

Parental Distress Tolerance in Three Periods of Child Development: The Moderating Role of Child Temperament

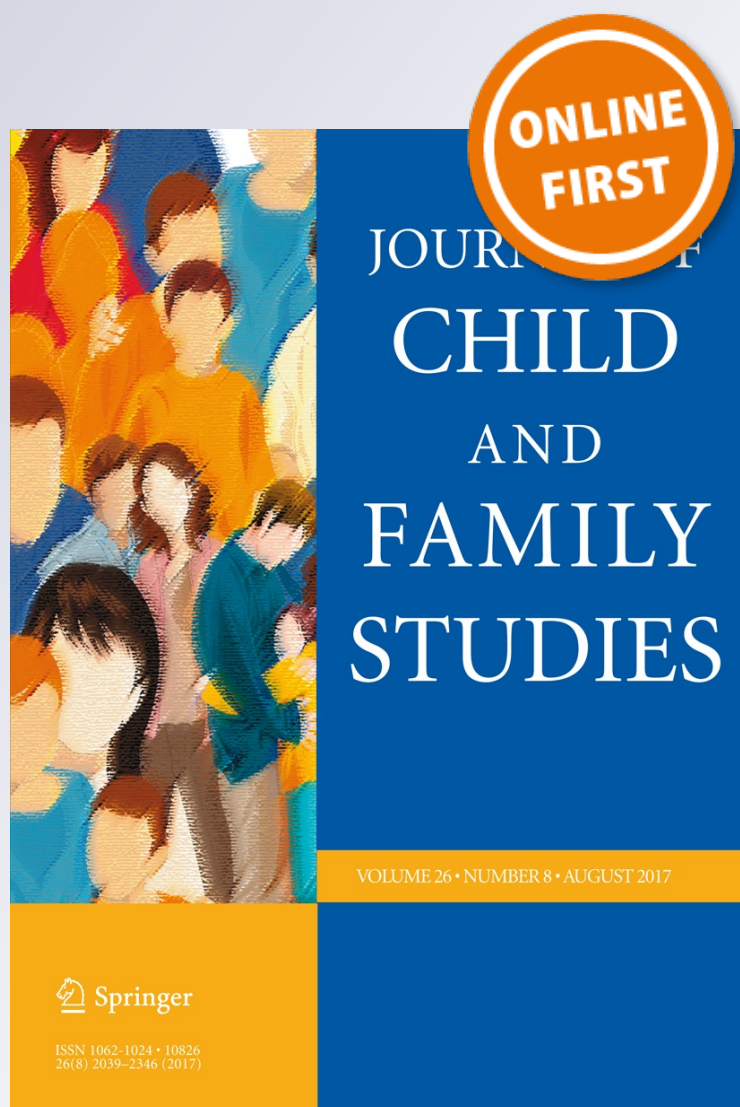
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Parental Distress Tolerance in Three Periods of Child Development: The Moderating Role of Child Temperament

Alexandra E. Morford ¹ · Jeffrey T. Cookston¹ · Melissa J. Hagan¹

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Abstract Emotion regulation (ER) is essential to everyday, normative functioning. One aspect of ER is distress tolerance—the ability to persist in goal-directed activities when experiencing aversive states. Despite an assumption that ER improves with age, very little is known about ER across parenthood. Emotion regulation may be taxed by parenthood with implications for negativity in the family environment. The purpose of the current study was to describe levels of distress tolerance across periods of parenthood and to evaluate child temperament as a moderator of the relationship between child's age and parents' distress tolerance. A total of 602 parents (66.3% female, $M_{age} = 32.31$ years, $SD = 7.07$) whose eldest child belonged to one of three developmental periods (i.e., infancy, $n = 187$; early childhood, $n = 214$; late childhood, $n = 201$) completed an online survey. While we found no evidence for a main effect of child's age on parent distress tolerance, children's negative affectivity moderated the association between period of parenthood and parent distress tolerance. Specifically, children who were higher in negative affectivity had parents who reported less distress tolerance between the developmental periods. The implications of the current study are discussed in the context of current and future research on emotional regulation among parents.

Keywords Parenthood · Distress tolerance · Emotion regulation · Cross-sectional · Child temperament

Introduction

Emotion regulation (ER) is important to long-term success in multiple domains of life. Among adults, ER is key to everyday, normative functioning such as memory (Richards and Gross 2000), social interaction (Eisenberg et al. 2000), and problem solving (Blanchard-Fields 2007). Moreover, emotion *dys*regulation is associated with the development and expression of clinical disorders, such as personality disorders (Gratz and Roemer 2004) and addiction (Garofalo and Velotti 2014). Despite an assumption that as adults age their emotion regulation improves (Scheibe and Carstensen 2010), very little is known about ER across periods of parenthood. Becoming a parent adds more variation and inconsistency to the adult ER experience with existing capacities for emotion management challenged in new and unique ways. Importantly, ER deficits among parents can influence their children. Given that the skills taught in many universal parenting programs rely on ER capacity, it is valuable to examine parental ER and factors that may moderate ER skills across different periods of parenthood, so that interventions can be developmentally informed.

The ability to persist in goal-oriented activities while experiencing aversive emotional states—also known as distress tolerance—is one aspect of ER that is challenged by the demands of parenthood (Amstadter et al. 2011; Cummings et al. 2013). Adults low in distress tolerance tend to show more impulsivity (Anestis et al. 2007) and quit difficult tasks more quickly (Rutherford et al. 2015). As a parent, low distress tolerance might compromise everyday interactions and have long-term effects on child development (e.g., giving a child a reward to get them to stop a behavior, parents losing their temper), or low distress tolerance could manifest as more entrenched maladaptive coping patterns. When individuals with low distress

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tolerance struggle to persevere through their own negative emotions, they often seek ways to escape rather than effectively cope. Studies have shown strong associations between low distress tolerance and increased levels of drug and alcohol abuse, antisocial behavior, personality and anxiety disorders, self-injury, and suicidal tendencies (Daughters et al. 2008; Nock and Mendes 2008; Salsman and Linehan 2012). These risks are also of concern for children of parents with low distress tolerance, given that parents are integral coaches of self-regulation. With so many maladaptive outcomes at risk, it is important to identify potentially high-risk periods in distress tolerance by documenting the experience of distress tolerance between parents of children at different periods of development.

