ES in childhood ($\beta = .31$) was a stronger predictor of ER skills than unsupportive ES

($\beta = -.14$). Correlations are displayed in Table 1. Regression coefficients and significance values are displayed in Table 2.

Parental Emotion Socialization and Emotion Regulation Strategies in Adulthood

To examine the relationships between parental ES in childhood and ER strategy use in adulthood, two hierarchical regression analyses were conducted while controlling for education, gender, ethnicity, and age. The first hierarchical regression analysis tested the predictive ability of unsupportive ES on participants' use of expressive suppression ($M = 3.56$, SD = 1.29), while the second tested the predictive ability of supportive ES in childhood on participants' use of cognitive reappraisal ($M = 4.79$, SD = .96).

Unsupportive Emotion Socialization Predicting Expressive Suppression

In predicting expressive suppression, the first model controlling for our covariates (age, gender, education, and ethnicity) was not significant, $F(4, 188) = 2.13$, $p = .06$. Ethnicity, however, was found to be a significant predictor of expressive suppression, $t(4,188) = 2$, $p < .05$. Unsupportive ES was a significant predictor of expressive suppression, $F(1,187) = 5.39$, $p < .05$, and accounted for 2.7% of the variance ($R^2 = .027$) in suppression. Specifically, higher levels of unsupportive ES predicted greater use of expressive suppression ($B = .06$). In the second model, ethnicity was no longer a significant predictor of expressive suppression, $t(4,188) = 1.79$, $p = .08$. Regression coefficients and significance values are displayed in Table 3.

Supportive Emotion Socialization Predicting Cognitive Reappraisal

In predicting cognitive reappraisal, the first model controlling for our covariates (age, gender, education, and ethnicity) was not significant, $F(4, 188) = .16$, $p = .96$. When supportive ES was entered as a predictor of cognitive reappraisal, the model was significant, $F(1,187) = 9.85$, $p = <.05$, and accounted for 5% of the variance ($R^2 = .05$) in reappraisal. Specifically, higher levels of supportive ES were associated with greater use of cognitive reappraisal ($B = .05$).

Table 1 Correlations for continuous variables

	1	2	3	4	5	6	7
1 Trait anxiety	–	− .51**	− .39**	.37**	.36**	− .16	− .10
2 ER skills	–	–	.53**	− .29**	− .25**	.37**	.16
3 Cognitive reappraisal	–	–	–	− .08	− .16	.22**	− .02
4 Expressive suppression	–	–	–	–	.20*	− .19	.01
5 Unsupportive ES	–	–	–	–	–	− .33**	.03
6 Supportive ES	–	–	–	–	–	–	.01
7 Age	–	–	–	–	–	–	–

*Indicates significant at a $p < .05$ level, **indicates significance at a $p < .01$ level

Table 2 Results for hierarchical regression analysis for supportive and unsupportive emotion socialization on emotion regulation skills while controlling for demographic variables

Predictors	Model 1			Model 2		
	B	SE	*β*	*B*	SE	*β*
Step 1						
Age	.32	.18	.13	.35	.17	.14
Gender	− .09	.15	− .04	− .05	.15	− .02
Education	.11	.06	.13	.08	.06	.09
Ethnicity	− .01	.03	− .03	.01	.03	.01
Step 2						
Unsupportive ES	–	–	–	− .03	.01	− .14*
Supportive ES	–	–	–	.05	.01	.31**
F	2.13			15.98**		
ΔR^2	.04			.14**		
R^2	.04			.18**		
Adjusted R^2	.02			.16		

*Indicates significant at a $p < .05$ level, **indicates significance at a $p < .01$ level

Table 3 Results for hierarchical regression analysis for unsupportive emotion socialization on expressive suppression, while controlling for demographic variables

Predictors	Model 1			Model 2		
	B	SE	*β*	*B*	SE	*β*
Step 1						
Age	.08	.32	.02	.04	.32	.01
Gender	− .53	.27	− .14	− .45	.27	− .12
Education	− .06	.11	− .04	− .03	.11	− .02
Ethnicity	.11	.06	.14	.10	.06	.13
Step 2						
Unsupportive ES	–	–	–	.06	.03	.17*
F	2.31			5.39*		
ΔR^2	.05			.03*		
R^2	.05			.07*		
Adjusted R^2	.03			.05		

*Indicates significant at a $p < .05$ level, **indicates significance at a $p < .01$ level

Regression coefficients and significance values are displayed in Table 4.

