CORRESPONDENCE OF GLOBAL AND MOMENTARY REPORTS OF EMOTION-RELATED SOCIALIZATION BEHAVIORS AMONG CAREGIVERS OF YOUNG CHILDREN

by

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DISSERTATION ABSTRACT

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Title: Correspondence of Global and Momentary Reports of Emotion-Related Socialization Behaviors among Caregivers of Young Children

Parents and other primary caregivers support their children's social and emotional development through emotion-related socialization behaviors, which include assistance with emotion regulation strategies. Most research in this area relies on global caregiver self-report measures, but no studies have measured caregiver assistance with child emotion regulation strategies in naturalistic settings or examined correspondence between global and momentary reports. This warrants attention because information captured by global reports may not fully reflect emotion-related socialization behaviors as they occur in dynamic contexts of daily life.

To address this gap, the present study employed ecological momentary assessment methods to investigate correspondence between global and momentary reports of caregiver assistance with child use of four emotion regulation strategies: acceptance; distraction; cognitive reappraisal; and expressive suppression. The present study also evaluated whether caregiver stress and household socioeconomic status moderated the correspondence between global and momentary measures. A United States sample of 174 primary caregivers with children ages 1.5-5 years completed virtual check-ins up to three times per day for seven days. Caregivers reported their child’s emotion and the emotion regulation strategies they helped their child use. Caregivers also completed a global measure of assistance with child emotion regulation strategies, a global

measure of stress, and demographics. Correlation and regression analyses showed evidence of correspondence between global and momentary reports for acceptance and expressive suppression but not for distraction or cognitive reappraisal. Caregiver stress and socioeconomic status did not significantly moderate associations between global and momentary reports.

Results caution against assumptions that global measures of caregiver support for child emotion regulation accurately index individual differences in these behaviors in daily life. Correspondence between global and momentary reports differed across strategies, showing stronger alignment for acceptance and expressive suppression, but weaker alignment for more complex, multifaceted cognitive reappraisal and distraction strategies. Future research can build on this work by investigating potential drivers of the varied correspondence patterns observed here, drawing on more diverse samples, and using validated momentary measures designed to align closely with their global counterpart.

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CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

Parents and other primary caregivers ("caregivers") influence child emotion regulation development through emotion socialization. Emotion socialization includes caregiver emotional expressiveness and modeling, caregiver responses to their child's emotions, and caregiver discussions of emotion with their child (Eisenberg, 1998). These emotion-related socialization behaviors (ERSBs), along with family emotional climate, contribute to children's understanding, experience, expression, and regulation of emotion (Eisenberg, 1998; Morris et al., 2007).

Emotion regulation (ER) is defined as goal-directed internal and external processes by which an individual modifies their experience of emotion, including emotion occurrence, intensity, and expression (Gross, 2015; Morris et al., 2007). The ability to regulate emotions is an important component of child self-regulatory and socio-emotional development. Child ER skills mediate effects of family contexts on child psychosocial development (Morris et al., 2007). This may be in part because the ability to regulate emotions and behavior enables children to engage adaptively with their social environments (Morris et al., 2007). Young children's adaptive ER skills support socioemotional competence, school readiness, and academic success (Harrington et al., 2020). Maladaptive ER skills, on the other hand, are related to externalizing problems in preschool and school-age samples (Eisenberg et al., 2010). ER deficits are also transdiagnostic risk factors for psychological problems (i.e., mood disorders, anxiety) across the lifespan, and many clinical psychology interventions incorporate or explicitly target ER skills (Naragon-Gainey et al., 2017). Families' capacity to support child ER development early can help promote healthy psychosocial functioning and prevent downstream outcomes requiring secondary or tertiary intervention.

Understanding the specific ways families support young children's ER development is important because early childhood (birth to age five) is a sensitive period for building foundational ER systems and skills (Chronis-Tuscano et al., 2022). Children enter the world wired for synchrony with an attuned caregiver whose moment-to-moment responses influence central neurobiological and psychological components of the infant's developing stress response system (i.e., the prefrontal cortex, the anterior cingulate cortex, oxytocinergenic systems) and ER functioning (Hostinar et al., 2014; Kerr et al., 2019). Beyond infancy, children's capacities for regulating emotion continue to develop rapidly across early childhood (Eisenberg et al., 2010). Primary caregivers are a main source for children's learning about emotions during this developmentally sensitive period (Chronis-Tuscano et al., 2022). When caregivers provide environments in which their children can practice emerging emotion regulation strategies in a safe, supported way, they support adaptive ER development (Harrington et al., 2020). Further highlighting the important role of caregivers during the early years, Chronis-Tuscano et al. (2022) observed a "developmental unfolding of emotion socialization" (p. 277), whereby parents of young children tended to exhibit more supportive ERSB profiles than parents of older children. This may reflect the changing nature of child ER needs and capabilities. For example, longitudinal research has found a decline in child frustration and desire (triggers for the need for ER) from ages 24 to 36 months, alongside an increase in independent initiation of executive processes (i.e., shifting attention, seeking support) that support effective ER (Cole et al., 2020). Over time and with practice, children typically shift gradually from relying on caregiver guidance to using ER skills with increasing independence (Kopp, 1989). In sum, caregiver support for young children's ER lays a foundation for ER development and associated outcomes.

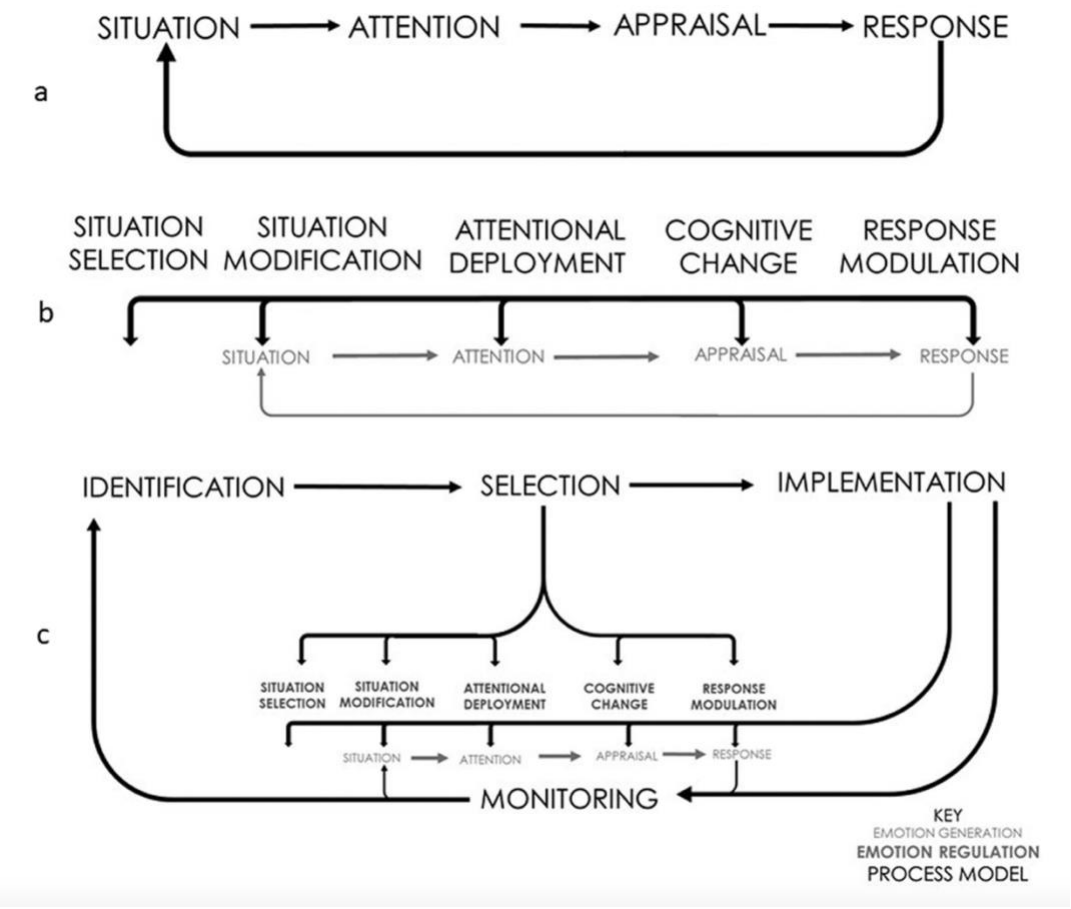
Detailed knowledge of caregiver ERSBs during this developmentally sensitive period can contribute to knowledge of normative ER development and inform prevention and intervention efforts targeting emotion regulation or emotion socialization behaviors. Caregiver assistance with children's use of specific emotion regulation strategies has received growing attention in the literature as a key form of ERSB. With caregiver support, children learn to use common ER strategies including acceptance, distraction, cognitive reappraisal, and expressive suppression. Background on these strategies and considerations for their measurement in emotion socialization research, discussed next, inform the goals of the present study.