The need to focus on the distress tolerance of parents is important for two reasons. First, parents are key in supporting their children's development of ER skills. The more parents are able to support their children's regulation development in the midst of their own discomfort, the more ER skills their child will acquire (Rutherford et al. 2015). Power (2004) found that parents who modeled ER strategies, acknowledged their children's emotions, and taught ER strategies in the moment of their child's dysregulation had children that were better at effectively self-regulating their emotions. Second, adults experience a dramatic increase in emotionality when they become parents, compared to their non-parent counterparts (Schulz et al. 2006). They also experience more changes in identity (Manzi et al. 2009), lifestyle (Claxton and Perry-Jenkins 2008), and interpersonal relationships (Wrzus et al. 2013). When an individual becomes a parent, that person is faced with deciding whether and how much to identify as a parent that may result in lifestyle changes (Antonucci and Mikus 1988). Furthermore, in addition to managing their own emotions, parents must externally regulate their child(ren) (Rutherford et al. 2015) and such effort can be threatening to the stability of distress tolerance. Additionally, the transition to parenthood increases stress, amplifying the conflicts associated with adapting to this new life (e.g., coparenting, gender roles), thereby creating turmoil in the couple relationship (Cowan et al. 1991). This is an additional source of distress for parents. New parents are faced with an abrupt transition into these novel experiences but learn to adapt over time.

There is evidence to suggest an overall pattern that as adults age and mature, their emotional control and regulation skills improve (Blanchard-Fields 2007; Gross et al. 1997). According to Scheibe and Blanchard-Fields' theory of chronic activation of emotion regulation (2009), these improvements emerge because ER becomes less effortful over time due to the constant activation of emotion-regulatory experiences and long-term practice of dealing with emotion-evoking situations. In line with Scheibe and

Blanchard-Fields' (2009) theory, as children age, parents' ER should improve. Although the initial transition into parenthood might cause a disruption in ER abilities, through chronic exposure to emotional situations, and practice of simultaneously self-regulating and continuing to effectively parent, parental ER should become less effortful. In regards to parenthood, to effectively parent, individuals must regulate their own emotions and persist in numerous goal-oriented tasks (such as discipline) even though their child is upset or disobeying.

Theoretically, as parents mature, their threshold to tolerate distress increases, and as children grow older, parents practice perseverance through negative emotionality, further increasing their distress tolerance (Chronic activation of emotion regulation; Scheibe and Blanchard-Fields 2009). In addition to investigating differences in parents' distress tolerance across stages of child's age, there is also value in exploring factors that might explain or influence these differences, particularly the effect of child temperament. As distress tolerance has not been investigated among parent populations, there is a gap in current literature as to what increases or decreases distress tolerance among adults with children.

Temperament refers to individuals' biologically influenced characteristics and behaviors that impact their way of interacting with their environment (Deater-Deckard et al. 2009). As temperament is a relatively stable construct (Rothbart and Bates 2006), child temperament is likely to be a salient influence on parental distress tolerance over time, in that parents are likely to become either fatigued or adept in managing their distress around their child's temperament. There are three domains of temperament that are the most likely to influence parental distress tolerance across time; *surgency* (i.e., impulsivity and risk-taking, high activity level, pleasure seeking, and sociability), *negative affectivity* (i.e., tendency toward mood instability, high reactivity to negative emotions, and dysregulation), and *effortful control* (i.e., capacity to suppress inappropriate behavior, refocus attention to manage distress, and persist where there is a strong desire to avoid or quit).

Different aspects of temperament evoke different levels of distress tolerance for parents. Children high in surgency are more sociable, but are also more likely to have increased externalizing behavior problems (Oldehinkel et al. 2006; Rothbart et al. 2001). Children with high effortful control tend to have better coping strategies to self-regulate behavior, and so have less behavior problems, and higher social competency (Blair et al. 2004; Olson et al. 2005). Such children may be more impulsive and have a higher activity level (which presents a lot of opportunity to practice distress tolerance), but with higher effortful control they are also better able to suppress behaviors and self-regulate, which prevents the parent from becoming overwhelmed.

Therefore, children high in surgency and effortful control may present the optimal challenge to parents' distress tolerance. However, children high in surgency and low in effortful control may have the opposite effect, and lead to a depletion of parental distress tolerance.

Children with high negative affectivity are more likely to be emotionally dysregulated and show more internalizing symptoms and externalizing problem behaviors (Sanson et al. 2004). This aspect of child temperament is likely to be particularly salient to parental ER skills, as distress tolerance is fundamental to regulating negative affect. For parents, having children that exhibit higher levels of negative affectivity could become overwhelming and diminish regulation abilities over time. Conversely, the constant practice of self-regulation in the midst of the child's negative affect could result in strengthening of parental distress tolerance.

The current study examined distress tolerance (DT) within a sample of parents who had an oldest child at one of three different periods of child development (i.e., infancy, early childhood, late childhood). To the best of our knowledge, no study to date has compared distress tolerance levels among parents of different aged children. Based on the theory that ER becomes less effortful over time, we predicted that parents of infants would report the lowest distress tolerance and the parents of children in late childhood would report the highest distress tolerance. Moreover, we investigated child temperament as a potential moderating factor that might explain differences found between the groups of parents. Specifically, we predicted children high in effortful control and surgency would be associated with increased parental distress tolerance, whereas children high in negative affectivity would be associated with decreased parental distress tolerance as the child increased in age.

Method

Participants

Participants ($N = 602$) were adults who ranged in age from 18 to 53 years (66.3% female, $M_{age} = 32.31$ years, $SD = 7.05$), and were parents of children between the ages of 6 months and 10 years (infant group, $n = 187$, $M_{child\ age} = 1.53$ years, $SD = 0.66$; early childhood group, $n = 214$, $M_{child\ age} = 4.75$ years, $SD = 1.14$; late childhood group, $n = 201$, $M_{child\ age} = 8.54$ years, $SD = 1.06$). Because age of the child was a grouping variable, we gathered a stratified sample with approximately equal groups of participants who had an oldest child in one of three age groups (i.e., 6 months to 2 years, 3–6 years, 7–10 years). Parents were recruited from Amazon Mechanical Turk (MTurk), an online marketplace where “workers” can complete web-based tasks. Participants were eligible if they were over 18

years old, were currently married or living with a long-term partner, had never been divorced or separated and lived in the United States. After eligibility was determined, parents gave consent to participate in the survey.

Procedure

Participants provided consent and completed the survey on Qualtrics®, an online survey platform. There were two attention checks included in the survey to ensure the survey respondents were reading the items. Cases that did not correctly complete the attention checks were excluded ($n = 57$). Participants were compensated \$0.40 for completing the survey ($M_{time} = 17.94$ min, $SD = 7.14$, $Range = 9.00$ – 49.57 min).