Parental Emotion Socialization, Emotion Regulation, and Trait Anxiety in Adulthood

Unsupportive ES, ER skills, cognitive reappraisal, and expressive suppression were entered simultaneously as predictors of trait anxiety ($M = 41.26$, SD = 13.05) while controlling for education, gender, ethnicity, and age. The first model controlling for our covariates (age, gender, education, and ethnicity) was not significant, $F(4,188) = 1.54$, $p = .19$. However, education was found to be a significant predictor of trait anxiety, $t(4,188) = -2.03$, $p < .05$. The following model of unsupportive ES, ER skills, cognitive reappraisal, and expressive suppression in predicting trait anxiety was significant, $F(4,184) = 27.99$, $p < .001$ accounting for 36.6% of the variance ($R^2 = .366$) in trait anxiety. ER skills accounted for the greatest weight in the model, followed by expressive suppression, unsupportive ES, and cognitive reappraisal. Higher levels of expressive suppression and unsupportive ES were both significant predictors of high trait anxiety, while higher levels of ER skills and greater use of cognitive reappraisal significantly predicted lower levels of trait anxiety when controlling for the other variables. Further, in the second model, education was no longer a significant predictor of trait anxiety, $t(4,188) = -1.23$, $p = .22$. Regression coefficients and significance values are displayed in Table 5.

Mediation Effects

Since demographic variables were not found to have a significant effect on trait anxiety when ER variables were added to the model, they were removed from further analyses. Subsequently, a parallel mediation model was used to examine whether the effect of unsupportive ES in childhood on trait anxiety in adulthood would be mediated by

Table 4 Results for hierarchical regression analysis for supportive emotion socialization on cognitive reappraisal, while controlling for demographic variables

Predictors	Model 1			Model 2		
	B	SE	*β*	*B*	SE	*β*
Step 1						
Age	− .11	.25	− .03	− .10	.24	− .03
Gender	− .02	.21	− .01	.05	.20	.02
Education	.05	.09	.05	.04	.08	.03
Ethnicity	.02	.04	.03	.03	.04	.05
Step 2						
Supportive ES	–	–	–	.05	.01	.23**
F	.16			9.85**		
ΔR^2	.00			.05**		
R^2	.00			.05**		
Adjusted R^2	− .02			.03		

*Indicates significant at a $p < .05$ level, **indicates significance at a $p < .01$ level

adults' ER. Results indicated that remembered unsupportive ES had an indirect relationship with current levels of trait anxiety through its relationship with adult ER skills, cognitive reappraisal use, and suppression use. As can be seen in Fig. 1, perceptions of unsupportive ES were negatively associated with adaptive ER skills ($\alpha_1 = -.049$, $p < .001$) and cognitive reappraisal use ($\alpha_2 = -.043$, $p < .05$) in adulthood. Additionally, perceptions of unsupportive ES were positively associated with more frequent use of expressive suppression ($\alpha_3 = .071$, $p < .01$). In turn, lower levels of ER skills ($b_1 = -5.298$, $p < .001$), less frequent use of cognitive reappraisal ($b_2 = -2.485$, $p < .01$), and more frequent use of expressive suppression ($b_3 = 2.270$, $p < .001$) were associated with higher levels of trait anxiety in adults. Indirect effects were assessed using bias-corrected bootstrap confidence intervals (10,000 iterations). Results showed that the indirect effect of unsupportive ES through ER skills ($\alpha_1 b_1 = .258$), holding all other mediators constant, was entirely above zero, 95% CI [.085, .484]. The indirect effects of unsupportive ES through cognitive reappraisal ($\alpha_2 b_2 = .106$) and expressive suppression ($\alpha_3 b_3 = -.162$) were also significant when all other mediators were held constant, with 95% CIs of [.006, .251] and [.037, .320], respectively. Moreover, perceptions of unsupportive ES in childhood were positively associated with trait anxiety, even when taking into account the indirect effects of ES through all three dimensions of ER ($c' = .775$, $p < .001$). Results of the mediation analyses were reported according to the recommendations outlined in Kane and Ashbaugh (2017).

