



# The Relations of Parental Emotion Dysregulation and Emotion Socialization to Young Adults' Emotion Dysregulation

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## Abstract

**Objectives** Parents' own emotion dysregulation and their socialization of emotions have been found to predict offspring's emotion dysregulation, but little is known about how these factors interact to predict young adults' emotion dysregulation. Thus, we aimed to examine whether each of three forms of parental responses to their offspring's negative emotions (i.e., supportive, harsh, distressed) predicted young adults' emotion dysregulation, particularly for young adults whose parents did not present emotional difficulties.

**Methods** One hundred and twenty-two young adults ( $M_{age} = 22.37$  years,  $SD_{age} = 2.23$ , age range: 18–26 years) and their primary parents were recruited through Amazon's Mechanical Turk. Young adults and their primary parents reported on their own emotion dysregulation, and primary parents reported their supportive, harsh, and distressed responses to young adults' negative emotions.

**Results** For distressed parental responses and supportive emotion-related socialization, the interaction effect between emotion dysregulation and their emotion socialization strategies was significantly related to young adults' emotion dysregulation,  $F_s(6) = 6.70$  and  $6.58$ ,  $p_s < 0.001$ , for distressed responses and supportive socialization, respectively. When parents' harsh responses to negative emotions were examined, only the main effects of harsh responses and parents' own emotion dysregulation predicted young adults' emotion dysregulation,  $F(5) = 4.55$ ,  $p < 0.001$ .

**Conclusions** Results highlight that both specific socialization strategies and parents' own regulatory characteristics are important in young adults' emotional experience. Further, if parents are not well-regulated emotionally, changes in their responses to young adults' negative emotions may not be effective.

**Keywords** Emotion dysregulation · Emotion regulation · Parental socialization of emotions · Young adulthood

Emotion regulation refers to “processes used to manage and change whether, when and how (e.g., how intensely) one experiences emotions and emotion-related motivational and physiological states, as well as how emotions are expressed behaviorally” (Eisenberg et al. 2013, p. 157). The majority of work focusing on emotion regulation has examined its role in infants' and children's social and emotional outcomes. For example, children's emotion regulation has been positively associated with children's empathy, prosocial

behavior, social competence (Fabes and Eisenberg 1992; Panfile and Laible 2012), and academic performance (Liew et al. 2014). However, children's emotion dysregulation (i.e., lack of regulation abilities and heightened intensity of negative emotional experience; Turk et al. 2005) has been related to poor understanding of emotions and psychological disorders, such as depression (Cheung and Park 2010), anxiety (Turk et al. 2005), and externalizing behavior (Buckholdt et al. 2014). The limited work with young adults also suggests that emotion dysregulation is problematic, as it has been positively associated with impulsive behaviors (such as greater alcohol and substance use and gambling; Schreiber et al. 2012), self-injury (Klonsky 2009), and delinquency (Rodriguez et al. 2015).

A focus on the period of young adulthood (between age 18 and 25) is important because it is a period of marked changes in environment (e.g., moving away from parents, increased independence) and interpersonal relationships

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(e.g., romantic, friendships, and parent–child). In industrialized cultures, young adulthood is a period of instability, possibility, self-focus, feeling in between adolescence and adulthood, and identity exploration (Arnett 2007). In addition, the development of the prefrontal cortex, which plays critical role in emotion regulation (Dixon et al. 2017) is not complete until near the age of 25 years (Arain et al. 2013). Thus, the ability to effectively regulate emotions is important for young adults.

Emotion dysregulation appears to be predicted by both internal and external factors. Specifically, temperament, cognitive skills, and the underlying neural and physiological systems are engaged in the process of emotion regulation and dysregulation (Fox and Calkins 2003). In addition, researchers have acknowledged the role of caregivers in managing their children's emotions (Eisenberg et al. 2013). Although there is less work focusing on young adults, higher levels of parents' psychological control (Manzeske and Stright 2009), parents' rejection (Aka and Gencoz 2014), permissive or authoritarian parenting styles (McKinney et al. 2016; Rodriguez et al. 2015), and parents' alcohol problems (Fischer et al. 2007) were positively related to young adults' emotion dysregulation or use of maladaptive regulation strategies.

Parental socialization of emotions includes parents' responses to their children's emotions, parents' emotional expressions, and parents' conversations about emotions (Eisenberg et al. 1998, 2016; O'Neal and Magai 2005; Thompson 2013). Specifically, parents' responses to emotions include parents' supportive, harsh, or distressed reactions (Eisenberg et al. 2016). Supportive responses include problem-focused responses (e.g., finding ways to solve the issue), emotion-focused responses (e.g., comforting), and validation of children's feelings (e.g., encouraging the expression of emotions). The use of such strategies has been related to children's and adolescents' relatively strong emotion regulation skills and social competence (Eisenberg et al. 2016; Raval et al. 2018; Thompson, 2013) and young adults' lower levels of depression and expression of anger (Dunbar et al. 2014).

However, when parents neglect or minimize their children's emotions, or behave punitively in response to children's emotions, children may feel over-aroused when experiencing emotions, and in turn, may have fewer skills to deal with future negative emotions (Eisenberg et al. 2016; Thompson 2013). Parents' punitive and minimizing responses to their children's emotions have been associated with children's relatively weak emotion regulation skills, such as lower effortful control (Eisenberg et al. 2016). These harsh strategies also appeared to be positively related to emotion dysregulation in both children and adolescents (Buckholdt et al. 2014; Lunkenheimer et al. 2007; Santas

et al. 2013), and positively related to anger expressions in male, but not female, young adults (Perry et al. 2015).