Measures

Demographics

Participants responded to a series of demographic questions about their age, sex, race/ethnicity, highest level of education, marital status, sexual identity, annual household income, employment status, number of children, sex of their oldest child, and recent major life events (i.e., marriage, child, death/illness, home purchase, job loss, legal troubles, property loss). The sample was majority Caucasian (77.6%), had completed a four-year college degree (37.2%), and was employed full-time (55.8%). The majority of the parents were heterosexual (91.2%), married (79.6%), and had only one child (50%). See Table 1 for a complete list of demographic indicators.

Distress tolerance

The Distress Tolerance Scale (DTS; Simons and Gaher 2005) is a 15-item self-report measure with 4 domains: *tolerance* (e.g., “Feeling distressed or upset is unbearable to me”), *absorption* (e.g., “My feelings of distress are so intense that they completely take over”), *appraisal* (e.g., “I am ashamed of myself when I feel distressed or upset”), *regulation* (e.g., “I’ll do anything to stop feeling distressed or upset”). Participants were asked to think about times they have been distressed or upset and rated each item by using a 5-point scale that ranged from 1 (*strongly agree*) to 5 (*strongly disagree*) with a middle point of 3 (*agree and disagree equally*). One item was reverse scored, and higher scores on the DTS indicated greater ability to tolerate negative emotions. Reliability for the tolerance subscale (3 items) was .78, absorption subscale (3 items) was .85, appraisal subscale (6 items) was .83, and regulation subscale (3 items) was .82. Final distress tolerance scores were

Table 1 Participant demographics

Variable	Overall <i>n</i> (%)	Infant <i>n</i> (%)	Toddler <i>n</i> (%)	Preadolescent <i>n</i> (%)
<i>N</i>	602	187	214	201
Parent gender				
Female	399 (66.3)	78 (41.7)	62 (29.0)	59 (29.4)
Male	199 (33.1)	105 (56.1)	152 (71.0)	142 (70.6)
Decline to answer	4 (0.7)	4 (2.1)	0 (0.0)	0 (0.0)
Race/Ethnicity				
Caucasian	467 (77.6)	139 (74.3)	158 (73.8)	170 (84.6)
Black or African American	53 (8.8)	20 (10.7)	21 (9.8)	12 (6.0)
Hispanic, Latino, or Spanish origin	26 (4.3)	5 (2.7)	13 (6.1)	8 (4.0)
American Indian/Alaska Native	8 (1.3)	3 (1.6)	2 (0.9)	3 (1.5)
Asian	34 (5.6)	13 (7.0)	14 (6.5)	7 (3.5)
Native Hawaiian/other Pacific Islander	2 (0.3)	1 (0.5)	1 (0.5)	0 (0.0)
Other race, ethnicity, or origin	8 (1.3)	2 (1.1)	5 (2.3)	1 (0.5)
Decline to answer	4 (0.7)	4 (2.1)	0 (0.0)	0 (0.0)
Highest level of education completed				
Less than High School	3 (0.5)	1 (0.5)	1 (0.5)	0 (0.0)
High School/GED	53 (8.8)	20 (10.7)	15 (7.0)	18 (9.0)
Some College	154 (25.6)	45 (24.1)	54 (25.2)	55 (27.4)
2-year College Degree	72 (12.0)	13 (7.0)	30 (14.0)	29 (14.4)
4-year College Degree	224 (37.2)	74 (39.6)	81 (37.9)	69 (34.3)
Master's Degree	82 (13.6)	27 (14.4)	28 (13.1)	27 (13.4)
Doctoral Degree (PhD)	5 (5.0)	2 (1.1)	3 (1.4)	0 (0.0)
Professional degree (MD, JD, etc.)	6 (1.0)	2 (1.1)	2 (0.9)	2 (1.0)
Decline to answer	3 (0.5)	3 (1.6)	0 (0.0)	0 (0.0)
Annual household income				
Less than \$10,000	26 (4.3)	11 (5.9)	7 (3.3)	8 (4.0)
\$10,000–\$49,999	217 (36.0)	70 (37.4)	83 (38.8)	64 (31.8)
\$50,000–\$99,999	254 (42.2)	83 (44.4)	86 (40.2)	85 (42.3)
\$100,000–\$149,999	84 (14.0)	12 (6.4)	34 (15.9)	38 (18.9)
\$150,000 or more	14 (2.3)	7 (3.7)	3 (1.4)	4 (2.0)
Decline to answer	7 (1.2)	4 (2.1)	1 (0.5)	2 (1.0)
Employment				
Full time	336 (55.8)	99 (52.9)	124 (57.9)	113 (56.2)
Part time	92 (15.3)	36 (19.3)	32 (15.0)	25 (12.4)
Unemployed	160 (26.6)	44 (23.5)	55 (25.7)	62 (30.8)
Decline to answer	12 (2.0)	8 (4.3)	3 (1.4)	1 (0.5)
Sexual identity				
Heterosexual or straight	549 (91.2)	163 (87.2)	194 (90.7)	192 (93.5)
Gay or lesbian	8 (1.3)	4 (2.1)	4 (1.9)	0 (0.0)
Bisexual	34 (5.6)	12 (6.4)	15 (7.0)	7 (3.5)
Decline to answer	11 (1.8)	8 (4.3)	1 (0.5)	2 (1.0)
Relationship status				
Married	479 (79.6)	134 (71.7)	174 (81.3)	171 (85.1)
Cohabiting	106 (17.6)	42 (22.5)	36 (16.8)	28 (13.9)
Decline to answer	17 (2.8)	11 (5.9)	4 (1.9)	2 (1.0)

Table 1 continued

Variable	Overall <i>n</i> (%)	Infant <i>n</i> (%)	Toddler <i>n</i> (%)	Preadolescent <i>n</i> (%)
<i>N</i>	602	187	214	201
Number of children				
1	301 (50.0)	153 (81.8)	92 (43.0)	56 (27.9)
2	189 (31.4)	26 (13.9)	86 (40.2)	77 (38.3)
3	73 (12.1)	0 (0.0)	30 (14.0)	43 (21.4)
4	22 (3.7)	3 (1.6)	3 (1.4)	16 (8.0)
5	9 (1.5)	1 (0.5)	2 (0.9)	6 (3.0)
6 or more	2 (0.3)	0 (0.0)	0 (0.0)	2 (1.0)
Decline to answer	6 (1.0)	4 (2.1)	1 (0.5)	1 (0.5)
Sex of oldest child				
Male	313 (55.0)	107 (57.2)	116 (54.2)	108 (53.7)
Female	262 (43.5)	74 (39.6)	95 (44.4)	93 (46.3)
Decline to answer	9 (1.5)	6 (3.2)	3 (1.4)	0 (0.0)

GED General Educational Development

obtained by averaging the scores of all four subscales ($\alpha = .93$).