Caregiver Assistance with Child Use of Emotion Regulation Strategies

The process model of emotion regulation (PMER) provides an organizing framework for ER research (Gross, 1998; Gross, 2015). The PMER identifies five families of ER processes: situation selection, situation modification, attentional deployment, cognitive change, and response modulation (Figure 1).

Figure 1

Process Model of Emotion Regulation



Note. Figure from McRae & Gross (2020), which was modified from Uusberg et al. (2019). The present study focused on (b) emotion regulation. This figure situates ER within other elements of the process model, i.e., (a) the situation that generates the need to regulate, and (c) the identification, selection, and implementation processes.

Each family of ER processes includes specific strategies an individual might use to modify emotional experience. The present study focused on four strategies for regulating emotion: acceptance, distraction, cognitive reappraisal, and expressive suppression. Acceptance is a cognitive change strategy which involves validating emotions in a non-judgmental manner (McRae & Gross, 2020). When caregivers nonjudgmentally acknowledge their child's negative emotion (i.e., "it's okay to feel frustrated") they model emotion acceptance and give their child

an opportunity to practice this emotion regulation strategy (Byrd et al., 2022). Distraction is an attentional deployment strategy in which an individual redirects their attention away from the emotionally evocative stimuli toward another, less emotionally arousing situation, or element of the situation (McRae & Gross, 2020). For example, a caregiver may respond to their toddler's distress at the doctor by redirecting their attention to a comfort item or engaging activity. Cognitive reappraisal is a cognitive change strategy involving altering the meaning of a situation to modify the emotional experience it elicits (McRae et al., 2012a; McRae & Gross, 2020). Expressive suppression is a response modulation strategy which involves minimizing outward behavioral expression of internal emotion (McRae & Gross, 2020). Cognitive reappraisal and expressive suppression could take many forms in caregiving contexts. For example, when a preschool-age child is upset by having to leave the playground, their caregiver may support use of cognitive reappraisal (i.e., "It's hard to leave when you're having fun, but remember that if we leave soon we have time to stop at the library on the way home"), or encourage expressive suppression (i.e., "don't cry").

Most PMER research of these strategies has focused on intrapersonal emotion regulation (adults' regulation of their own emotions). Relatively few studies have extended the PMER to youth samples (Gross & Cassidy., 2019) and to extrinsic, interpersonal regulation such as adult scaffolding for child ER. However, as the above examples illustrate, caregiver support for specific ER strategies is a form of ERSBs. Indeed, Gross (2015) noted substantial overlap between intrinsic and extrinsic ER processes and encouraged application of the process model to study extrinsic ER dynamics (such as caregiver support for child strategies). Prior research on children's use of ER strategies has examined some but not all strategies included in the PMER and classified them in a variety of ways (López-Pérez et al., 2017). Caregiver ERSBs are thought

to contribute to children's emergent use of specific emotion regulation strategies spanning the phases of the process model (Cohodes et al., 2022; Mancini et al., 2022). Leveraging the rich literature employing the process model to examine ERSBs in families can help build a more nuanced understanding of how caregivers support child ER development (Cohodes et al., 2022).

Emotion Socialization in Culture and Context

Emotion socialization research has historically conceptualized ERSBs as adaptive versus maladaptive, or supportive versus unsupportive. However, just as adaptive intrinsic ER is context dependent (Aldao, 2013), adaptive extrinsic ERSBs depend on goodness of fit with caregiver and child characteristics, regulation goals, and environmental factors (Chronis-Tuscano et al., 2022). Emotion socialization is also embedded in sociocultural contexts. Family background including race, ethnicity, religion, and socioeconomic status shapes caregivers' values and beliefs about emotion and thereby influences emotion socialization behaviors (Chronis-Tuscano et al., 2022; Gross & Cassidy, 2019). Raval and Walker (2019) identify three main components of culture in emotion socialization: emotion socialization goals, beliefs about emotion, and communication preferences. Eisenberg's model of emotion socialization also includes cultural factors such as beliefs, norms, and values, which shape socialization goals (Eisenberg, 2020). Despite longstanding theoretical acknowledgement of the salience of culture for ERSBs, emotion socialization research to date has tended to draw from predominantly North American, White, high-SES samples (Chronis-Tuscano et al., 2022; Eisenberg, 2020; Raval & Walker, 2019), perpetuating problematic assumptions about the generalizability of observations derived from these samples.

Studies centering cultural factors and meaningfully sampling diverse populations have recently increased (Eisenberg, 2020). This emerging research underscores the problem with

oversimplifying ERSBs as inherently adaptive or maladaptive. For example, African American children's normative emotional expressions are more likely to have negative social consequences than their White peers, and African American parents' awareness of this informs their emotion socialization decisions (Dunbar et al., 2017). As Dunbar et al. (2017) described in their presentation of the integrative racial and emotion socialization model:

> Given the context of discrimination African American families must navigate, researchers postulate that African American parents may approach emotion socialization in a nuanced way, using supportive and nonsupportive practices together to give their children the skills to understand and regulate their emotions and the flexibility to suppress them in racially biased situations when expressing negative emotions may be harmful. (p. 17)

A recent study affirmed this, showing that African American caregivers' expressive suppression of their child's negative emotion at age five was associated with lower child externalizing behavior at age six, but only when combined with conversations about racism and preparation for bias (Dunbar et al., 2022). They also found that suppression was associated with higher internalizing symptoms regardless of conversations about racism. Their findings demonstrated that expressive suppression in moderation can be adaptive if children understand that parents' restrictions on their negative emotional expression is an effort to protect them from racially biased perceptions, but also that this adaptation may come at the cost of increasing risk of other psychological problems. Dunbar's research highlights how the adaptiveness of an ER strategy varies depending on population and context.

Although not the focus of the present study, situating emotion socialization in racial and cultural context informed the framing of this inquiry. The present study examined specific ER strategies, rather than aggregating them into supportive and unsupportive categories. It also used multiple measurement modalities to explore emotion socialization dynamics in families' lived experience, discussed next.

Global ERSB Measures

Most emotion socialization research relies on global, retrospective self-report measures of caregiver attitudes, beliefs, and behaviors regarding child emotion. For example, the widely used Coping with Children's Negative Emotions Scale (CCNES; Fabes et al. 1990; Fabes et al., 2002) presents respondents with hypothetical scenarios of child negative emotion (i.e., "If my child falls off his/her bike and breaks it, and then gets upset and cries, I would:") and asks them how likely they are to respond in various ways (i.e., "help my child figure out how to get the bike fixed"). Responses correspond to different types of caregiver reactions: distress reactions, punitive reactions, expressive encouragement, emotion-focused reactions, problem-focused reactions, and minimization reactions.

The CCNES and other ERSB instruments assess caregiver beliefs and/or behaviors related to child emotion, but they do not query scaffolding of specific ER strategies. In response to this gap, Cohodes et al. (2022) developed the Parental Assistance with Child Emotion Regulation (PACER) questionnaire which measures frequency with which parents support their child's use of 10 specific ER strategies. Two strategies each map onto the five stages of emotion regulation based on Gross' PMER: avoidance and behavioral disengagement (situation selection), problem-solving and social support search (situation modification), rumination and distraction (attentional deployment), reappraisal and acceptance (cognitive change), and expressive suppression and venting (response modulation).

Momentary ERSB Measures

Global questionnaires like the PACER are assumed to index caregivers' habitual or typical ERSB use. However, they rely on retrospective reporting "collapsed across time and place" (Silk, 2019, p. 2009) and lack contextual information such as real-time stressors or

regulation goals. Ecological momentary assessment (EMA) methods are one proposed avenue for addressing this limitation. EMA involves collecting repeated intensive measurements in daily life, typically over the course of short time scales (days or weeks) using signaling devices such as smartphones (Silk, 2019).

EMA methods can help reduce recall bias, improve ecological validity, and capture short-term temporal dynamics (Heron et al., 2019; Shiffman et al., 2008). These strengths are valuable for family and emotion research because of the short time scales in which many interactional and affective dynamics unfold (Buhler-Wassman & Hibel, 2021; Heron et al., 2019) and the role of context in shaping caregiving behaviors (Buhler-Wassman & Hibel, 2021; Hajal & Paley, 2020). Just as successful intrinsic ER requires flexibility in strategy selection, including sensitivity to context (Kalokerinos & Koval, in press), successful ERSBs, as discussed above, require goodness of fit for the child, the caregiver, and the situation. EMA methods can test how specific features of everyday environments relate to ERSBs and whether these impacts are moderated by more stable child, parent, or family characteristics (Buhler-Wassman & Hibel, 2021).