Parents also may respond to their children's emotions by feeling and expressing their own distress; that is, parents may feel upset themselves when their children express negative emotions (Eisenberg et al. 1996). These responses represent parents' personal experience triggered by children's emotional expression, rather than a parenting behavior towards children, and such arousal may limit parents' ability to teach adolescents emotion management (Moed et al. 2015). Distressed parental responses have been positively associated with children's relatively high negative emotionality and problem behaviors, and have been negatively associated with children's emotion regulation skills (Eisenberg et al. 1996, 1998).

Few researchers have examined how parents' responses to emotions predict emotion dysregulation among young adults. However, it is important to note that young adulthood is a period in which children's relationships with parents tend to have stabilized, and time spent with parents may even increase as young adults turn to their parents for help, advice, sympathy, and cheering up in the years after high school (Guan and Fuligni 2016). Thus, we expected that parental responses to emotions would be an important lens for understanding young adults' emotion dysregulation. Because lower levels of non-supportive parental socialization and higher levels of supportive parental socialization contributed to reducing young adults' depression and expressions of anger (Dunbar et al. 2014), we expected that parents' harsh responses would be positively related to young adults' emotion dysregulation, whereas supportive reactions would be negatively related to young adults' emotion dysregulation. Parents' distressed responses, which may indicate a lack of teaching direct strategies for regulation, were expected to be positively related to young adults' emotion dysregulation.

Parents' own emotion dysregulation is another important predictor of their children's emotion dysregulation. Indeed, prior work has shown that maternal regulation (i.e., effortful control) was positively related to their children's regulatory skills (Bridgett et al. 2011). Parents' emotion dysregulation or maladaptive strategies were positively related to adolescents' emotion dysregulation (Bariola et al. 2012; Buckholdt et al. 2014; Santas et al. 2013). To our knowledge, the link between parents' emotion dysregulation and young adults' emotion dysregulation has not been investigated.

A number of reasons could explain why parents' own dysregulation may be important to consider when understanding young adults' emotion dysregulation. First, young adults may develop strategies to manage emotions through their observation, imitation, and internalization of emotion regulation strategies used by their parents during childhood

or adolescence (Morris et al. 2007). As emphasized by Social Learning Theory, modeling is an important mechanism for children to learn specific behaviors (Bandura 1977). Further, parents' own dysregulation may be indirectly related to young adults' dysregulation through parent-child interactions and the quality of parent-child relationship during childhood and adolescence (Eisenberg et al. 1998).

In addition, parents' emotion socialization efforts may be more or less strongly related to their offspring's outcomes under particular contexts. Indeed, parenting styles and children's receptivity to socialization moderated the association between parents' socialization of emotion and children's social and emotional outcomes (Eisenberg et al. 1998). We explored parents' emotion dysregulation as another potential moderator of the relation between parents' emotion socialization and young adults' emotion dysregulation. Though many researchers have focused on the prediction of parenting behavior and parents' own characteristics to children's outcomes individually, others have examined interactive effects. For example, in her classic work, Baumrind (1991) suggested that parenting behaviors "are more than different from the sum of their parts" (p. 0.63). Researchers found that the association between mothers' physical punishment and children's externalizing problems and antisocial behavior was stronger when mothers were lower in warmth (McLoyd and Smith 2002; Simons et al. 2000). Children, adolescents, and young adults may be less likely to view physical punishment as harsh, unfair, and indicative of parental rejection when parents are usually warm and supportive (McLoyd and Smith 2002). That is, socialization strategies may be more or less effective depending upon parents' own characteristics.

Consistent with this notion, Grusec et al. (2017) suggested that parents' socialization practices may interact with qualities that facilitate children's abilities to accept parental attitudes, such that children may internalize their parents' socialization goals only under the condition that they are accepting their parents' practices. It is plausible that parents' emotion socialization predicts offspring's dysregulation only under particular conditions. For example, adolescents were more receptive to parental socialization when parents were warm with their children or had an authoritative parenting style (Darling and Steinberg 1993). In one study, female young adults' recollections of maternal punitive reactions to their negative emotions in childhood were positively related to expressions of anger in adulthood only when they also reported low emotional closeness with their mothers (Perry et al. 2015). The moderating role of parents' emotion dysregulation has not been examined in previous studies. We expected that parents' emotion socialization would be more effective under the condition