Child temperament

Child temperament was assessed using parent-report on versions of the Child Behavior Question (CBQ; Rothbart et al. 2001) adapted for each age group. Thus, temperament was measured as *surgency* (i.e., high level activity, high-intensity pleasure seeking, low shyness and impulsivity), *negative affect* (i.e., sadness, discomfort, anger, fear, low soothability), and *effortful control* (i.e., inhibitory control, attentional focusing, low-intensity pleasure, perceptual sensitivity). Parents of 0- to 12-month-old infants completed the 37-item Infant Behavior Questionnaire-Revised (*IBQ-R*; Putnam et al. 2014; surgency, $\alpha = .99$; negative affect, $\alpha = .99$, effortful control, $\alpha = .99$). On the *IBQ-R*, parents rate behavior over the last two weeks on a 7-point scale of 1 (*never*) to 7 (*always*). Parents of 18- to 36-month-old children completed the 36-item Early Childhood Behavior Questionnaire (*ECBQ*; Putnam et al. 2006; surgency, $\alpha = .99$; negative affectivity, $\alpha = .99$, effortful control, $\alpha = .98$). Parents rated behavior over the past two weeks on a 7-point scale of 1 (*never*) to 7 (*always*). Finally, parents of 4- to 10-year old children completed the 36-item Children's Behavior Questionnaire-Very Short Form (*CBQ-VSF*; Putnam and Rothbart 2006, surgency, $\alpha = .99$; negative affect, $\alpha = .98$, effortful control, $\alpha = .98$). Parents were prompted to think about their child's reactions over the past two weeks, and respond with how "true or untrue" the description of the reaction statement is using an 7-point scale of 1 (*extremely untrue of your child*) to 7

(*extremely true of your child*). Although the *CBQ-VSF* is intended to evaluate temperament of children 4–7 years old, the measure was used for parents of children through 10-years-old, to minimize the variability in the reliability of the measures between groups. In one study that compared the use of the *CBQ-VSF* across different age groups, there were no differences in the means, variances, or factor structures between the 4- to 7-year-old group and the 8- to 9-year-old group (Mullineaux et al. 2009). To better compare the temperament scores across the age groups, z-scores of surgency, negative affect, and effortful control were computed within each group. Scores were averaged, and higher scores indicated higher levels of the temperament domain.

Parent temperament

Parent temperament was only included as a covariate, and was measured using the Adult Temperament Questionnaire (*ATQ*; Evans and Rothbart 2007, negative affect, $\alpha = .83$), a 77-item measure with 4 subscales: *negative affect*, *extra-version/surgency*, *effortful control*, and *orienting sensitivity*. For the purposes of this study, parents were asked to complete only the *negative affect* subscale (i.e., fear, sadness, discomfort, frustration). Participants were prompted to read a list of traits and rate each statement according to how well the traits described them, using a 7-point scale that ranged from 1 (*extremely untrue*) to 7 (*extremely true*) with a middle point of 4 (*neither true or false*). Scores were averaged, and higher scores indicated higher levels of the temperament domain.

Table 2 Correlations of variables, preadolescents and overall

Measures	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	Mean	SD
1. DTS Total	–	.88**	.92**	.87**	.78**	.01	–.20**	.07	.09*	.01	.04	.03	.06	2.71	.85
2. DTS absorption	.89**	–	.75**	.78**	.56**	–.01	–.18**	.04	.09*	–.02	.05	.02	.08*	2.74	1.07
3. DTS appraisal	.93**	.80**	–	.70**	.61**	.08	–.20**	.15**	.09*	.09*	.03	.07	.09*	2.53	.87
4. DTS tolerance	.88**	.77**	.72**	–	.62**	–.02	–.16**	.03	.02	–.02	–.01	.00	–.01	2.72	.99
5. DTS regulation	.85**	.64**	.70**	.73**	–	–.04	–.15**	–.03	.09*	–.06	.05	–.04	–.01	3.01	1.04
6. Child surg.	.21**	.21**	.18**	.21**	.15*	–	.02	.42**	.02	.18**	.03	–.01	.03	.00	.98
7. Child NA	–.21**	–.18**	–.18*	–.17**	–.23**	.19**	–	–.03	–.03	.04	–.02	–.06	.02	1.25	1.94
8. Child EC	.04	.05	.06	.04	.00	.26**	.17*	–	.07	.20**	–.01	–.02	.15**	.01	.98
9. Parent age	.13	.10	.11	.02	.12	–.13	–.03	.00	–	–.08*	.18**	.38**	.05	32.24	6.81
10. Parent gender	–.03	.00	.02	–.07	–.10	.11	.14	.23**	–.19**	–	.04	.07	.15**	1.68	.48
11. Number of children	.11	.09	.08	.07	.13	.01	–.02	–.01	.13	–.02	–	.36**	.10*	1.80	1.08
12. Child age	–.07	–.11	–.03	–.09	–.09	–.11	–.08	–.08	.15*	.03	.15*	–	.04	60.21	35.86
13. Child gender	–.05	.06	.09	–.01	.01	–.04	.05	.22**	.10	.12	–.06	.07	–	1.47	.53
Mean	2.65	2.68	2.42	2.71	3.03	–.01	.01	–.01	35.26	1.71	2.25	102.53	1.46	–	–
SD	.90	1.09	.91	1.02	1.12	.99	.99	.99	6.51	.46	1.14	12.74	.50	–	–

Note. Below diagonal: Preadolescent correlations. Above diagonal: Overall correlations

DTS Distress Tolerance Scale, Child surg. child temperament, surgency, Child NA child temperament, negative affect, Child EC child temperament, effortful control

* $p < .05$, ** $p < .001$

Data Analyses

All statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) version 22. All tests were 2-tailed with $\alpha = 0.05$. Descriptive statistics were calculated to summarize the data, and Pearson’s correlations were conducted to compare relationships between the main variables, as well as with demographic variables to determine their role as potential covariates. Before introducing potential moderating factors, a one-way ANOVA was tested to examine any differences in parental distress tolerance between child age groups. Moderation analyses were conducted using Model 1 of the PROCESS macro computational program developed by Hayes (2012), through which all variables were mean-centered. The construction of these models is described in the results section.

Results

The means, standard deviations, and bivariate correlations for all the variables used in the present study are presented in Table 2 (overall and preadolescent) and 3 (toddler and infant). As shown in Table 2, contrary to expectations, child age and overall parental distress tolerance were not significantly correlated ($r = .03$, $p = .54$). Demographic variables were assessed at the bivariate level to determine their roles as potential covariates. There was a positive correlation ($r = .09$, $p = .03$) between parent age and overall

distress tolerance. None of the other demographic variables were significantly correlated with distress tolerance (i.e., employment status, SES, parent education, parent gender, child gender, race, parent education, number of children). Of note, the sample was majority mothers, and the parent reports were mostly done for male children.