Researchers increasingly leverage EMA methods to examine real-time ER dynamics (Koval et al., 2022) and have found substantial within-individual ER variation over days or weeks (Koval et al., 2022). Parenting can elicit a range of emotions (Dix, 1991; Kerr et al., 2021), and fluctuations in caregivers' emotions, along with other situational factors, can impact ERSBs (Hajal & Paley, 2020). Multiple, repeated assessments of ERSBs can help capture this within-person variation.

Despite these affordances, little is known about moment-to-moment co-regulation processes between caregivers and young children in daily life, beyond the infancy stage (Silk,

2019). Research using ERSB measures in naturalistic settings is limited compared with extensive empirical work utilizing global, retrospective measures.

In fact, in affective science more generally, notably little research has examined transient emotional experiences, despite "an enormous psychometric tradition in psychological science devoted to measuring stable properties of the mind" (Kuppens et al., 2022, p. 9). As Shiffman et al. (2008) wrote in their seminal description of EMA methods:

> Clinical psychology—and psychology in general—is prone to overestimate the role of stable traits in determining behavior and to underestimate the influence of the local setting on behavior (Mischel 2004). Our behavior in daily life is influenced not just by our predispositions, but also by where we are and whom we are with, by how we are feeling and what situation we are in, by what has recently happened and what we have done or felt in the minutes and hours preceding the present moment. One context can elicit dysfunctional behavior while another elicits a healthier response; one can fuel psychopathology or set us on a course toward improvement. Understanding life as it is lived, up close, will help us better understand both health and pathology and help us see where there are opportunities to intervene on the side of health. (p. 24)

This statement applies to parenting research as well. Much more is known about individual differences in global parenting constructs than within- and between-person variation in daily life experience. Extending the affordances of EMA methods to examine caregiver support of child ER offers opportunity for building a nuanced understanding of ERSB dynamics.

Correspondence between Global and Momentary ERSB Measures

No research to date has examined the correspondence between global and momentary ERSB measures. Prior studies tested associations between global and momentary measures of other psychological processes, with mixed results (Shiffman et al., 2008). Most closely related to the present study, Koval et al. (2022) and McMahon and Naragon-Gainey (2020) studied correspondence of global and momentary reports for adults' own ER, finding relatively weak correspondence. McMahon and Naragon-Gainey (2020) posited that, although global ER

measures may broadly index tendency to use multiple ER strategies, they do not necessarily capture use of specific strategies in daily life.

Also, ERSB correspondence may vary across ERSB strategies. McMahon and Naragon-Gainey (2020) found greater correspondence for maladaptive ER strategies than for adaptive ones, suggesting that global reports are a stronger indicator of overall tendencies regarding frequency of use of maladaptive strategies but a less precise index of daily use of adaptive strategies. Similarly, Koval et al. (2022) found weaker correspondence for cognitive reappraisal than for other ER strategies.

Koval et al. (2022) used the term "selection correspondence" for the alignment between global and momentary report of ER strategy selection (Koval et al., 2022). In its original use, it refered to the strategies an individual selects for managing their own emotions. The present study extended Koval et al.'s (2022) terminology by referring to alignment between global and momentary reports of caregiver support for child ER strategy as "ERSB correspondence".

Examining ERSB correspondence offers several contributions to emotion socialization research. First, identifying whether global reports of caregiver assistance with child emotion regulation reflect momentary reports from daily life can inform measure selection and interpretation in future studies. Limited correspondence may caution against the assumption that global measures fully capture momentary experiences and indicate need for consideration of which measure best suits research goals. For example, researchers studying effects of caregiver ER assistance on child outcomes should determine the relevance of global versus momentary ERSBs for their outcomes of interest. Additionally, some ERSBs may be adaptive in some situations but not in others, so experience sampling methods may help researchers evaluate ERSB adaptiveness or success in context. On the other hand, if global measures do accurately

reflect daily life ERSB use, this is also important information given the time-intensive nature of collecting EMA data for researchers and the high respondent burden for participants. In addition to methodological contributions, the present study can also offer substantive insight into the nature of caregiver ERSB use. It may be that caregivers' knowledge of ERSBs (as reflected in global measures) does not necessarily reflect their implementation of those strategies (momentary measures). Examining whether this is the case and identifying drivers of discrepancies between strategy knowledge and strategy implementation could inform interventions that target caregiver emotion socialization practices. ERSB correspondence may also vary depending on caregiver characteristics, discussed next.

Moderators of ERSB Correspondence

Individual differences can affect the correspondence between global and momentary measures. For example, retrospective reports may overestimate frequency of a behavior compared to momentary measures of the same behavior because presence of a behavior comes to mind more readily than its absence (Shiffman et al., 2008). Individual differences in characteristics or beliefs can also contribute to discrepancies. For example, extraverted participants inflated reports of positive affect in global compared with momentary assessment (Shiffman et al., 2008). Also, individuals whose momentary behaviors are more stable may more accurately report this retrospectively (Shiffman et al., 2008). However, results regarding moderators of correspondence are mixed, varying widely depending on setting and construct (Shiffman et al., 2008).

Prior research has examined moderators of correspondence for other parenting constructs, but none have done so for ERSBs. Understanding the effect of caregiver characteristics on ERSB correspondence can help determine whether and for whom global reports accurately reflect daily

emotion socialization experiences. To address this gap, the present study tested two potential moderators of ERSB correspondence: caregiver stress and household socioeconomic status.

Caregiver Stress as a Moderator of ERSB Correspondence

Caregiver stress can affect caregiving behaviors including emotion socialization practices (Hajal & Paley, 2020). For example, higher levels of globally reported caregiver stress were associated with significantly lower support for child cognitive reappraisal in the PACER validation study (Cohodes et al., 2022). Globally reported parenting stress in mothers of young children has also been associated with less brain-to-brain synchrony with their child, a key ingredient for the co-regulatory behaviors that aid child ER development (Azhari et al., 2019). One potential mechanism for the effect of stress on caregiving is through caregiver ER—caregivers' own ER abilities can help them manage stress and minimize spillover to their affect and responses to child ER needs (Eisenberg, 2020; Park et al., 2022).

Prior studies of moderating effects of caregiver stress on correspondence between two measures of the same parent or child construct tend to show weaker correspondence among caregivers experiencing higher levels of stress or related risk factors. Herbers et al. (2017) found that caregiver distress (measured using the Center for Epidemiologic Studies Depression Scale, CES-D; Radloff, 1977) attenuated the relationship between global and observational measures of parenting practices. Caregiver stress weakened the convergent validity of maternal reports of child emotion relative to observational measures (Durbin & Wilson, 2012). Hayden et al. (2010) found that maternal high negative emotionality was associated with less accurate maternal reporting of positive child behaviors like sociability, but more accurate reporting of child negative emotionality, relative to coded child behaviors in laboratory tasks. Extensive research has explored the "depression distortion" hypothesis which posits that parents experiencing

depression perceive and self-report more difficult child behavior relative to observational methods (Olino et al., 2021), although empirical evidence for this is mixed (Olino et al., 2020).

The present study differed from prior research by testing caregiver stress rather than depression or emotionality, but the mechanisms involved may be similar. Although not a clinical psychopathology by itself, parenting stress often co-occurs with maternal depression (Fang et al., 2022) and is a well-established predictor of parenting behavior (Shaffer et al., 2012). High stress may, like depression, increase the salience of negative information in the environment (Herbers et al., 2017), leading distressed caregivers to recall more emotionally negative parenting experiences (i.e., child negative emotion or difficulty supporting child ER) or be overly critical of their own parenting behaviors in global reports. Stress could also compromise caregivers' ability to implement known, globally endorsed ERSB strategies in daily life. Either mechanism would result in weaker correspondence, albeit in different directions, between global and momentary ERSB measures for caregivers reporting higher levels of stress. If global ERSB measures are less accurate for highly stressed caregivers, this is important information for emotion socialization research and evaluation of parenting interventions.

Household Socioeconomic Status as a Moderator of ERSB Correspondence

Extensive research has examined pathways by which socioeconomic status (SES) is associated with parenting behaviors including emotion socialization behaviors. For example, prior studies found associations between higher income and/or education and greater use of "supportive" emotion socialization practices (Lugo-Candelas et al., 2015; Shaffer et al., 2012). However, other research has found mixed results of the effect of income. For example, McKee et al. (2021) found that low-income families were more likely to exhibit high levels of emotion coaching behaviors, but also more likely to use emotion dismissing behaviors, relative to higher-

income participants. The influence of household SES on ERSBs is complex and likely depends intersecting factors including culture, allocation of time and resources, caregiver stress, and family adaptation strategies (McKee et al., 2021).