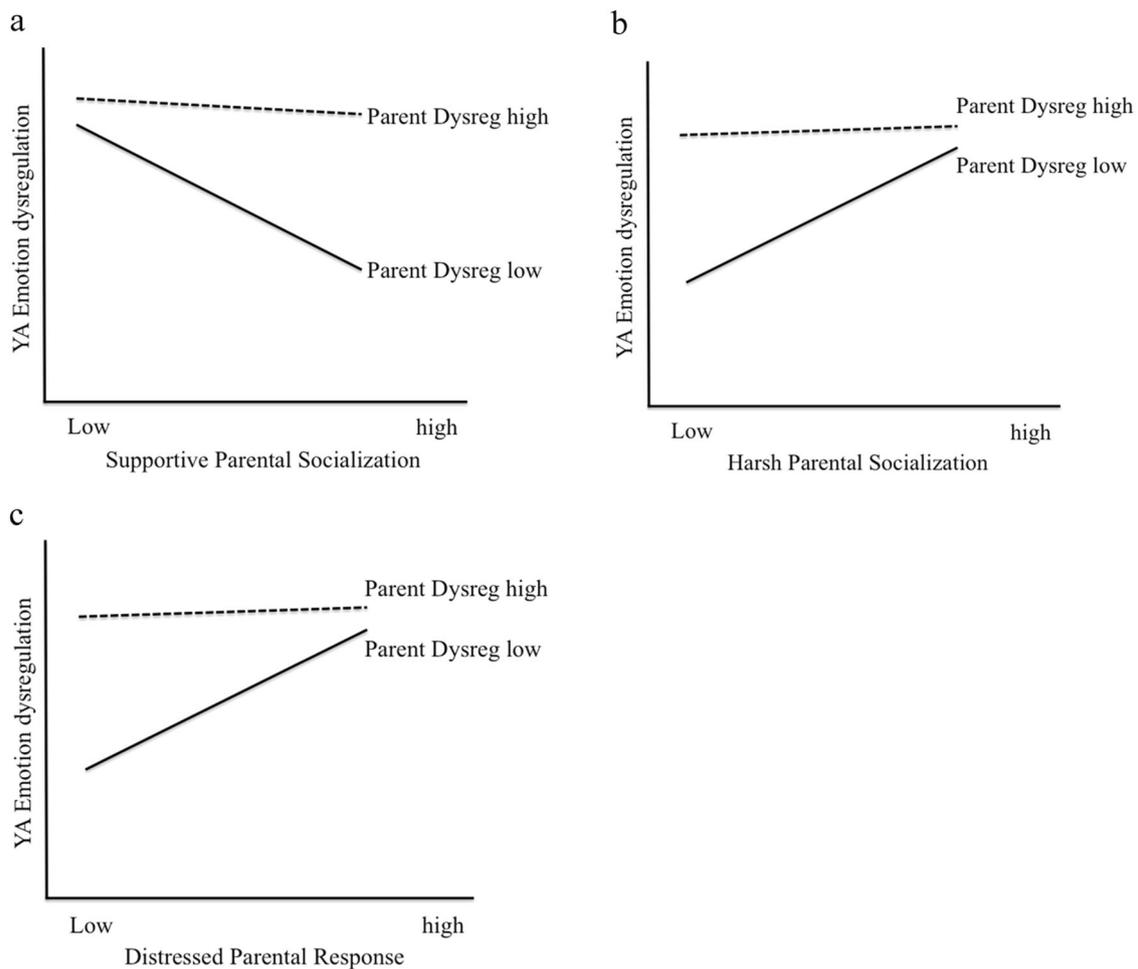
that parents were not themselves highly dysregulated. On the other hand, parents' emotion socialization may seem to be less persuasive or effective to offspring when parents were themselves dysregulated.

The present study had two main research goals. First, we examined the main effects of three forms of parental responses to young adults' emotion dysregulation. We hypothesized that supportive parental socialization of young adults' emotions would be negatively associated with young adults' emotion dysregulation, whereas harsh and distressed parental responses would be positively associated with young adults' emotion dysregulation. Our second goal was to examine the interaction effects of parents' responses to young adults' emotions and parents' own emotion dysregulation to explain differences in young adults' emotion dysregulation. Specifically, we hypothesized that parents' supportive socialization would predict lower emotion dysregulation of young adults only under the condition that parents themselves did not present as highly dysregulated (see Fig. 1a). In addition, we hypothesized that parents' harsh socialization, as well as their own distressed reactions, would predict higher levels of young adults' emotion dysregulation, particularly under the condition that parents themselves were not dysregulated (see Fig. 1b, c). Under conditions of dysregulated parents, we expected young adults' emotion dysregulation to be relatively high, regardless of parents' emotion socialization strategies.

## Method

### Participants

One hundred and twenty-two young adults ( $M_{\text{age}} = 22.37$  years,  $SD_{\text{age}} = 2.23$ , age range: 18–26 years) and their primary parents participated in the study. Data were collected through Amazon's Mechanical Turk, a crowdsourcing Internet marketplace, and were approved by Institutional Review Board. We conducted post hoc power analyses with G-Power software. With the present sample and effect sizes, the power of the analyses ranged between 0.96 and 1. Sixty-six percent of the young adults were female and 34% were male. The majority of the primary parents were young adults' biological mothers (82%); however, biological fathers (11.5%) and other family members, such as grandparents or stepparents (6.5%) were included. Fifty-seven percent of young adults were living with their primary parents. In terms of race/ethnicity, 63.9% of the participants self-identified as non-Hispanic White, 11.5% as African American, 10.7% as Hispanic, 9% as Asian American, 1.6% as Native American, and 2.5% as mixed. The sample was relatively educated, as 12.3% of primary parents held a graduate degree, 37.7% earned a 2- or 4-year college degree, 45.1% held a high school diploma, and



**Fig. 1** The expected association between parental socializations and young adults' emotion dysregulation for primary parents' emotion dysregulation from low to high. Parent Dysreg = primary parents' emotion dysregulation; YA young adults

4.9% did not graduate high school. Annual family income, which included the income of young adults and their parents, ranged from less than \$10,000 to more than \$100,000, with 51.2% of the participants reported to have family income less than \$50,000.

Amazon's Mechanical Turk (MTurk, <http://www.mturk.com>) is an increasingly popular method for data collection (Schleider and Weisz 2015). Using MTurk, researchers can recruit participants to complete questionnaires, which are called "Human Intelligence Tasks" (HITs), with low cost (medium hourly wage for Mturk HITs is \$1.38; Horton and Chilton 2010). MTurk participants are motivated to complete HITs carefully and honestly because their future HIT participation depends on their approval ratings. Thus, the quality of data collected through MTurk is high. For example, among an adult sample recruited via MTurk, mental health measures demonstrated satisfactory internal reliability and test-retest reliability (Shapiro et al. 2013). In the present study, participants recruited through MTurk were under the restrictions that they were current U.S. residents (decided by MTurk's built-in settings, which make HITs visible

to U.S. participants only), had at least a 95% task approval rate for completing previous HITs (decided by MTurk's built-in settings) and were between the age of 18 and 26 (decided by both including the range of age in the instruction and asking participants to report their age in the survey).