Although there was no correlation between child age and distress tolerance, based on prior research suggesting overall improvement in ER across adulthood, we examined—from a categorical perspective—whether there was a linear, main effect of child’s developmental stage and distress tolerance. Consistent with the correlation analyses, a one-way ANOVA demonstrated that there was also not a main effect of the three child age groups on parental distress tolerance (overall Distress Tolerance Scale), $F(2, 600) = .58$, $p = .562$, $\eta^2 < .01$. Multiple regression was also conducted to test whether child age predicted parental distress tolerance statistically adjusting for parent age. Parent age was entered into the first step of the model ($F(1, 600) = 5.03$, $p = .03$, $R^2 = .01$), and child age was entered into the second step ($F(2, 599) = 2.54$, $p = .08$, $R^2 = .01$). As there was no change in R^2 , we did not control for parent age in the subsequent analyses.

Next, to test the hypothesis that the association between child age and parental distress tolerance would vary depending on child temperament, we conducted moderation analyses using PROCESS. The macro estimates a series of regressions (mean centered and tested at 1 SD above and below the mean) representing the interaction of child age ×

Table 3 Correlations of variables, infants and toddlers

Measures	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	Mean	SD
1. DTS total	–	.88**	.92**	.87**	.74**	.05	–.46**	.12	.03	.03	.00	–.09	.13	2.72	.84
2. DTS absorption	.87**	–	.75**	.79**	.51**	.04	–.39**	.17*	.04	.01	.02	–.08	.16*	2.77	1.09
3. DTS appraisal	.90**	.68**	–	.72**	.55**	.09	–.47**	.16*	.02	.12	.02	–.08	.15*	2.57	.88
4. DTS tolerance	.87**	.77**	.67**	–	.54**	.08	–.41**	.05	.05	–.07	.03	–.07	.02	2.69	.98
5. DTS regulation	.76**	.55**	.56**	.57**	–	–.06	–.27**	–.02	–.05	.07	–.03	.07	–.02	3.02	1.04
6. Child surg.	.75**	.66**	.69**	.63**	.58**	–	–.06	.42	.01	.21**	.13	.02	.00	.00	.98
7. Child NA	.65**	.57**	.61**	.55**	.47**	.44*	–	–.09	–.07	–.18**	–.09	.07	–.12	3.47	1.07
8. Child EC	.76**	.67**	.68**	.63**	.61**	.68**	.15*	–	.01	.16*	.00	–.11	.14*	.00	.98
9. Parent age	.01	–.07	.14	–.10	.00	.08	–.07	.09	–	–.11	.07	.08	.07	35.26	6.51
10. Parent gender	–.22**	–.20**	–.14	–.24**	–.14	.33**	.16*	.30**	–.08	–	.09	–.15*	.10	1.71	.46
11. Number of children	.14	.00	.28**	–.04	.07	–.02	.08	–.05	–.03	–.02	–	.18**	.09	2.25	1.14
12. Child age	–.49**	–.46**	–.46**	–.43**	–.32**	.20**	.07	.10	.15*	.08	–.04	–	–.01	102.53	12.74
13. Child gender	.51**	.42**	.54**	.31**	.33**	.17*	.15*	.06	–.02	.22**	.30**	.09	–	1.46	.50
Mean	2.74	2.79	2.59	2.76	2.97	.02	.03	.03	29.11	1.60	1.34	18.40	1.46	–	–
SD	.79	1.04	.82	.97	.96	.96	.99	.97	6.03	.53	1.02	7.89	.56	–	–

Note. Below diagonal: Infant correlations. Above diagonal: Toddler correlations

DTS Distress Tolerance Scale, Child surg. child temperament, surgency, Child NA child temperament, negative affect, Child EC child temperament, effortful control

* $p < .05$, ** $p < .001$

Table 4 Linear model of predictors of overall distress tolerance

	b	SE B	t	p
CBQ surgency				
Constant	2.71[3.23, 3.36]	.04	95.12	$p < .001$
Surgency (centered)	–.01[–.07, .09]	.04	.28	$p = .782$
Child age (centered)	.00[.00, .00]	.00	.64	$p = .521$
Surgency × child age	.00[.00, .00]	.00	.63	$p = .529$
Note. $R^2 = .00$				
CBQ negative affect				
Constant	3.29[3.22, 3.35]	.03	97.39	$p < .001$
Negative affect (centered)	–.09[–.12, –.06]	.02	–5.32	$p < .001$
Child age (centered)	.00[.00, .00]	.00	–1.53	$p = .126$
Negative affect × child age	.00[.00, .00]	.00	–2.66	$p = .008$
Note. $R^2 = .05$				
CBQ effortful control				
Constant	3.29[3.23, 3.69]	.04	95.56	$p < .001$
Effortful control (centered)	.06[–.01, .13]	.04	1.61	$p = .108$
Child age (centered)	.00[.00, .00]	.00	.58	$p = .565$
Effortful control × child age	.00[.00, .00]	.00	–1.09	$p = .277$
Note. $R^2 = .01$				

child temperament, as predictors of parental distress tolerance. Three moderation models were tested (i.e., child negative affect, surgency, and effortful control), with child age as a continuous variable and all variables mean-centered.

Of the three hypothesized moderators, only child negative affectivity was found to significantly moderate the relation between child age and parental overall distress tolerance (see Table 4). Child age and negative affect were entered in the first step of the regression analysis, followed by the interaction term (child age × negative affect; $b > .01$, $SE = .001$, $t = -2.66$, $p < .01$) which explained a significant increase in overall parental distress tolerance ($\Delta R^2 = .01$, $F(1, 598) = 7.078$, $p = .01$). At high levels of child negative affectivity, there was a significant association between child age and parental distress tolerance ($b = -0.01$, 95% CI [–0.01, 0.00], $t = -2.38$, $p = .02$), suggesting that parental distress tolerance may decrease as children grow older if the child presents with high negative affectivity (see Fig. 1). The unstandardized simple slopes at low and mean values of child's negative affect were non-significant. To explore whether these results remained significant beyond parents' own temperament, models were retested adjusting for level of parental negative affectivity. The interaction term remained significant (child age × negative affectivity; $b > .01$, $SE = .001$, $t = -2.18$, $p = .03$).