Despite attention to SES as a predictor of parenting, few studies have examined SES as a moderator of correspondence for parenting measures. Herbers et al. (2017) found weaker alignment between retrospective and observational measures of parenting behaviors for parents in lower SES households. They argued that cultural differences in parenting beliefs, differences in parents' interpretations of measure items, or lower levels of parenting self-efficacy may have contributed to their findings (although they did not measure these mechanisms directly). For example, they suggested that parents in lower SES households may have lower parenting self-efficacy that leads them to "undervalue and underreport [their] competence-promoting parenting" (p. 3346) behaviors retrospectively. The limited research in this area warrants further investigation. If SES predicts substantial discrepancies in ERSB correspondence, researchers may need to consider this when selecting and interpreting ERSB measures.

In sum, caregiver stress and socioeconomic status are relevant to emotion socialization and may impact ERSB correspondence. Limited prior research in this area has yielded mixed results, so the present study aimed to clarify whether ERSB correspondence varies by caregiver stress or household socioeconomic status.

Goals of the Present Study

The present study evaluated correspondence of global and momentary self-reports of caregiver assistance with child use of four ER strategies: acceptance; distraction; cognitive reappraisal; and expressive suppression. Secondarily, the present study aimed to assess whether caregiver stress and household socioeconomic status moderate ERSB correspondence. As

described above, this research offers a rich description of caregiver support for child ER in daily life and can inform future use and interpretation of global and momentary ERSB assessments.

Research Questions

To accomplish these goals, the present study addressed the following research questions:

1. To what extent do global self-reports of caregiver assistance with child acceptance, distraction, cognitive reappraisal, and expressive suppression map onto momentary self-reports from daily life?

   Hypothesis 1: Global ERSB measures will align weakly with their momentary ERSB counterpart and strength of correspondence will differ between strategies (Figure 2).

2. Does caregiver stress moderate associations between global and momentary reports of caregiver assistance with child acceptance, distraction, cognitive reappraisal, and expressive suppression?

   Hypothesis 2: Caregiver stress will attenuate the relationship between global and momentary ERSB reports for at least some strategies (Figure 3).

3. Does household socioeconomic status moderate associations between global and momentary reports of caregiver assistance with child acceptance, distraction, cognitive reappraisal, and expressive suppression?

   Hypothesis 3: Household socioeconomic status will attenuate the relationship between global and momentary ERSB reports for at least some strategies. (Figure 4).

Figure 2

Hypothesized Correspondence Between Global and Momentary ERSB Reports

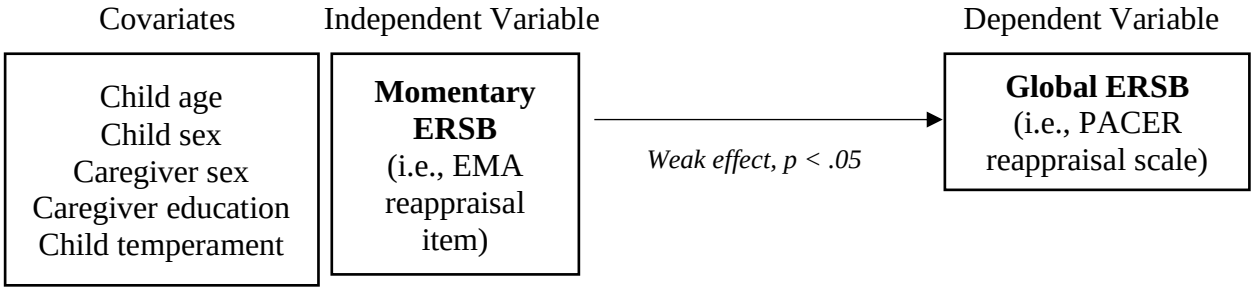


Figure 3

Hypothesized Moderation of ERSB Correspondence by Caregiver Stress

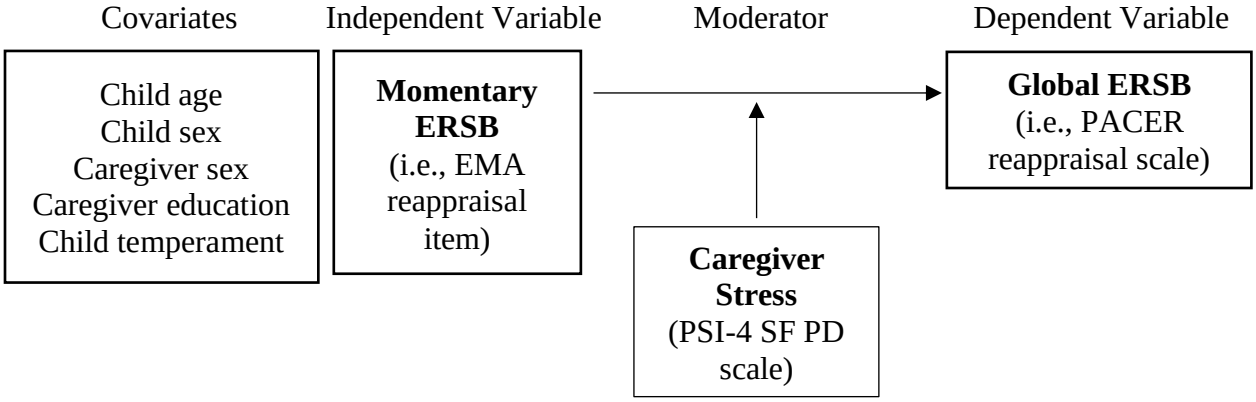
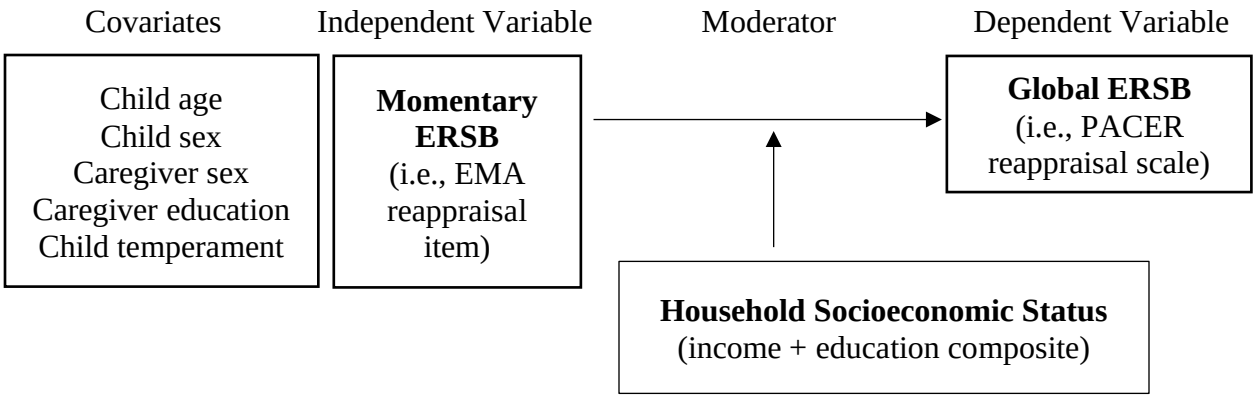


Figure 4

Hypothesized Moderation of ERSB Correspondence by Household SES



CHAPTER II

METHODOLOGY

Participants

The original sample consisted of 198 primary caregivers from the U.S. A priori power analyses calculated using G*Power 3.1 (Faul et al., 2009) showed that this sample size would provide adequate power (Appendix A). A sample size of at least 114 was required to be sufficiently powered at $1\text{-}\beta = 0.80$ to identify medium effect sizes ($f^2 = .15$) with 9 predictors (RQ1) and at least 123 was required with 11 predictors (RQ2, RQ3).

Primary caregivers of children ages 18 months to five years were invited to participate. Eligibility required participants to have had at least 50% custody of the focal child for the last year and be fluent English speakers.

Recruitment

The study team used online flyers and video to recruit participants remotely from across the United States. A convenience sampling and snowball recruitment approach used social media and direct outreach to community organizations and parenting groups.

Procedure

The protocol for this study was approved by the University of Oregon Institutional Review Board (IRB) on July 21, 2022. All study activities including recruitment, eligibility screening, intake measures, and EMA check-ins, took place remotely, enabling individuals from diverse geographic locations within the United States to participate. An initial survey screened for participant eligibility and described study protocols and compensation. Participants gave consent via electronic signature acknowledging understanding of study purpose, duration, risks, benefits, alternatives to participation, and compensation. Consenting participants received a

video and flier with instructions about EMA procedures and were encouraged to reach out to the researchers via email or social media if they had questions.

Full participation involved completing an approximately 20-minute intake survey with demographic information and global self-report parent and child measures. The following measures were used in this study: the Parental Assistance with Child Emotion Regulation scale (PACER) (Cohodes et al., 2022), the Parent Stress Index 4 Short Form (PSI-4-SF) (Abidin, 2012), and the Integrative Child Temperament Scale (ICTS) (Zentner, 2020; Zentner & Wang, 2013). Participants also completed other questionnaires not included in this dissertation. Upon completion of intake measures, eligible participants were invited to begin EMA data collection.