## Procedure

Young adult participants (between the ages of 18 and 26) were first recruited from MTurk. After young adults completed the surveys, they were asked to send the link of the parent survey to their primary parents. Young adult participants who completed the survey on MTurk were compensated \$0.50, and as incentive for recruiting their primary parents to complete a survey, young adult participants were paid an additional \$1.50 if parents completed their survey (primary parents were not paid for their participation). When young adults and primary parents filled out surveys, consent forms were presented at the beginning of the survey. Among 337 young adults who completed the surveys,

36.2% of them had primary parents' questionnaires returned. For the purposes of the present study, we only included participants with primary parents' data, resulting in a sample of 122 pairs.

## Measures

### Parents' and young adults' emotion dysregulation

To assess emotion dysregulation, both young adults and parents completed the Difficulties in Emotion Regulation Scale (DERS; Gratz and Roemer 2004). This measure has been used successfully for adolescents and adults in prior work (Bariola et al. 2012; Santas et al. 2013). The DERS is a 36-item self-report measure that assesses six components of emotion regulation (i.e., clarity, awareness, acceptance, goals, strategies, and impulse control). Items measured how often the participant engaged in different behaviors or had certain feelings or thoughts (e.g., "When I am upset, I feel guilty for feeling that way"). Participants responded on a scale from 1 (*almost never*) to 5 (*almost always*). Higher scores reflected higher levels of emotion dysregulation. In line with previous studies (Buckholdt et al. 2014; Santas et al. 2013), we created a composite score reflecting emotion dysregulation by averaging the 36 items. For each participant, their data were included if they answered more than 80% of the questions. Cronbach's alphas were 0.96 and 0.96 for young adults' and primary parents' reports, respectively.

### Parental socialization of emotions

Primary parents completed an adapted older adolescents' version of the Coping with Children's Negative Emotions Scale (CCNES; Fabes et al. 1990; see Shortt et al. 2015 for adaptation). Primary parents completed this parent-report questionnaire that included 12 situations in which young adults typically experienced distress and negative affects (e.g., breaking up with girl/boyfriend). For each situation, on a scale that ranged from 1 (*not likely at all*) to 7 (*very likely*), the parent rated the likelihood that he or she would react in each of six different ways based on their current parenting, yielding six subscales: emotion-focused reactions, problem-focused reactions, encouragement of young adults' emotional expression, distressed reactions, punitive reactions, and minimizing reactions. Compared with parents of non-depressed adolescents, parents of adolescents with depressive disorder demonstrated more punitive reactions and minimizing reactions and demonstrated less problem-focused reactions (Shortt et al. 2015). Items were averaged to create subscales, with higher scores indicating higher levels of each type of socialization strategy. For each participant, their data were included if they answered more than 80% of the questions in each subscale. Range of Cronbach's

alphas were 0.81–0.96 for all six subscales. In line with prior research (Jones et al. 2014), we created composites for supportive emotion socialization (i.e., averaged the standardized scores of problem-focused reactions, emotion-focused reactions, and encouragement of emotional expression,  $r_s = 0.89$ – $0.93$ ) and for harsh emotion socialization (i.e., averaged the standardized scores of punitive reactions and minimizing reactions,  $r = 0.73$ ). Parental distressed reaction was analyzed separately because unlike other types of reactions, which are parenting behavior towards young adults, distressed reaction is parents' personal experience triggered by young adults' emotional expression.

### Control variables

We examined living together, young adults' gender, primary parents' gender, young adults' age, primary parents' age, and the length of weekly contact between young adults and primary parents as control variables in the present study. For living together, young adults reported if they were living with primary parents (1 = *yes* or 2 = *no*). For length of weekly contact, young adults reported the length of contact with their primary parent in average minutes per week through face-to-face contact, video calls, audio calls, texts, emails, and other forms of contact, which we summed to form a total score of length of contact with primary parents.

### Data Analyses

To determine whether parents' socialization of emotion, parents' emotion dysregulation, and their interaction predicted young adults' emotion dysregulation, we used 3-step hierarchical linear regression analyses with each type of socialization in separate regressions, resulting in three regression models. In Step 1, only control variables were entered into the model to see whether they predicted young adults' emotion dysregulation. In Step 2, parents' emotion dysregulation and the socialization strategy were added to the model to examine their main effects. In Step 3, the interaction between the socialization strategy and parents' emotion dysregulation was added to the model. If the interaction effect was significant, we probed the effect using simple slope analyses for parents reporting high (1 *SD* above the mean), medium (at the mean) and low (1 *SD* below the mean) in their emotion dysregulation.

## Results

### Descriptive Analyses

We first tested whether the sample included in the study (those who had both primary parent data and young adult

data,  $N = 122$ ) differed from the sample with only young adult data ( $N = 215$ ). The sample with complete data did not differ in any demographic characteristics, including age, gender, ethnicity, whether parents and young adults were living together, and the length of weekly contact, compared with those with only young adult data. There were no differences in young adults' emotion dysregulation between those included in the present study and those who were not included ( $M_s = 2.50$  and  $2.44$ ,  $SD_s = 0.80$  and  $0.65$ ),  $t(280) = 0.69$ ,  $p = 0.49$ .

Bivariate correlations, means and standard deviations for all study variables and young adults' age, primary parents' age, and the length of weekly contact between young adults and primary parents, are presented in Table 1. Parents' emotion dysregulation was positively associated with young adults' emotion dysregulation, harsh socialization, and distressed response, and was negatively associated with supportive socialization. Young adults' emotion dysregulation was positively associated with harsh socialization and distressed response, and was negatively associated with supportive socialization. Supportive socialization was negatively associated with distressed response but was not significantly associated with harsh socialization. Harsh socialization was positively associated with distressed response.