Discussion

Distress tolerance is an integral part of daily functioning, as the ability to persist when faced with negative emotions is a crucial coping skill in multiple aspects of life. Parents

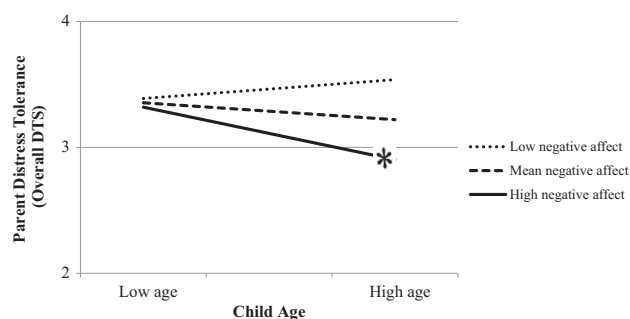


Fig. 1 Moderation model of child's age predicting parent distress tolerance for 1 SD below the mean of child's negative affect, the mean of child's negative affect, and 1 SD above the mean of child's negative affect. * $p < .05$

experience more emotional situations than their non-parent counterparts (Schulz et al. 2006) and their distress tolerance is not only important to their own self-regulation, but to their child's development as well. Given the limited research on the normative development of distress tolerance in middle adulthood, especially among parenting adults, we directly tested the assumption that parents' distress tolerance improves as their children age. Investigating the experience and risk factors of inadequate distress tolerance in parenthood is important to advancing our understanding of distress tolerance development and can inform the design of parenting intervention programs. Informed by Scheibe and Blanchard-Field's (2009) theory of chronic activation of emotion regulation, we explored parental distress tolerance in relation to three periods of child development, and the potential influence of child temperament on this relationship.

Prior studies have established that distress tolerance generally improves over time (Cummings et al. 2013). The current study assessed distress tolerance specifically among parents and investigated the variability in distress tolerance across different stages of parenthood. Based on previous research that has shown emotion-regulatory processes become less effortful for adults over time (Scheibe and Blanchard-Fields 2009), we posited that there would be a positive, linear main effect of child's age and parents' distress tolerance. Contrary to expectations, neither correlation nor categorical analyses revealed a direct association between levels of parental distress tolerance and child age. Despite the cross-sectional design of this study, this null finding suggests that distress tolerance may not invariably improve over time, as implied by existing research. Although not predicted, the lack of a direct association between time and parental distress tolerance levels is not all that surprising considering the complexities and variation of parenthood. As children progress through development, new challenges arise. For example, child behavior problems

might become more challenging at older ages. This increase in child-related stressors would place a greater demand on parental emotion regulation abilities, thereby "counter-acting" what would otherwise be an increase in parental distress tolerance over time.

In line with previous research on child effects in parent-child interactions (Daughters et al. 2014), partial support was found for the hypothesis that child temperament would influence the relationship between child age and parental distress tolerance. Although child surgency and effortful control did not influence parental distress tolerance over time, child negative affectivity played a critical role. Negative affectivity describes a person's anticipation of fear, decreased mood due to sadness, and reactions to discomfort and frustration. More so than effortful control (i.e., ability to focus attention, to suppress inappropriate behavior, continue in action even if there is a desire to avoid it) or surgency (i.e., threshold for experiencing pleasure, pleasure derived from social interaction and situations of high stimulus), it is perhaps not surprising that a child's negative affectivity would be the most salient aspect of temperament to influence parental distress tolerance across time. After all, past research has found links between decreased emotion regulation in the face of experiencing situations that evoke strong emotions (Scott and Cervone 2002). When a child is prone to be sad, frustrated, or fearful much of the time, it is likely that their parent tends to experience increased stress (Nelson et al. 2009), which inhibits their cognitive abilities, including the ability to tolerate their own distress.

Without intervention, temperamental negativity affectivity is a fairly stable construct (Rothbart and Bates 2006). Parents might become discouraged by their child's negative affect. Parents might feel helpless to change their children's behavior, or believe their children's temperament is due to bad parenting which might lead to feelings of shame. Furthermore, parents can feel distressed and ashamed in times when their children's negative affectivity comes out in public—a child throwing a temper tantrum, becoming aggressive, or obsessive over something they want. The parent might feel judged or embarrassed in front of fellow parents and strangers, creating even more distress. Without intervention, a child's temperament can remain stable across time, putting parental distress tolerance at risk. Therefore, child temperament, specifically negative affect, is a key element to consider in intervention programs.

Strengths, Limitations and Future Directions

This study explored the normative experience of parental distress tolerance across three different periods of child development and to examine child temperament as a potential contributor to differing levels of parents' distress

tolerance at different stages of parenthood. However, the current findings must be considered in light of study limitations. First, parental distress tolerance and child temperament were both assessed by parent report. Findings would be strengthened if replicated in a study that utilized observational measures of child temperament and behavioral measures of parental distress tolerance (e.g., Paced Auditory Serial Addition Test [PASAT; Lejuez et al. 2003] or the Mirror Tracing Persistence Task [MTPT-C; Strong et al. 2003]). The addition of such measures may help clarify whether the association between parent distress tolerance and child negative affect is driven by the parent's negative perception. The design of the study could be further strengthened by including a measure of stressful life events or child-related stressors to ascertain whether increases in parental distress tolerance over time are dampened by counteracting factors. Further, only parents who were married or living with a long-term partner and had never been divorced or separated from their partner were eligible for the current study. Results may not generalize to single-parent families and/or blended families. The majority of the sample was mothers, reporting about sons, which poses an additional generalizability limitation. Participants were recruited through MTurk, which previous publications have evaluated as both skewed (Casler et al. 2013) and an acceptable representation of the population (Berinsky et al. 2012; Buhrmester et al. 2011; Huff and Tingley 2015). The sample was exclusively recruited within the United States (although specific region information was not collected), so the results may not generalize to parents in other countries, due to variations in parenting practices. Future studies might benefit from comparing the results of this study to one in which online recruitment methods are not used. Relatedly, the current study was cross-sectional; therefore, it cannot be concluded that the results are a true representation of how distress tolerance changes over time. Finally, this study only evaluated parents of children between the ages of 6 months and 10 years. It would be ideal to follow parents over the span of parenthood, from pregnancy through their child's adult life, to best understand the trajectory of distress tolerance across parenthood.

Due to the exploratory nature of this study, the purpose was to provide a basis for future investigations. Despite the limitations noted above, this study also has strengths. First, multiple methods were used to increase data quality. In addition to using well-regarded, validated measures of distress tolerance and child temperament, parents were given multiple attention checks throughout the survey, to further improve the quality of the data. Second, the focus on partnered parents precluded confounding by family structure or increased stress that may be associated with single parenthood. Third, the sample size in the current study was sufficiently large to conduct moderation analyses, in

contrast to most such studies that tend to be underpowered (Wang and Ware 2013).