The EMA portion of the study utilized a time-based sampling design, which aims to "characterize experience more broadly and inclusively – e.g. observing how mood varies over time – without a predefined focus on discrete events" (Shiffman et al., 2008, p. 14). Prompts were sent to participants' cell phones three times per day (11am, 3pm, and 7pm local time) for seven consecutive days. These check-ins (approximately two minutes each) asked participants about their child's emotion and their responses to that emotion during the prior four hours, and other questions about the caregiving context such as caregivers' emotions and stress and child difficult behavior during the prior four hours. Participants could earn up to $56 reimbursement depending on the number of check-ins they completed, as well as an optional reflection survey at the end of the study.

Measures

Global Report of Assistance with Child Emotion Regulation Strategies

The Parental Assistance with Child Emotion Regulation (PACER) assesses caregiver support of children's use of specific ER strategies drawn from the process model of emotion

regulation (Cohodes et al., 2022). PACER items begin with the statement "When my child is having negative feelings…" and end with different strategies (i.e., "I help my child take steps to solving a problem," "I help my child find ways to distract themselves from their negative feelings"). Respondents rate their likelihood of engaging in that strategy on a seven-point Likert scale. Each item corresponds to one of 10 distinct emotion regulation strategies: acceptance, reappraisal, avoidance, behavioral disengagement, distraction, expressive suppression, problem solving, rumination, social support search, and venting. The original validation study used a convenience sample of parents of children ages birth – 17. Factor analysis supported the use of 10 distinct strategies. Cronbach's α (0.92 to 0.95 for acceptance, distraction, cognitive reappraisal, and expressive suppression) indicated strong internal consistency. Test-retest reliability was acceptable for cognitive reappraisal, expressive suppression, and acceptance (Pearson r = 0.67-0.69, $p < 0.001$) but weaker for distraction (Pearson r = 0.49, $p < 0.001$). Pearson correlations for these four strategies with other parent and child measures, including the closely related CCNES, demonstrated acceptable convergent validity. A second PACER validation study by Mancini et al. (2022) examined the PACER factor structure with a sample of 491 caregivers of young children only (ages three months to 5.5 years) and also found support for the 10-factor structure.

The present study used four PACER subscales: acceptance, distraction, cognitive reappraisal, and expressive suppression (Table 1). Subscale scores were calculated according to the original validation study (Cohodes et al., 2020) by summing the five assigned items, with a minimum score of 5 and a maximum score of 35. Higher scores reflect a tendency for more frequent use of that strategy. Cronbach's alphas in the present sample showed very good to excellent internal consistency for acceptance (α = 0.89), distraction (α = 0.96), cognitive

reappraisal (α = 0.92), and expressive suppression (α = 0.92). Although the PACER design offers the option of classifying strategies and adaptive or maladaptive, discrete subscales were retained for the present analyses based on the strategy-specific research goals.

Table 1

PACER Subscales and Items

Strategy	Items
Acceptance	I help my child understand that it's okay to have negative feelings. I help my child accept their negative feelings. I help my child accept the way they are feelings if they are unable to change the situation causing those feelings. I tell my child that having negative feelings is okay. I stress to my child that it can be helpful to accept negative feelings in some situations.
Cognitive Reappraisal	I help my child think of a situation in a positive light. I help my child see the situation from a different perspective. I help my child try to see the positive aspects of a situation that is making them have negative feelings. I help my child change their feelings by thinking differently about their current situation. I encourage my child to think of the positive side to their negative feelings.
Distraction	I help my child find ways to distract themselves from their negative feelings. I help my child distract themselves from their negative feelings by finding other things to do. I help my child take their mind off of things that are making them have negative feelings. I help my child take their attention off something that is making them have negative feelings. I help my child think about something other than what is making them have negative feelings.
Expressive Suppression	I help my child to not show their negative feelings. I help my child try to hide their feelings from others. I help my child hide their physical expressions of their negative feelings. I help my child hide their negative feelings so that it is very hard for other people to tell how they are feeling in the moment. I encourage my child to hide negative feelings from others.

Momentary Report of Assistance with Child Emotion Regulation Strategies

At each EMA check-in, participants were asked to report the strongest emotion their child felt in the previous four hours. Then they were asked, "How did you respond to your child's emotion?" and presented with 10 multiple choice response items, each representing a specific ER strategy: acceptance, cognitive reappraisal, distraction (positive), distraction (avoidant), expressive suppression, ignoring, labeling, situation modification, and social sharing. These items were developed based on prior ER repertoire research (Grommisch et al., 2020; Waugh et al., 2020) and adapted by the research team to be accessible to culturally diverse caregivers of young children. Participants could select as many options as they wanted, including a "no regulation" option by which caregivers could indicate they "did not try to change their [child's] emotion". Appendix B displays all options respondents could choose from. Table 2 displays the four items used in the present study. Positive distraction (heretofore "distraction") was used in the present study because it aligns more closely to the PACER distraction subscale than avoidant distraction.

Table 2

Momentary ERSB Items

Strategy	Item
Acceptance	I expressed that it was OK to feel their emotion
Cognitive Reappraisal	Offered them ways to interpret the situation (e.g., explained reasoning)
Distraction	I encouraged them to do something pleasant (e.g., watch cartoons)
Expressive Suppression	I verbally encouraged them to change their emotion (e.g., "don't cry")

Momentary ERSBs were scored by summing the number of times each participant endorsed the given strategy and dividing by the total number of EMA check-ins they completed, providing a frequency score from 0-1 for each person. This approach to bringing observation-

level data to the person-level is an established means of leveraging EMA data to gain overall information about daily, contextually situated experience that is not time-point contingent (Heron et al., 2019).

Caregiver Stress

Caregiver stress was measured using the Parent Stress Index – Short Form (PSI-4 SF; Abidin, 2012). The PSI-4 SF uses 36 items to assess three subscales: difficult child, parental distress, and parent-child dysfunctional interactions. To focus on caregiver distress rather than sources of stress from child behavior or caregiver-child dynamics, the present study used the parental distress (PD) subscale (e.g., "I often feel I cannot handle things very well"). This scale has demonstrated strong internal consistency and convergent validity among diverse parents of young children (Whiteside-Mansell et al., 2007). Internal consistency for the PD subscale in the present study was very good ($\alpha = 0.85$).

Household Socioeconomic Status

A composite socioeconomic variable ("household SES") was built using caregiver-reported household annual income and level of education completed. Education level was converted into number of years of education completed (i.e., high school/GED = 12 years, Bachelor's degree = 16 years). Years of education and household income were converted into z-scores and averaged for a composite household SES score.

Child Temperament

The Integrative Child Temperament Screener (ICTS) was used to assess aspects of child temperament related to caregiver emotion socialization behaviors (Zentner & Wang, 2013; Zenter, 2020). The ICTS includes three subscales: frustration proneness, behavioral inhibition, and attentional control. Zentner (2020) reported adequate test-retest and interrater reliability,

criterion validity with measures of behavior problems, and convergent validity with measures of child temperament. The present study used ICTS scoring guidelines to create a lack of impulse control composite of the frustration proneness and reversed attentional control scales. Reliability for the lack of impulse control subscale in the present study sample was good ($\alpha = .75$).

Demographic Information

At intake caregivers also reported sex, age, and ethnicity for themselves and their child.

Data Analyses

Data cleaning and analyses were conducted in R Studio Version 3.0 using the *here* (Müller, 2020), *dplyr* (Wickham et al., 2021), *readr* (Wickham & Hester, 2020), *readxl* (Wickham & Bryan, 2022), *rio* (Chan et al., 2021), *stringr* (Wickham, 2019), *tidyverse* (Wickham, 2019), *psych* (Revelle, 2021), *naniar* (Tierney et al., 2021), *tidyr* (Wickham, 2021), *pander* (Daróczi & Tsegelskyi, 2021), *sjPlot* (Lüdecke, 2023), *devtools* (Wickham et al., 2021), *broom* (Robinson et al., 2021), and *interactions* (Long, 2019) packages.

Planned analyses for the main research questions included using correlations and multiple linear regressions to examine relationships between global and momentary ERSBs (RQ1), and adding interaction terms to main models to test moderating effects of caregiver stress (RQ2) and household SES (RQ3) on ERSB correspondence.

Preparations for analysis included data cleaning, handling of missing data, and specifying models to test regression assumptions. Additionally, semantic similarity of global items and their momentary counterparts was examined as a potential confound. These steps are discussed next.

Data Cleaning

The original sample consisted of 4319 observations from 198 participants. Manual checks identified 89 check-ins as duplicates due to technical error, so these were removed. Automated

checks identified 34 check-ins among 18 participants that had timestamps outside of the expected data collection window, so these were removed. Check-ins were also screened for evidence of backfilling, a key concern in EMA studies (Stone et al., 2023). A total of 62 check-ins (1-4 check-ins among 41 participants) had a timestamp suggesting backfilling (completed within one hour of that participant's previous check-in) and were removed. None of these steps resulted in exclusion of any participants but decreased the number of check-ins for some participants, leaving a sample of 4134 observations from 198 participants.