To determine if any demographic characteristics should be included as potential control variables, we first examined whether young adults' age, primary parents' age, and length of contact with primary parents were associated with any of the study variables (see correlations in Table 1). None of them were significant and were not included as control variables in the primary models. Next, we examined the relations between study variables and whether young adults resided with their primary parents, young adults' gender,

and primary parents' gender through  $t$ -tests. We found that parents' reports of their own emotion dysregulation and distressed response to negative emotions were higher if they were living with young adults ( $M_s = 2.47$  and  $3.41$ ,  $SD_s = 0.74$  and  $0.86$  for dysregulation and distressed response, respectively) compared with if they were not living with young adults ( $M_s = 2.09$  and  $3.05$ ,  $SD_s = 0.70$  and  $0.92$ ),  $t(120) = 2.88$ ,  $p = 0.005$ . We also found that parents' emotion dysregulation was lower if young adults were female compared with if young adults were male ( $M_s = 2.20$  and  $2.54$ ,  $SD_s = 0.97$  and  $0.61$ ),  $t(120) = -2.34$ ,  $p = 0.02$ . Parents' supportive socializations was higher among the female young adults as compared with the males ( $M_s = 5.07$  and  $4.34$ ,  $SD_s = 1.17$  and  $1.30$ ),  $t(120) = 3.07$ ,  $p = 0.003$ . None of the study variables differed based on parents' gender. Thus, we decided to include whether young adults were living with their primary parents and young adults' gender as control variables in the primary analyses.

### Main and Moderating Effects of Parental Emotion Dysregulation and Emotion Socialization

To determine whether parents' socialization of emotion, parents' emotion dysregulation and their interaction predicted young adults' emotion dysregulation, hierarchical linear regression analyses were conducted. In the first model, we tested if supportive socialization predicted young adults' emotion dysregulation (see Table 2). Living together and young adults' gender were entered as control variables in Step 1, and neither of them predicted young adults' emotion dysregulation. In Step 2, after parents' emotion dysregulation and supportive socialization were added into the model, the model significantly improved from Step 1. Analyses indicated that parents' emotion dysregulation was

**Table 1** Correlations, means, and standard deviations of primary parents' emotion dysregulation, young adults' emotion dysregulation, parental socializations, and control variables

Variables	1	2	3	4	5	6	7	8
1. Parent Dysreg	–							
2. YA Dysreg	0.30**	–						
3. Supportive	–0.44**	–0.23*	–					
4. Harsh	0.20*	0.26**	–0.09	–				
5. Distress	0.47**	0.39**	–0.41**	0.50**	–			
6. YA Age	–0.05	–0.10	0.07	–0.04	–0.01	–		
7. Parent Age	–0.01	–0.04	–0.08	–0.14	–0.03	0.10	–	
8. Length of contact	0.04	0.08	0.05	0.08	0.10	–0.04	0.07	–
<i>M</i>	2.31	2.47	4.83	3.48	3.26	22.37	52.69	1314.15
<i>SD</i>	0.74	0.78	1.29	1.02	0.90	2.23	9.40	1709.68

$N = 111$ – $122$

*M* mean, *SD* standard deviation, *Parent Dysreg* primary parents' emotion dysregulation, *YA Dysreg* young adults' emotion dysregulation, *Supportive* supportive parental socialization, *Harsh* harsh parental socialization, *Distress* distressed parental response, *Parent Age* primary parents' age, *YA Age* young adults' age, unit of measurement for length of contact is in minute

\* $p < 0.05$ , \*\* $p < 0.01$

**Table 2** Hierarchical regression for control variables, primary parents' emotion dysregulation, and primary parents' emotion socializations as predictors of young adults' emotion dysregulation

	Predictors	<i>B</i>	$\beta$	SE	<i>t</i>	$\Delta R^2$
Model 1: Supportive parental socialization						
Step 1	Control variables <sup>a</sup>					0.01
Step 2	Support	-0.09	-0.15	0.06	-1.50	
	Parent Dysreg	0.30	0.28	0.11	2.79**	0.12**
Step 3	Support × Parent Dysreg	0.28	0.36	0.06	4.42**	0.13**
Model 2: Harsh parental socialization						
Step 1	Control variables <sup>a</sup>					0.01
Step 2	Harsh	0.18	0.24	0.07	2.67**	
	Parent Dysreg	0.33	0.31	0.10	3.42**	0.16**
Step 3	Harsh × Parent Dysreg	-0.13	-0.14	0.08	-1.57	0.02
Model 3: Distressed parental response						
Step 1	Control variables <sup>a</sup>					0.01
Step 2	Distress	0.31	0.35	0.08	3.73**	
	Parent Dysreg	0.20	0.20	0.10	2.02*	0.20**
Step 3	Distress × Parent Dysreg	-0.27	-0.23	0.10	-2.83**	0.05**

*Support* Supportive parental socialization, *Harsh* Harsh parental socialization, *Distress* distressed parental response, *Parent Dysreg* primary parents' emotion dysregulation, *Support × Parent Dysreg* interaction term of supportive parental socialization by primary parents' emotion dysregulation, *Harsh × Parent Dysreg* interaction term of harsh parental socialization by primary parents' emotion dysregulation, *Distress × Parent Dysreg* interaction term of distressed parental response by primary parents' emotion dysregulation, *B* unstandardized beta coefficient,  $\beta$  standardized beta coefficient, *SE* standard error

\* $p < 0.05$ , \*\* $p < 0.01$

<sup>a</sup>Control variables included living together and young adults' gender

positively associated with young adults' emotion dysregulation. However, the relation between parents' supportive socialization and young adults' emotion dysregulation was not significant.