Table 5 Results for hierarchical regression analysis for unsupportive ES, ER skills, cognitive reappraisal and expressive suppression on trait anxiety, while controlling for demographic variables

Predictors	Model 1			Model 2		
	B	SE	*β*	*B*	SE	*β*
Step 1						
Age	− 3.06	3.29	− .07	− 2.62	2.67	− .06
Gender	.09	2.78	.00	2.09	2.26	.06
Education	− 2.33	1.15	− .15*	− 1.12	.93	− .07
Ethnicity	.04	.56	.01	− .42	.46	− .05
Step 2						
Unsupportive ES	–	–	–	.81	.22	.23**
ER skills	–	–	–	− 4.64	1.33	.26**
Cognitive reappraisal	–	–	–	− 2.65	.93	− .20**
Expressive suppression	–	–	–	2.49	.63	.25**
F	1.54			27.99**		
ΔR^2	.03			.37**		
R^2	.03			.40**		
Adjusted R^2	.01			.37		

*Indicates significant at a $p < .05$ level, **indicates significance at a $p < .01$ level

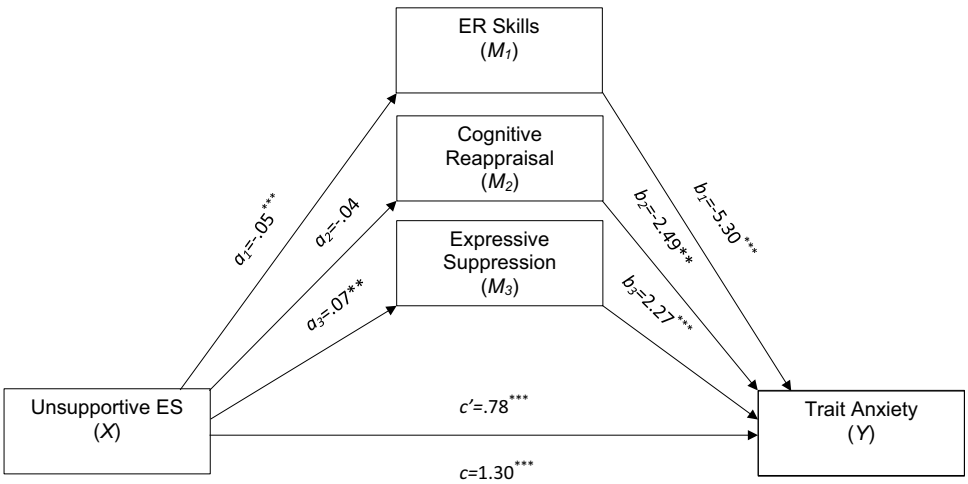

Fig. 1 The mediating effect of three ER dimensions in the relationship between remembered unsupportive emotion socialization in childhood and trait anxiety in adulthood. *Notes* *$p < .05$, **$p < .01$, ***$p < .001$; all presented effects are unstandardized; α_n is the effect of unsupportive emotion socialization on ER dimensions; *b* is the effect of ER dimensions on trait anxiety; *c*′ is the direct effect of unsupportive emotion socialization on trait anxiety; *c* is the total effect of unsupportive emotion socialization on trait anxiety

Discussion

The pivotal role that parents play in either facilitating or hindering children's emotional development should not be underestimated. By providing support and guidance, parents lay the groundwork that will enable children to develop the emotional competencies and regulation skills that will facilitate adaptive emotional functioning in future. Conversely, youth whose parents do not provide adequate emotion socialization have fewer opportunities to develop adaptive ER skills and may adopt maladaptive regulatory strategies that can contribute to anxiety. Although a large body of research supports the relationships between parental emotion socialization, ER, and anxiety in children, there exists a dearth of research examining how parents' emotion socialization practices impact emotional functioning in adulthood. To our knowledge, only four studies (Garside and Klimes-Dougan 2002; Guo et al. 2016; Klimes-Dougan et al. 2007; O'Neal and Magai 2005) have used the youth version of the EAC to assess parental emotion socialization retrospectively. Furthermore, no studies as of yet have examined the predictive utility of the 2-factor model proposed by Guo et al. (2016) for emotion-related outcomes in adulthood. In the context of the present study, the 2-factor model of the abbreviated EAC was used to examine whether parental emotion socialization in childhood would predict ER skills and ER strategy use in adulthood. In addition, it was hypothesized that perceptions of unsupportive parental emotion socialization in childhood, and poorer ER in adulthood would predict trait anxiety.

In the present study, adult's perceptions of parental emotion socialization practices in childhood significantly predicted ER skills in adulthood. Both supportive emotion socialization and unsupportive emotion socialization were significant predictors of adult ER skills; however, supportive emotion socialization was the stronger predictor of the two. These findings conflict with some previous studies, including Williams and Woodruff-Borden (2015), who found that unsupportive responses to children's negative emotions contributed more, albeit adversely, to a child's ER abilities than supportive responses. Emotion regulation is an ability that becomes increasingly independent from parental influences over the course of development, as children rely less heavily on their caregivers and learn techniques for self-regulation (Kerns 2008; Kopp 1989). Thus, parents' use of unsupportive strategies may have a more profound influence on ER skills in childhood, but the influence may wane with age as children develop their capacity for self-regulation.