Missing Data

Compliance rates were examined to identify missingness patterns and inform the final analytic sample. The compliance rate for the original sample was 72.97% (SD = 31.7%), with participants completing an average of 15.32 out of 21 total possible check-ins. Following standards for reporting missing EMA data (Stone et al., 2023), Table 3 reports a breakdown of compliance rates.

Table 3

Compliance Rates Breakdown

	N	% of sample
Excellent compliance (>90% check ins completed)	95	48.0%
Adequate compliance (75%-90% of check ins completed)	31	15.7%
Poor compliance (20%-75% of check-ins completed)	51	25.8%
Very poor compliance (<20% of check-ins completed)	21	10.6%

Based on similar prior EMA studies (i.e., Kerr et al. 2021), participants with very poor compliance (< 20% of check-ins completed) were excluded from analyses. This removed 21 participants who completed less than 5 check-ins, leaving 177 remaining participants, 63.7% of whom had adequate compliance (75% or above). Table 4 reports sample characteristics for included and excluded participants.

Table 4

Characteristics of Included and Excluded Participants

Demographic Variable	Included participants			Excluded participants		
	n	%	M (SD)	n	%	M (SD)
Total	177	100%		21	100%	
Caregiver Characteristics						
Sex						
Male	7	3.95		0	0.00	
Female	169	95.48		21	100.00	
Other	1	0.56		0	0.00	
Ethnicity					0.00	
American Indian	1	0.56		0	0.00	
Asian	6	3.39		0	0.00	
Black	15	8.47		4	19.05	
Latinx	2	1.13		0	0.00	
White	152	85.88		16	76.19	
Mixed	8	4.52		0	0.00	
Other	7	3.95		1	4.76	
Education					0.00	
High school/GED	19	10.73		4	19.05	
Associate's degree	25	14.12		2	9.52	
Bachelor's degree	75	42.37		7	33.33	
Master's degree	43	24.29		4	19.05	
Doctorate	7	3.95		2	9.52	
Other	8	4.52		2	9.52	
Household income ($)			112,177 (83,596)			100,000 (72,333)
Child Characteristics						
Sex						
Male	98	55.37		12	57.14	
Female	76	42.94		9	42.86	
Other	3	1.69		0	0.00	
Age			3.1 (1.1)			2.8 (0.89)

Note. Participants could select multiple options for ethnicity.

Chi-squared goodness of fit tests compared observed (excluded participants) and expected (included participants) frequencies of participant characteristics to test whether proportions in the excluded sample differed significantly from the included sample. Results showed no significant differences in caregiver race (results of White versus non-White, because

cell sizes were too small for non-White categories: $\chi^2 = 0.8$, df = 1, p = .4), caregiver gender ($\chi^2 = 0.1$, df = 1, $p = .7$), or child gender ($\chi^2 = 0.05$, df = 1, $p = .8$), but significant differences by caregiver education level ($\chi^2 = 19$, df = 4, $p < .001$), with participants with lower education levels underrepresented in the analytic sample. Participants with and without at least 20% compliance did not differ significantly in terms of income ($t = -0.5$, df = 192, $p = .6$). Caregiver stress was significantly higher among included participants ($M = 40$) compared to excluded participants ($M = 36$), t=-2, df = 196, $p = .050$, indicating that missing data were likely not due to caregiver stress levels compromising check-in completion.

Additional Preparations for Analyses

Based on the focus on responses to child negative emotion in most emotion socialization research (Zimmer-Gembeck et al., 2022), and because the PACER measures responses to child negative emotion, the analytic sample was limited to only check-ins in which caregivers reported child negative emotion (i.e., angry, irritable, worried). Most caregivers reported a negative child emotion at least once during the study, although child negative emotion was less frequent than positive emotion overall. Restricting observations to only check-ins reporting negative child emotion reduced the total number of observations from 4134 to 829 and the total number of participants from 177 to 174.

Covariates

All regression models controlled for child age, child sex, caregiver sex, caregiver education level, and child temperament (lack of impulse control). Caregiver and child gender exert well-documented influence on emotion socialization practices. For example, some research shows that mothers are more likely to engage in higher levels of emotion coaching behaviors than fathers (McKee et al., 2021), and parents of boys respond to emotional expression more

punitively than parents of girls (Jordan et al., 2021). Although some studies show null or mixed results of the effect of parent or child gender, the well-documented presence of gender norms in the United States and empirical evidence of gender influences on parenting behaviors make accounting for parent and child gender a standard in emotion socialization research (Chronis-Tuscano et al., 2022). Consistent with common practice in studies with young children, this study used child sex as proxy for gender (Chronis-Tuscano et al., 2022). We also controlled for child age because caregiver efforts to support children with emotion regulation are expected to differ with child age (Morris et al., 2007). Maternal education has been shown to be related to parenting behaviors including ERSBs (Baker et al., 2011; Cunningham et al., 2009). Because parent-child interactions, including ERSB implementation, occur in a dynamic system in which child temperament and behavior provide key input (Lunkenheimer et al., 2020), all models controlled for child temperament using the ICTS child lack of impulse control composite described above (see Measures). Child lack of impulse control was selected specifically because impulsivity has been shown to elicit negative parenting behaviors (Kiff et al., 2011). Impulse control, effortful control, and other aspects of temperament including tendency to experience negative emotions and higher reactivity to negative emotions are key factors to consider when examining emotion socialization (Morris et al., 2007). Finally, compliance percentage was also added to each model using the *lm() weights* function so that participants with higher compliance percentages were given more weight.

Regression Diagnostics

Initial models were evaluated to check regression assumptions. Residuals diagnostic plots were visually examined for linearity, normality of residuals, homoscedasticity, and influence of outliers. These models did not show major violations of regression assumptions (Appendix C),

although Cook's Distance calculations indicated that for acceptance, distraction, cognitive reappraisal, and expressive suppression, some individual cases (a total of 14, 19, 18, and 12, respectively) had a Cook's Distance of greater than 3x the mean. Although a few individuals were outliers in two to three of the four models, most were not outliers in multiple models. Rerunning models with outliers removed somewhat improved diagnostic plots and did not substantially alter results. A conservative approach was taken by removing model-specific outliers for analyses. Characteristics of outliers were examined, and no differences were found between outliers and non-outliers in demographic or study variables. A variance inflation factor (VIF) tested for multicollinearity of independent variables in all models. No multicollinearity was detected (VIF values ranged from 1.0 to 1.2).

A Potential Confound: Semantic Similarity

Identification of true discrepancies between global and momentary measures requires items that are relatively conceptually and semantically aligned. Therefore, examination of similarity of item wording for global and momentary pairs was a key methodological consideration. Semantic similarity of psychological scales refers to the degree to which different scales "target the same construct, as opposed to different constructs, based on their question texts" (Rosenbusch et al., 2020, p. 382). One common approach to assessing semantic similarity for psychological scales is cosine similarity, which translates the number of words that match between two documents, while accounting for each vector's length, into a numeric representation of the closeness of the texts in space ranging from 0 to 1, with 0 representing no textual similarities and 1 representing identical texts (Rosenbusch et al., 2020). The R function stringdist from the package *stringism* (van der Loo, 2014) was used to calculate semantic similarity between global and momentary items. First, cosine was computed for each pair of items

individually (i.e., each of the 5 PACER items for each scale to their conceptually aligned EMA item). These cosine values were averaged within scales to get an overall rating of similarity for each ERSB strategy. These results are presented in Appendix D. Item level cosine values ranged from .81 - .96. Average cosine values were relatively similar between scales and high overall (.88 to .92). Expressive suppression had the highest average cosine (.92), followed by cognitive reappraisal (.91), acceptance (.90), and distraction (.88).

To accompany cosine analysis, inter-item correlations were calculated to examine the degree to which items that appear to have similar wording correlated in this sample. Results are presented in Appendix E. This shows that significant inter-item correlations were strongest for expressive acceptance (.21 - .35) and expressive suppression (.25-.30) items. There were no significant correlations for distraction or cognitive reappraisal items.