In Step 3, after the interaction between supportive socialization and parents' emotion dysregulation was added into the model, the model significantly improved from Step 2. Among all predictors, both parents' emotion dysregulation and the interaction between supportive socialization and parents' emotion dysregulation were positively associated with young adults' emotion dysregulation, controlling for other predictors. The interaction was examined using simple slope analyses for parents reporting high (1 *SD* above the mean), medium (at the mean) and low (1 *SD* below the mean) in their emotion dysregulation (see Fig. 2a). Results indicated that the negative relation between

supportive socialization and young adults' emotion dysregulation was significant when parents were low in emotion dysregulation ( $\beta = -0.17$ ,  $t(120) = -2.95$ ,  $p = 0.004$ ). However, the relation between supportive socialization and young adults' emotion dysregulation was significant and positive when parents were high in emotion dysregulation ( $\beta = 0.16$ ,  $t(120) = 2.09$ ,  $p = 0.038$ ). When parents were average in emotion dysregulation, the relation between supportive socialization and young adults' emotion dysregulation was not significant, ( $\beta = -0.06$ ,  $t(120) = -1.14$ ,  $p = 0.26$ ). That is, when parents had low levels of emotion dysregulation, their use of supportive socialization strategy was negatively related to young adults' emotion dysregulation. On the other hand, when parents had high levels of emotion dysregulation, their use of supportive socialization strategy was positively related to young adults' emotion dysregulation.

In the second model, we tested if harsh socialization predicted young adults' emotion dysregulation, and all results were summarized in Table 2. Living together and young adults' gender were entered as control variables in Step 1, and neither of them predicted young adults' emotion dysregulation. In Step 2, after parents' emotion dysregulation and harsh socialization were added into the model, the model significantly improved from Step 1. Analyses indicated that both harsh socialization and parents' emotion dysregulation were positively associated with young adults' emotion dysregulation.

In Step 3, after the interaction between harsh socialization and parents' emotion dysregulation was added into the model, the model did not significantly change from Step 2. Among all predictors, harsh socialization and parents' emotion dysregulation were positively associated with young adults' emotion dysregulation, controlling for other predictors. However, the interaction between harsh socialization and parents' emotion dysregulation was not significantly associated with young adults' emotion dysregulation. That is, the positive association between harsh socialization and young adults' emotion dysregulation did not depend on parents' emotion dysregulation.

In the third model, we tested whether parents' own distressed response predicted young adults' emotion dysregulation and all results were summarized in Table 2. Living together and young adults' gender were entered as control variables in Step 1, and neither of them predicted young adults' emotion dysregulation. In Step 2, after parents' emotion dysregulation and distressed response were added into the model, the model significantly improved from Step 1. Results indicated that parents' distressed response, but not emotion dysregulation, was positively associated with young adults' emotion dysregulation.

In Step 3, after the interaction between distressed response and parents' emotion dysregulation was added into the model, the model significantly improved from Step 2.

Among all predictors, the interaction between distressed response and parents' emotion dysregulation was negatively associated with young adults' emotion dysregulation; and distressed response and parents' emotion dysregulation were positively associated with young adults' emotion dysregulation, controlling for other predictors. Results of simple slopes are presented in Fig. 2b. Results indicated that the positive relation between distressed response and young adults' emotion dysregulation was significant only when parents were low and average, but not high, in emotion dysregulation ( $\beta$ s = 0.44, 0.27, and 0.05,  $t$ s(120) = 4.44, 3.38, and 0.42,  $p$ s < 0.001, = 0.001, = ns for low, average and high slopes, respectively). That is, when parents reported high levels of emotion dysregulation, young adults were relatively high in emotion dysregulation, regardless of parental responses. On the other hand, when parents had low or average levels of their own emotion dysregulation, their distressed response was positively related to young adults' emotion dysregulation.

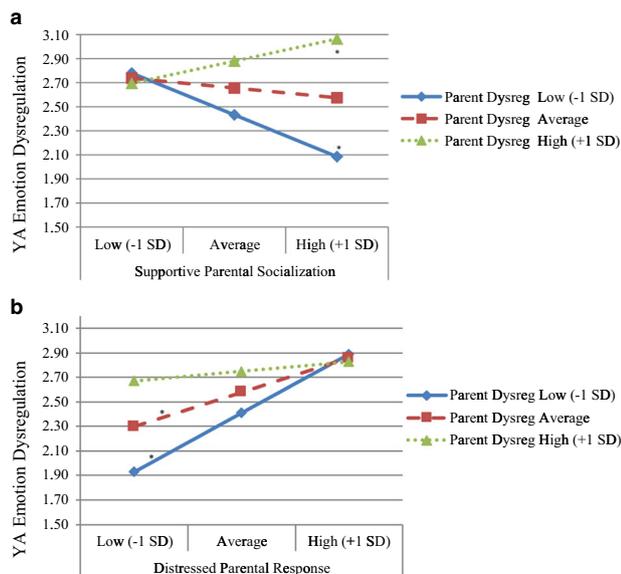
In summary, both parents' emotion dysregulation and harsh socialization had direct and positive relations with young adults' emotion dysregulation. In addition, parents' emotion dysregulation moderated the negative relation between supportive parental socialization and young adults' emotion dysregulation, and moderated the positive relation between distressed parental response and young adults' emotion dysregulation. If parents' emotion dysregulation

was low, their supportive parental socialization was negatively related to whereas their distressed parental response was positively related to young adults' emotion dysregulation. If parents' emotion dysregulation was average, their distressed parental response was positively related to young adults' emotion dysregulation. If parents' emotion dysregulation was high, their supportive parental socialization was positively related to young adults' emotion dysregulation.