With respect to ER strategy use, unsupportive emotion socialization, including parental reactions that minimize children's emotions, has been associated with maladaptive or avoidant coping strategies (Eisenberg et al. 1996; Jones et al. 2002) and greater use of expressive suppression (Gunzenhauser et al. 2014) in children. Parental reactions that minimize or punish children's emotional expressions may teach children that negative feelings are wrong or inappropriate to express. Consequently, children internalize this emotion philosophy and are taught to inhibit or suppress their emotions when parents fail to provide appropriate regulation strategies or guidance (Fabes et al. 2002; Gottman et al. 1997). The findings of the present study are consistent with this notion, as unsupportive emotion socialization in childhood significantly predicted the use of suppression in adulthood and poorer ER skills overall.

The role of supportive parenting should not be underestimated, however, as numerous other studies have found an association between supportive parenting behaviours and children's ER (Eisenberg et al. 1996; Hurrell et al. 2015; Lunkenheimer et al. 2007). In line with the literature that has corroborated the relationship between supportive parental emotion socialization and adaptive ER, our findings suggest that supportive emotion socialization is an important factor facilitating the development of ER skills into adulthood. In the present study, supportive parental emotion socialization in childhood significantly predicted higher levels of ER skills, as well as more frequent use of cognitive reappraisal in adulthood. Further, supportive emotion socialization strategies were found to be a stronger predictor of ER skills than unsupportive strategies. Taken together, it appears that parental emotion socialization practices not only influence the development of ER in childhood, but that they also have an enduring impact that extends into adulthood. Parents who engage in supportive emotion socialization validate their children's negative emotions and engage in problem-solving behaviours, which provides the scaffolding that will enable children to develop adaptive ER skills and coping strategies that they can utilize into adulthood. In contrast, unsupportive behaviours that punish or minimize children's negative emotions appear to increase the likelihood that these individuals will rely on maladaptive ER strategies in future.

In addition to providing evidence for the relationship between emotion socialization in childhood and ER in adulthood, results of the present study show that together, unsupportive emotion socialization in childhood, ER skills in adulthood, and ER strategy use significantly predict trait anxiety in adults. This finding is consistent with other studies that have supported the links between unsupportive parenting, ER, and anxiety in children (Hurrell et al. 2015; Shaffer et al. 2012; Suveg et al. 2008). These findings also build upon existing research that has been conducted in older populations. Of the few studies that have examined outcomes related to parental emotion socialization in adolescence and

adulthood, Garside and Klimes-Dougan (2002) found that parents' use of punish and neglect strategies in childhood were associated with higher levels of psychological distress in young adulthood. Additionally, adolescents with higher levels of internalizing problems described their parents as less likely to use supportive strategies in response to their negative emotions (Klimes-Dougan et al. 2007), while unsupportive strategies, including punish, neglect, and magnify responses from parents, were associated with higher levels of internalizing symptoms in adolescents (O'Neal and Magai 2005).

In the present study, unsupportive parental emotion socialization in childhood, lower levels of ER skills in adulthood, higher levels of expressive suppression, and lower levels of cognitive reappraisal significantly predicted trait anxiety. The latter two findings regarding ER strategy use are particularly interesting, as studies in children have yielded mixed results with respect to the relationships between ER strategies and anxiety. Cognitive reappraisal is generally used less frequently and with less success in children with anxiety (Carthy et al. 2010; Hughes et al. 2010). However, findings regarding expressive suppression are inconsistent as some studies have reported no associations between suppression use and anxiety (Leen-Feldner et al. 2004; Suveg and Zeman 2004), while others have found positive associations between suppression and internalizing symptoms (Hughes et al. 2010; Zeman et al. 2002). In studies that have used adult samples, more frequent use of expressive suppression and less frequent use of cognitive reappraisal have been reported amongst individuals diagnosed with depression and anxiety (D'Avanzato et al. 2013). Moreover, higher levels of suppression have been associated with anxiety sensitivity and trait anxiety in normative samples of undergraduate students and adults (Dennis 2007; Moore et al. 2008). Thus, the relationship between suppression and anxiety seems to be more stable in older populations, perhaps because stylistic ways of managing emotions become more ingrained, or pronounced, with age.