Considerations for future studies have been discussed previously, but a few more are of note. This study did not evaluate any gender differences, neither parent nor child, in the experience of parental distress tolerance. Additionally, it would be beneficial to evaluate distress tolerance among parents with only one child. This would provide a more pure evaluation of the normative experience of parental distress tolerance across periods of child development because parents in our sample could have had younger children than the target child, which might have influenced the parents' distress tolerance. Moreover, as parents and children influence each other, it would be interesting to evaluate the interaction of parent and child temperament as a predictor of parental distress tolerance over time. Finally, to further demonstrate that parenthood creates challenges to individuals' emotion regulation, future studies might add a group of non-parents for comparison.

Parents are instrumental in their child's successful development, and distress tolerance is an essential skill to master and maintain to effectively parent. It is crucial to understand the normative experience of, and threats to distress tolerance stability across parenthood and apply it towards further research and applications. Given the responsibility and complexity of parenting, there is an ever-growing need to provide parents with the knowledge and applicable strategies to manage their own distress, in order to teach their children the regulation skills necessary to be successful in their own futures. The current investigation tested whether distress tolerance in parenthood increased as child developmental periods progressed and evaluated how child temperament contributes to the vulnerability of parental distress tolerance as children get older. As demonstrated in this study, child temperament was linked to parents' ability to persevere when faced with distress. Parents and professionals (e.g., school psychologists, interventionists) should consider this aspect when coaching parents or designing parenting programs.

Author Contributions A.M.: designed and executed the study, analyzed the data, and wrote the paper. J.C.: collaborated with the design of the study and editing of the final manuscript. M.H.: collaborated with the design of the study and editing of the final manuscript.

Compliance with Ethical Standards

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

Ethical Approval 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 As stated in the Method section, informed consent was obtained from all individual participants included in the study.

References

- Amstadter, A. B., Daughters, S. B., Macpherson, L., Reynolds, E. K., Danielson, C. K., Wang, F., & Lejuez, C. W. (2011). Genetic association with performance on a behavioral measure of distress intolerance. *Journal of Psychiatric Research, 46*(1), 87–94.
- Anestis, M. D., Selby, E., Fink, E., & Joiner, T. (2007). The multifaceted role of distress tolerance in dysregulated eating behaviors. *International Journal of Eating Disorders, 40*(8), 718–726.
- Antonucci, T. C., & Mikus, K. (1988). The power of parenthood: Personality and attitudinal changes during the transition to parenthood. In G. Y. Michaels & W. A. Goldberg (Eds.), *The transition to parenthood: Current theory and research* (pp. 62–84). New York, NY: Cambridge University Press.
- Berinsky, A. J., Huber, G. A., Lenz, G. S. (2012). Evaluating online labor markets for experimental research: Amazon.com's mechanical turk. *Political Analysis, 20*, 351–368. doi:10.1093/pa/nmpr057.
- Blair, K. A., Denham, S. A., Kochanoff, A., & Whipple, B. (2004). Playing it cool: Temperament, emotion regulation, and social behavior in preschoolers. *Journal of School Psychology, 42*(6), 419–443.
- Blanchard-Fields, F. (2007). Everyday problem solving and emotion: An adult developmental perspective. *Current Directions in Psychological Science, 16*(1), 26–31.
- Buhrmester, M., Kwang, T., & Gosling, S. (2011). Amazon's mechanical turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science, 6*, 3–5.
- Casler, K., Bickel, L., & Hackett, E. (2013). Separate but equal? A comparison of participants and data gathered via Amazon's MTurk, social media, and face-to-face behavioral testing. *Journal of Computers in Human Behavior, 29*(6), 2156–2160.
- Claxton, A., & Perry-Jenkins, M. (2008). No fun anymore: Leisure and marital quality across the transition to parenthood. *Journal of Marriage and Family, 70*(1), 28–43.
- Cohen, J. (1994). The earth is round ($p < .05$). *American Psychologist, 49*, 997–1003.
- Cowan, C. P., Cowan, P. A., Heming, G., & Miller, N. B. (1991). Becoming a family: Marriage, parenting, and child development. In P. A. Cowan & E. M. Hetherington (Eds.), *Family transitions* (pp. 79–109). Hillsdale, NJ: Erlbaum.
- Cummings, J. R., Bornoalova, M. A., Ojanen, T., Hunt, E., MacPherson, L., & Lejuez, C. (2013). Time doesn't change everything: The longitudinal course of distress tolerance and its relationship with externalizing and internalizing symptoms during early adolescence. *Journal of Abnormal Child Psychology, 41*(5), 735–748.
- Daughters, S. B., Gorka, S. M., Rutherford, H., & Mayes, L. C. (2014). Maternal and adolescent distress tolerance: The moderating role of gender. *Emotion, 14*(2), 416–424.
- Daughters, S. B., Lejuez, C. W., Bornoalova, M. A., Kahler, C. W., Strong, D. R., & Brown, R. A. (2005). Distress tolerance as a predictor of early treatment dropout in a residential substance abuse treatment facility. *Journal of Abnormal Psychology, 114* (4), 729–734.
- Daughters, S. B., Reynolds, E. K., MacPherson, L., Kahler, C. W., Danielson, C. K., Zvolensky, M., & Lejuez, C. W. (2008). Distress tolerance and early adolescent externalizing and internalizing symptoms: The moderating role of gender and ethnicity. *Behaviour Research and Therapy, 47*(3), 198–205.
- Daughters, S. B., Stacey, B., Gorka, S. M., Rutherford, H. J., & Mayes, L. C. (2014). Maternal and adolescent distress tolerance: The moderating role of gender. *Emotion, 14*(2), 416–424.
- Deater-Deckard, K., Mullineaux, P. Y., Petrill, S. A., & Thompson, L. A. (2009). Effortful control, surgency, and reading skills in middle childhood. *Reading and Writing, 22*(1), 107–116.
- Eisenberg, N., Fabes, R. A., Guthrie, I. K., & Reiser, M. (2000). Dispositional emotionality and regulation: Their role in predicting quality of social functioning. *Journal of Personality and Social Psychology, 78*(1), 136–157.
- Evans, D. E., & Rothbart, M. K. (2007). Developing a model for adult temperament. *Journal of Research in Personality, 41*, 868–888.
- Fahs, P. S., Morgan, L. L., Kalman, M. (2003). A call for replication. *Journal of Nursing Scholarship, 35*, 67–72.
- Huff, C., & Tingley, D. (2015). "Who are these people?" Evaluating the demographic characteristics and political preferences of MTurk survey respondents. *Research and Politics, July–September (1)*, 1–12.
- Garofalo, C., & Velotti, P. (2014). Alcohol misuse in psychiatric patients and nonclinical individuals: The role of emotion dysregulation and impulsivity. *Addiction Research & Theory, 23*(4), 294–300.
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment, 26*(1), 41–54.
- Gross, J. J., Carstensen, L. L., Pasupathi, M., Tsai, J., Skorpens, C. G., & Hsu, A. Y. C. (1997). Emotion and aging: Experience, expression, and control. *Psychology and Aging, 12*(4), 590–599.
- Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]. <http://www.afhayes.com/public/process2012.pdf>
- Lejuez, C. W., Kahler, C. W., & Brown, R. A. (2003). A modified computer version of the paced auditory serial addition task (PASAT) as a laboratory-based stressor. *The Behavior Therapist, 26*, 290–293.
- Leyro, T. M., Zvolensky, & M. J., Bernstein, A. (2010). Distress tolerance and psychopathological symptoms and disorders: A review of the empirical literature among adults. *Psychological Bulletin, 136*(1), 576–600.
- Manzi, C., Vignoles, & V. L., Regalia, C. (2009). Accommodating a new identity: Possible selves, identity change and well-being across two life-transitions. *European Journal of Social Psychology, 40*(6), 970–984.
- Mullineaux, P. Y., Deater-Deckard, K., Petrill, S. A., Thompson, L. A., & DeThorne, L. S. (2009). Temperament in middle childhood: A behavioral genetic analysis of fathers' and mothers' reports. *Journal of Research in Personality, 43*(5), 737–746.
- Nelson, J. A., O'Brien, M., Blankson, A. N., Calkins, S. D., & Keane, S. P. (2009). Family stress and parental responses to children's negative emotions: Tests of the spillover, crossover, and compensatory hypotheses. *Journal of Family Psychology, 23*(5), 671–679.
- Nock, M. K., & Mendes, W. B. (2008). Physiological arousal, distress tolerance, and social problem-solving deficits among adolescent self injurers. *Journal of Consulting and Clinical Psychology, 76* (1), 28–28.
- Oldehinkel, A. J., Veenstra, R., Ormel, J., deWinter, A. F., & Verhulst, F. C. (2006). Temperament, parenting, and depressive symptoms