Researchers caution against relying solely on numeric measures of item similarity and suggest that expert qualitative assessment is an important complement and arguably a stronger indicator (Rosenbusch et al., 2020). Subjective review of item similarity, alongside cosine and correlational findings, suggests some variation between scales in alignment of momentary and global item wording. The cognitive reappraisal EMA item seemed qualitatively somewhat different from its global counterpart (i.e., "Offered them ways to interpret the situation (e.g., explained reasoning)" compared to "I help my child see the situation from a different perspective" or "I help my child change their feelings by thinking differently about their current situation", and this was affirmed by low inter-item correlations (but less so by cosine values, which were similar to the other scales). Acceptance appeared more clearly semantically aligned based upon subjective review and this was affirmed by quantitative checks. For example, PACER acceptance items with the strongest correlation to the EMA acceptance item were "I

help my child understand that it's okay to have negative feelings" and "I tell my child having negative feelings is okay". These both use the word "okay" in a similar manner to the EMA item. Expressive suppression appeared less semantically similar based on subjective judgment, given that the momentary item referred to encouraging the child to "change their emotion" versus the PACER items that referred to hiding its outward expression, but cosine and correlational values were relatively high.

Conceptual and semantic alignment is a key consideration for ERSB correspondence research. Although conceptual fit guided measure selection in the present study, similarity of wording for global and momentary measures varied among scales. The potential confounding effect of semantic similarity could not be accounted for quantitatively because variability existed only between measures, not between individuals. This information was set aside to be revisited in interpretation of results.

Preliminary Analyses

Sample Characteristics

Table 5 presents demographic characteristics for the analytic sample (n = 174). Caregivers in this sample came from 35 states in the U.S (Appendix F). Caregivers were primarily female (95.3%), and children were 54.4% male, 43.8% female, and 1.8% "other" (two caregivers chose not to report their child's gender and one reported their child as gender fluid). The caregivers in this sample were primarily White (84.6%). Most children were White (85.8%) and some were mixed race (14.2%). Mean caregiver age was 34.2 years (*SD* = 5.68). Children were 1.5-5 years (*M* = 3.05, *SD* = 1.12). Highest level of education completed varied, with 26.1% holding a high school/GED degree or Associate's degree, 43.8% holding a Bachelor's

degree, and 24.3% holding a Master's degree. Mean household annual income was $113,652 (*SD* = $83,704) and ranged from $18,000 to $500,000.

Table 5

Demographic Characteristics

Demographic Variable	Caregiver		Child	
	n	%	*n*	%
Sex				
Male	7	4.1	92	54.4
Female	161	95.3	74	43.8
Other	1	0.5	3	1.8
Ethnicity				
American Indian	1	0.5	3	1.8
Asian	5	2.9	7	4.1
Black	13	7.7	14	8.3
Latinx	2	1.2	4	2.4
White	143	84.6	145	85.8
Mixed	4	2.4	24	14.2
Other	5	2.9	1	0.5
Highest education level				
High school/GED	17	10.1		
Associate degree	27	16		
Bachelor's degree	74	43.8		
Master's degree	41	24.3		
Doctorate	7	4.1		

Note. Caregivers could select multiple options for their race and their child's race.

Descriptive Statistics

Table 6 reports descriptive statistics for all study variables. On average, caregivers reported supporting their child with acceptance, distraction, cognitive reappraisal, and expressive suppression in 47%, 22%, 42%, and 12% of their check-ins, respectively. PACER scores ranged from 5-35 and were for highest for acceptance (*M* = 30, *SD* = 5), followed by cognitive reappraisal (*M* = 26, *SD* = 5.9), distraction (*M* = 24, *SD* = 7.2), and expressive suppression (*M* = 11, *SD* = 6.2). PSI-4 SF PD scores were relatively high in this sample (*M* = 40, *SD* = 8.6). Based on the norming sample in the original PSI-4 SF scoring guide, a score of 40 is the 90th percentile

(Abidin, 2012). Caregivers in this sample reported moderate levels of child impulse control difficulty, with an ICTS lack of impulse control mean of 19 (*SD* = 5.1, possible range 6-36).

Most PACER subscale scores were relatively normally distributed with acceptable skewness (+/- 2) and kurtosis (+/- 2), except for expressive suppression (skew 1.6, kurtosis 2.7). PSI-4 SF PD, ICTS lack of impulse control, and caregiver education level (in years) were normally distributed (skew and kurtosis less than +/- 1). Momentary ERSB measures skew ranged from .19 (acceptance) to 1.8 (expressive suppression) and kurtosis from -.14 (acceptance) to 2.6 (expressive suppression). Caregiver income was less normally distributed (skew = 1.9, kurtosis = 4.3), with a heavy right skew due to high-income outliers. Model-specific corrective actions were taken based on regression diagnostics as discussed above.

Table 6

Study Variable Descriptive Statistics

Statistic	*n*	*M*	*SD*	Range	Possible Range
EMA					
Acceptance	174	0.47	0.37	0-1	0-1
Distraction	174	0.22	0.26	0-1	0-1
Reappraisal	174	0.42	0.34	0-1	0-1
Suppression	174	0.12	0.21	0-1	0-1
PACER					
Acceptance	174	30	5	11-35	5-35
Distraction	174	24	7.2	5-35	5-35
Reappraisal	174	26	5.9	6-35	5-35
Suppression	174	11	6.2	5-35	5-35
PSI-4-SF PD	174	40	8.6	14-58	5-60
ICTS LOIC	174	19	5.1	8-32	6-36
Child Age (years)	174	3.1	1.1	0-5	0-5
Household SES	169	0	0.78	-1.3-3.7	

Note. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. ICTS LOIC = Child Lack of Impulse Control, higher scores indicate more difficulty with impulse control (Integrative Child Temperament Scale, Zentner, 2020). PSI-4 SF PD = Parent Stress Index-4-Short Form, Parental Distress scale (Abidin, 2012). Household SES = z-score composite of caregiver education (years) and household annual income.

Table 7 reports zero-order correlations among all variables. Some significant bivariate correlations within and among momentary and global ERSBs were observed and are discussed in RQ1 results after adjusting for multiple comparisons (see Results). Among planned moderators, caregiver stress was negatively associated with child lack of impulse control, $r = -.31$, $p < .001$, meaning that caregivers who reported higher stress levels tended to report slightly lower levels of child difficulty with impulse control. Household SES was strongly, positively associated with caregiver education, $r = .77$, $p < .001$, which is unsurprising as caregiver education was one of the variables in the household SES composite. Some intended covariates were significantly correlated with IVs and/or DVs. Child age was negatively correlated with momentary distraction, $r = -.26$, $p < .001$. Although child sex, caregiver sex, and caregiver education were not significantly associated with either IVs or DVs, all covariates were retained in regression models based on their theoretical importance and associations with emotion socialization and related parenting behaviors in prior research (Chronis-Tuscano et al., 2022; Kelly et al., 2022; Lunkenheimer et al., 2020; Morris et al., 2007).

Table 7

Zero-order Correlations of Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. EMA Acceptance														
2. EMA Distraction	.02													
3. EMA Reappraisal	.23**	.08												
4. EMA Suppression	-.28***	.15*	.12											
5. PACER Acceptance	.31***	.00	.04	-.28***										
6. PACER Distraction	-.03	.12	.11	.13	-.02									
7. PACER Reappraisal	-.01	-.05	.04	-.01	.22**	.45***								
8. PACER Suppression	-.20**	-.01	.02	.30***	-.40***	.30***	.11							
9. Child Age	-.17	-.26***	-.07	.01	-.04	-.05	.14	.05						
10. Child Sex [a]	.00	-.08	-.10	-.09	.00	-.04	-.08	-.04	-.02					
11. Caregiver Sex [b]	-.12	.06	.06	-.08	-.09	-.08	-.04	-.04	-.06	.08				
12. Child LOIC	-.02	.12	.02	.01	-.04	.05	-.10	-.05	-.13	-.12	-.03			
13. Caregiver Education	.04	-.17	.12	-.02	-.02	.00	.01	-.03	-.04	.04	.00	-.06		
14. Caregiver Stress	-.01	-.01	-.04	-.10	.13	-.01	.11	-.13	.11	.06	-.12	-.31***	.00	
15. Household SES	.03	-.21	.04	-.09	-.01	-.05	-.01	-.02	-.04	-.02	-.01	-.04	.77***	.00

Note. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. Child LOIC = Child Lack of Impulse Control; higher scores indicate more child difficulty with impulse control (Integrative Child Temperament Scale, Zentner, 2020). Caregiver Stress = Parent Stress Index-4-Short Form, Parental Distress subscale (Abidin, 2012). Household SES = z-score composite of caregiver education (years) and household annual income.