Overall, our findings suggest that unsupportive parental emotion socialization in childhood places individuals at an increased risk of trait anxiety since individuals are not able to develop ER abilities that are necessary for effectively managing negative emotions in adulthood. The results also support the notion that teaching adaptive ER strategies, such as cognitive reappraisal, could be effective in preventing the development of trait anxiety (Montreuil and Kimhy 2015). More specifically, although results revealed indirect relationships between unsupportive emotion socialization and trait anxiety, through lower levels of ER skills and increased use of emotional suppression, the evidence suggests the presence of a significant, negative relationship between cognitive reappraisal and trait anxiety. These results are consistent with McKee et al. (2019), who found that higher levels of cognitive reappraisal were associated with lower levels of internalizing symptoms in young adults. However, in contrast to McKee et al. (2019), who only found indirect effects of parental emotion socialization on internalizing symptoms, perceptions of unsupportive emotion socialization in childhood were predictive of trait anxiety in the present study, even after taking into account the indirect effects of emotion socialization through ER skills and ER strategies. The discrepancy between these findings may be attributable to the fact that the present study focused specifically on trait anxiety, which may be a risk factor for internalizing problems more broadly (Goldsmith and Lemery 2000; Grös et al. 2007; Lau et al. 2006), while McKee et al. (2019) instead assessed active internalizing symptomology. Consequently, encouraging the use of adaptive ER strategies, such as cognitive reappraisal, may be one way to protect against the manifestation of trait anxiety and the development of "generalized" internalizing problems, particularly amongst adults who have experienced unsupportive emotion socialization in childhood. However, given the lasting negative repercussions of unsupportive emotion socialization, encouraging parents to take part in programs that promote supportive emotion socialization practices, early on, may be effective in preventing the development of future internalizing difficulties in their children (e.g. Kehoe et al. 2014).

Lastly, while previous studies have found that the influence of remembered parental emotion socialization practices on mental health symptoms differed based on ethnic group (e.g. Leerkes et al. 2015), the current study did not support the notion that ethnicity has an effect on the relationship between remembered parental emotion socialization techniques and adult outcomes of ER and trait anxiety. While ethnicity was initially predictive of adults' use of suppression, this relationship was not maintained when unsupportive parental emotion socialization was added to the model. This suggests that the effects of ethnic group membership on ER strategy use may be better accounted for by emotion socialization. That said, it is important to note that the lack of ethnic diversity within our sample may have affected these results. Previous studies have noted that European Americans may be particularly sensitive to unsupportive parental emotion socialization and, as such, are more likely to develop anxious and depressive symptoms as a result (Leerkes et al. 2014). Therefore, the relationship between unsupportive emotion socialization and trait anxiety in the present study may have been driven by the fact that the majority of participants in our sample were from European–Canadian backgrounds. However, results of the present study do coincide with previous research showing that unsupportive emotion socialization was associated trait anger in adulthood, regardless of ethnic group membership (Leerkes et al. 2015; Perry et al. 2017).

Limitations and Future Directions

Findings of the present study should be interpreted with regard to certain limitations. Firstly, the study was conducted using a convenience sample from one university in Canada and, as such, may not be generalizable to other populations or geographic regions. Further, the majority of participants (86.1%) were women and our sample was relatively homogenous with respect to ethnicity (60.4% identified as Caucasian). Additionally, the majority of participants (92.1%) selected their mother as the parent for whom they were answering the EAC. Consequently, the findings of this study may be more specific to the impact of maternal emotion socialization. This finding is unsurprising however, given that previous studies have found that when recalling their childhood, young adults reported that mothers were more involved in socializing negative emotions than fathers (Garside and Klimes-Dougan 2002).

With respect to our methodology, there are some limitations inherent to using the youth version of the EAC, which relies on retrospective reports of information that participants recall from childhood. Although this method is likely subject to recall bias and may be less rigorous than observational approaches, Garside and Klimes-Dougan (2002) argued that an individual's perception of parental emotion socialization strategies may be more significant than the strategies parents actually used when trying to ascertain how these behaviours influence emotional outcomes. As such, findings must be interpreted accordingly.

Lastly, while previous studies have demonstrated that parental education has an influence on parents' degree of supportive versus unsupportive emotion socialization practices (Lugo-Candelas et al. 2015), the present study did not account for parental factors such as education or socioeconomic status and therefore was not able to control for these variables. Further, although the age range of our participants was generally higher than those used in previous studies utilizing the EAC (Garside and Klimes-Dougan 2002; Klimes-Dougan et al. 2007; O'Neal and Magai 2005), our findings seem to support the predictive utility of the 2-factor structure of the abbreviated EAC (Guo et al. 2016) for emotion-related outcomes in adulthood. Future research should strive to replicate these findings in more representative samples and attempt to elucidate the relationships between parental emotion socialization strategies and the development of specific ER skills.

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Compliance with Ethical Standards

Conflict of interest There are no conflicts of interest to disclose.

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