## Discussion

Although researchers have demonstrated that emotion-related parenting practices were associated with children's and adolescents' emotion regulation, less attention has been paid to the role of these parenting processes in young adults' emotion dysregulation. The aim of the present study was to understand the ways that parental socialization of emotions contributed to young adults' emotion dysregulation. Specifically, we found support for the notion that parents' socialization strategies interacted with parents' own emotion dysregulation to predict young adults' emotion dysregulation. When parents themselves were not dysregulated, their supportive and distressed responses were associated in predicted ways with young adults' emotion dysregulation. Thus, young adults may take their parents' suggestions "with a grain of salt" in dealing with their own negative emotions, such that, if parents are themselves dysregulated, young adults may be less likely to follow their parents' advice or take note of their parents' distressed response. Perhaps when parents are themselves well-regulated, the quality of the parent-child relationship is characterized by warm, supportive, and reciprocal interactions, and in these cases, offspring identify with and model their parents' regulatory abilities. In other words, children may be more "in tune" with and receptive to parents' socialization strategies when parents are well-regulated. These findings are in line with Grusec et al.'s (2017) suggestion that children's internalization of their parents' socialization goals is fostered not just by parents' socialization practices, but also by other factors that facilitate children to accept parental attitudes. Our findings suggested that parents' own emotion dysregulation was one of those qualities, especially it was their emotion dysregulation in general, rather than only during any parenting processes.

Specifically, two types of parenting behaviors: supportive responses to negative emotions and parents' own distressed responses interacted with parents' emotion dysregulation to predict young adults' emotion dysregulation. First, supportive responses to negative emotions—that is, problem-focused and emotion-focused reactions and encouragement of young adults' emotional expressions,



**Fig. 2** **a** The association between supportive parental socialization and young adults' emotion dysregulation for primary parents' emotion dysregulation were low, average, and high. Parent Dysreg = primary parents' emotion dysregulation; YA = young adults. \* $p$  < 0.05. **b** The association between distressed parental response and young adults' emotion dysregulation for primary parents' emotion dysregulation were low, average, and high. Parent Dysreg = primary parents' emotion dysregulation; YA young adults. \* $p$  < 0.05

were negatively related to young adults' dysregulation when parents were relatively well-regulated themselves but were positively related to young adults' dysregulation when parents were highly dysregulated. These findings suggest that when parents are themselves well-regulated, young adults are likely to be open to parents' suggestions and may internalize some of the effective strategies for managing one's negative emotions. However, when parents were not well-regulated, their supportive socializations were related to more dysregulation of young adults, perhaps because these parents did not appropriately allow their young adults to identify or manage their own negative emotions (that is, such well-meaning support may stifle young adults' ability to learn their own regulation skills). It is also possible that when parents are not well-regulated, young adults may view their supportive responses as insincere or sarcastic, which may relate to young adults' emotion dysregulation. Indeed, Zeman et al. (2016) found that if children grew up in a high-risk environment (i.e. maternal incarceration), they perceived mothers' typical supportive response as unsupportive. Young adults' interpretation to the same maternal behavior may also vary depending on parents' own emotion dysregulation. Because these findings were somewhat contrary to hypotheses, we believe that more work in this area is needed. Second, parents' distressed response was positively related to young adults' dysregulation, particularly when parents were well-regulated themselves. Personal distressed responses to another's emotion are considered as a self-focused reaction (Eisenberg et al. 2015). Thus, if parents feel distressed when their offspring find themselves in upsetting contexts, parents should first handle their own distress before teaching regulation strategies or offering support to young adults. In addition, parents' distress, if obvious to their offspring, may be somewhat over-arousing for young adults to witness (Hoffman 2000).

Harsh parental socialization was positively associated with young adults' emotion dysregulation, regardless of parents' emotion dysregulation. If parents respond punitively or minimize the meaning of young adults' problems when young adults express negative emotions, young adults are more likely to report engaging in emotion dysregulation, no matter whether their parents report that they are well-regulated or not. The finding is consistent with previous studies that harsh parental socialization was positively related to children, adolescents, and young adults' emotion dysregulation or increased negative emotions (Buckholdt et al. 2014; Lunkenheimer et al. 2007; Perry et al. 2015; Saritas et al. 2013).

Although not a main focus of this investigation, we found positive relations between parents' own emotion dysregulation and young adults' emotion dysregulation. These findings are consistent with prior research that specified the relation between parents' own emotion

dysregulation (or maladaptive regulation strategies) and adolescents' emotion dysregulation (Bariola et al. 2012; Buckholdt et al. 2014; Saritas et al. 2013). The fact that parents' own dysregulation predicted their offspring's dysregulation is not surprising and may be due to shared genetic predisposition for dysregulation (Morris et al. 2007; Rutherford et al. 2015), relationship difficulties (a third variable related to dysregulation in both actors; Gross and John, 2003), or parents' modeling of dysregulation (Morris et al. 2007). Thus, both hereditary and environmental factors play important roles in the passing of emotion dysregulation from one generation to the next.

We also found that when young adults and parents were living together, parents' emotion dysregulation and distressed response were higher than when young adults were not living with their parents. Of course, the direction of these effects is unknown; parents may be more distressed and dysregulated because there is a young adult living in the home, or perhaps young adults are more likely to stay in the home when parents are more distressed and dysregulated. Young adults living with parents may be a sign of lack of autonomy, perhaps due to financial dependence or even parents' own discomfort with their offspring leaving home. Interestingly, the length of weekly contact between primary parents and young adults, which included a sum of in-person contacts, video calls, phone calls, texts, and emails, was unrelated to parents' and young adults' emotion dysregulation, or parents' emotion socialization. Thus, living together was an important predictor of emotion-related experiences of parents and young adults. More research on the links between earlier parental emotion dysregulation and emotion socialization and young adults' (and their parents') decision-making processes regarding their living arrangements is needed.

The present study can be used to develop programs to improve young adults' emotion regulation. Teaching parents strategies to manage their emotions (e.g., mindfulness training) may be a first step in reducing their offspring's difficulties in emotion regulation. For example, mindfulness-based stress reduction (MBSR; Kabat-Zinn 1982), a group-based intervention that improves psychological adjustment in both clinical and nonclinical samples, reduced completers' difficulties in emotion regulation (Robins et al. 2012). For parents who do not have emotion regulation difficulties, teaching supportive strategies such as comforting, problem-focused, and emotion-focused strategies to guide their children would be effective ways to reduce their children's emotion regulation difficulties. Interventions that directly improve young adults' emotion regulation would also be effective. For example, Dialectical Behavior Therapy (DBT; Linehan 1993) helps people to improve emotion regulation by teaching adaptive skills. Thus, there are a variety of ways to reduce young adults'

emotion dysregulation, from reducing risks of dysregulation to teaching them adaptive emotion regulation strategies.