- in a population sample of preadolescents. *Journal of Child Psychology and Psychiatry*, 47(7), 684–695.
- Olson, S. L., Sameroff, A. J., Kerr, D. C., Lopez, N. L., & Wellman, H. M. (2005). Developmental foundations of externalizing problems in young children: The role of effortful control. *Development and Psychopathology*, 17, 25–45.
- Power, T. G. (2004). Stress and coping in childhood: The parents' role. *Parenting: Science and Practice*, 4(4), 271–317.
- Putnam, S. P., Gartstein, M. A., & Rothbart, M. K. (2006). Measurement of fine-grained aspects of toddler temperament: The early childhood behavior questionnaire. *Infant Behavior and Development*, 29(3), 386–401.
- Putnam, S. P., Helbig, A. L., Gartstein, M. A., Rothbart, M. K., & Leerkes, E. (2014). Development and assessment of short and very short forms of the infant behavior questionnaire-revised. *Journal of Personality Assessment*, 96(4), 445–458.
- Putnam, S. P., & Rothbart, M. K. (2006). Development of short and very short forms of the Children's Behavior Questionnaire. *Journal of Personality Assessment*, 87(1), 103–113.
- Richards, J. M., & Gross, J. J. (2000). Emotion regulation and memory: The cognitive costs of keeping one's cool. *Journal of Personality and Social Psychology*, 79(3), 410–424.
- Rothbart, M. K., Ahadi, S. A., Hershey, K. L., & Fisher, P. (2001). Investigations of temperament at three to seven years: The children's behavior questionnaire. *Child Development*, 72(5), 1394–1408.
- Rothbart, M. K., & Bates, J. E. (2006). Temperament. In W. Damon, R. Lerner & N. Eisenberg (Eds.), *Handbook of child psychology: Vol 3. Social, emotional, and personality development* (6th ed., pp. 99–166). New York, NY: Wiley.
- Rutherford, H. J. V., Booth, C. R., Luyten, P., Bridgett, D. J., & Mayes, L. C. (2015). Investigating the association between parental reflective functioning and distress tolerance in motherhood. *Infant Behavior & Development*, 40, 54–56.
- Rutherford, H. J. V., Wallace, N. S., Laurent, H. K., & Mayes, L. C. (2015). Emotion regulation in parenthood. *Developmental Review*, 36, 1–14.
- Salsman, N. L., & Linehan, M. M. (2012). An investigation of the relationships among negative affect, difficulties in emotion regulation, and features of borderline personality disorder. *Journal of Psychopathology and Behavioral Assessment*, 34(2), 260–267.
- Sanson, A., Hemphill, S. A., & Smart, D. (2004). Connections between temperament and social development. *Social Development*, 13, 142–170.
- Scheibe, S., & Blanchard-Fields, F. (2009). Effects of regulating emotions on cognitive performance: What is costly for young adults is not so costly for older adults. *Psychology and Aging*, 24(1), 217–223.
- Scheibe, S., & Carstensen, L. (2010). Emotional aging: Recent findings and future trends. *Journal of Gerontology: Psychological Sciences*, 65b(2), 135–144.
- Schulz, M. S., Cowan, C. P., & Cowan, P. A. (2006). Promoting healthy beginnings: A randomized controlled trial of a preventive intervention to preserve marital quality during the transition to parenthood. *Journal of Consulting and Clinical Psychology*, 74(1), 20–31.
- Scott, W. D., & Cervone, D. (2002). The impact of negative affect on performance standards: Evidence for an affect-as-information mechanism. *Cognitive Therapy and Research*, 26(1), 19–37.
- Simons, J. S., & Gaher, R. M. (2005). The distress tolerance scale: Development and validation of a self-report measure. *Motivation and Emotion*, 29(2), 83–102.
- Strong, D. R., Lejuez, C. W., Daughters, S., Marinello, M., Kahler, C. W., & Brown, R. A. (2003). The computerized mirror-tracing task, version 1. Unpublished Manual. Available from <http://www.addiction.umd.edu/downloads.htm>
- Thomas, A., & Chess, S. (1997). *Temperament and development*. New York, NY: Brunner/Mazel.
- Wang, R., & Ware, J. H. (2013). Detecting moderator effects using subgroup analyses. *Prevention Science*, 14, 111–120.
- Wrzus, C., Hanel, M., Wagner, J., & Neyer, F. J. (2013). Social network changes and life events across the life span: A meta-analysis. *Psychological Bulletin*, 139(1), 53–80.