### Strengths, Limitations and Future Directions

Using both parents' and young adults' reports, the present study was a multi-informant study to examine the relations among parents' own emotion dysregulation, parental supportive, harsh, and distressed responses, and young adults' emotion dysregulation. Because both primary parents and young adults completed the survey, response bias was reduced compared with one family member completing the whole survey. Primary parents, rather than young adults, reported their own parental socialization strategies; thus, we reduced the effects of measurement bias by using different reporters for socialization and the outcome variable of young adults' emotion dysregulation.

Among the few studies about parental socialization and young adults' emotion dysregulation, the results of the present study suggest that parents of young adults continue to play an important role in their children's emotional experience, even during this later developmental period. Although both parents' emotion regulation and parental socialization have been found to be associated with children's and adolescents' emotion regulation, our study further explored the interaction effects between them. Given that young adulthood involves numerous transitions and stressors (Arnett 2007), researchers should continue to examine the role of parenting during this developmental period. In addition, during late adolescence and young adulthood, parent–child relationships transform to be more egalitarian (Vollebergh et al. 2001). Greater variability and flexibility of emotions in parent–child interactions, especially interactions in conflict, help develop egalitarian relationships (Branje 2018). Thus, investigation of parents' and young adults' emotion regulation that represents flexibility of emotions, and parents' emotion socialization including encouragement and suppression of young adults' emotional expressions in the present study is important to understand parent–young adult relationship.

Another strength of the present study is that we included supportive, harsh, and distressed parental responses. Some studies on parenting and adolescent emotion regulation only included non-supportive socializations (Buckholdt et al. 2014; Saritas et al. 2013). Although it is often easy to tell parents what to avoid, such advice may not be effective without an appropriate substitution. Thus, our work suggests that in addition to focusing on parents' own dysregulation, we should promote the use of problem-focused and emotion-focused reactions and encouragement of emotional expression in response to offspring's negative emotions. The use of these strategies has potential to

improve young adults' emotion regulation based on the results of the study.

Several limitations existed in the present study. First, we examined emotion dysregulation using a global measure, which may not include all aspects of emotion regulation. Other researchers have differentiated various types of emotion regulation, such as suppression, cognitive reappraisal, rumination, and acceptance, as well as people's self-efficacy of their emotion regulation ability (Aldao et al. 2010; Bandura et al. 2003). Future research may focus on the role of parents' specific emotion regulation strategies in their offspring's emotion dysregulation. Using this approach, interventionists would have a better idea about the specific types of dysregulation that may be the riskiest to carry on to parents' offspring (i.e., suppression, rumination). This knowledge would be important for developing programs that teach emotion regulation skills to adults.

Second, our concurrent data did not allow us to examine the direction of effects. We assumed that parents' socialization/dysregulation predicted young adults' emotion dysregulation; however, it is just as likely that young adults' emotion dysregulation may predict the ways that parents socialize or behave in young adults' emotional experiences. It is important to examine transactional and bidirectional relations between parents' emotion socialization and children's regulation outcomes.

Third, our data collection included a disproportionate number of female young adults and mothers in the study compared to males and fathers. Even though we did not find any mean-level gender differences in our study variables, it is possible that, had we collected more data with males and fathers, we may have shown different relations for males and females. Based on gender stereotypes, parents may encourage sadness and discourage anger in daughters but discourage sadness and encourage anger in sons (Klimes-Dougan et al. 2007; Zeman et al. 2013). Female young adults felt more hurt and less loved than male young adults when parents responded in a punitive or minimizing manner to young adults' negative emotions (Perry et al. 2017). In addition, most primary parents participated in the study were mothers, and results may be different for fathers. Previous studies showed that compared with fathers, mothers were more likely to discuss, mirror, encourage and accept adolescents' and young adults' emotions and were less likely to neglect or override adolescents' and young adults' negative emotions (Klimes-Dougan et al. 2007; Perry et al. 2017; Zeman et al. 2013). Thus, future studies should attempt to have a more representative sample in terms of gender, type of primary parents, race and ethnicity, and socioeconomic status. It is possible that the relations may not hold true for all groups of people, and socialization strategies may be more or less

normative in some cultural groups with different impacts on young adults' development.

Fourth, the study relied solely on parents' and young adults' self-reports. To avoid biases in self-reported measures, researchers could use observational data. For example, parents and young adults can engage in emotionally-charged discussions (Eisenberg et al. 2008). The discussion could be videotaped and coded for verbal and non-verbal contents of supportive parenting, non-supportive parenting, and young adults' adaptive/maladaptive emotion regulation behavior (see Morelen and Suveg 2012).

Fifth, we did not ask if young adults had their own children. For young adults who are parents themselves, they may understand their parents' emotion dysregulation and emotion socialization differently. For example, the positive relation between parents' distressed response and young adults' emotion dysregulation may decrease after young adults have their own children because personal experience may help young adults understand parents' distress. It is important to examine if young adults' having their own children moderates the relations that we found in the present study.

**Author Contributions** X.X.: designed and executed the study, analyzed the data, and wrote the paper. T.S.: assisted with the data analyses and assisted in writing and editing of the manuscript. J.C.: collaborated with the design and writing of the study. D.M.: collaborated with the design and executing and writing of the study.

## Compliance with Ethical Standards

**Conflict of Interest** The authors declare that they have no conflict of interests.

**Ethical Approval** This research involved human subjects and was approved by the Institutional Review Board of San Francisco State University. "All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards."

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

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