[a] Child Sex coded 1 = Female, 0 = Not Female

[b] Caregiver Sex coded 1 = Female, 0 = Not Female

* $p < .05$

** $p < .01$

*** $p < .001$

CHAPTER III

RESULTS

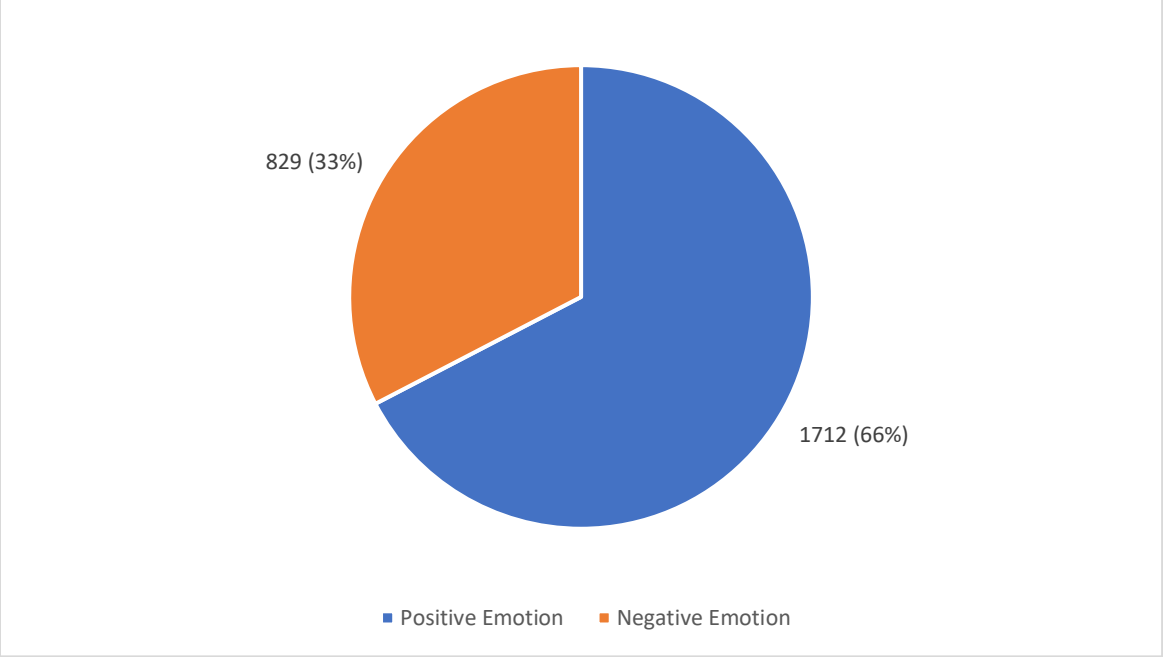
Preliminary Context for Results

This section describes caregiver ERSB patterns from momentary data to provide a detailed picture of caregiver assistance with emotion regulation strategies and give context for main results to follow.

Caregivers reported child positive emotion more often than negative emotion (Figure 5). Child negative emotions made up 33% of total child emotions reported (n = 2541 observations; caregivers reported only one child emotion at each time point). On average, caregivers reported negative emotions at 4.8 check-ins (SD = 3.3, min = 1, max = 18).

Figure 5

Proportions of All Positive and Negative Child Emotions

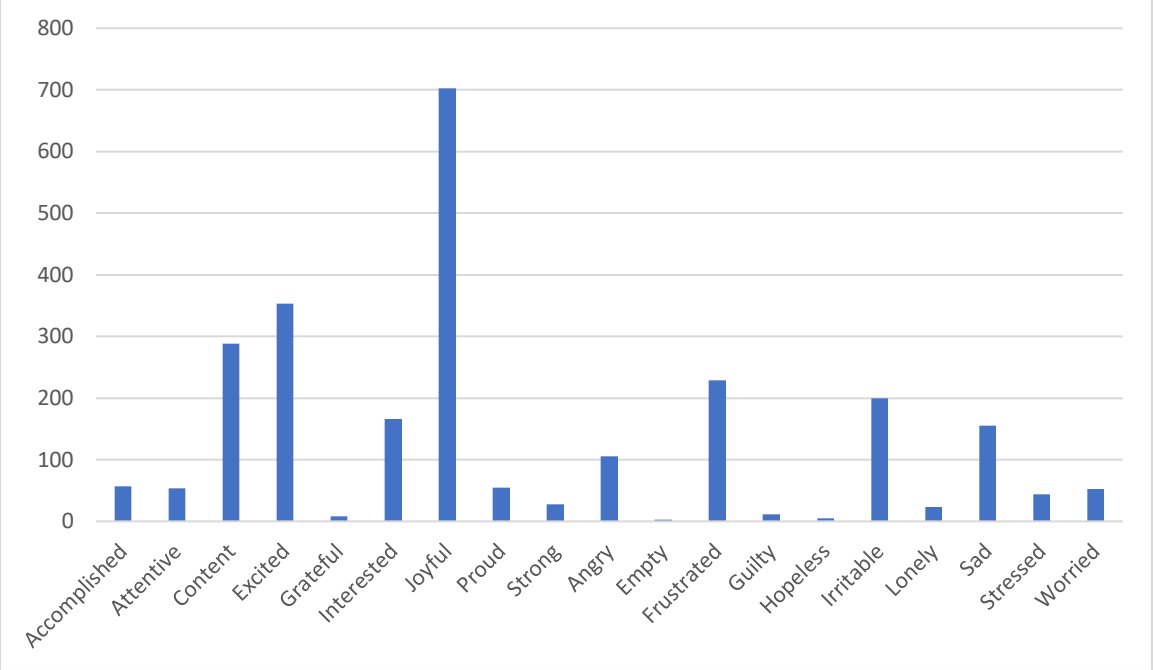


Note. n = 2541 total observations.

Figure 6 displays counts of discrete child emotions. Across all participants and check-ins, caregivers most frequently reported child positive emotion as joyful, excited, and content, and child negative emotion as frustrated, irritable, sad, and angry.

Figure 6

Counts of All Discrete Child Emotions



Although the present study focused acceptance, distraction, cognitive reappraisal, and expressive suppression, the original data included additional strategies (i.e., labelling, social sharing). Figure 7 displays each strategy as a proportion of total strategies reported in response to negative child emotion across all participants and all observations. Instances in which caregivers reported using one of the four focal strategies of the present study make up almost half of all instances of any strategy use.

Figure 7

Proportions of All ERSBs in Response to Child Negative Emotion

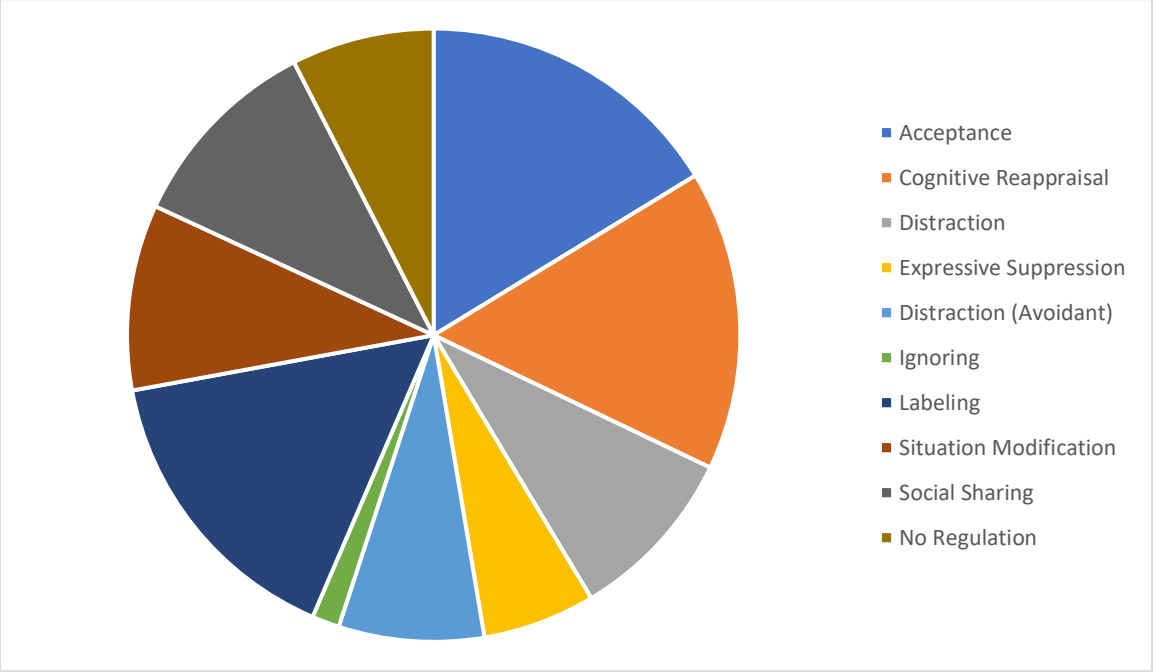


Figure 8 displays the same proportion of instances of each strategy out of all instances of any strategy, disaggregated by most common child negative emotions. Caregivers employed many different strategies in response to child negative emotions, and patterns were similar across different child emotions, with some exceptions. For example, acceptance was used frequently overall, but more frequently for child sadness than child irritability. Labeling was another common response, particularly for child sadness and frustration.

Figure 8

Proportions of All ERSBs by Child Emotion

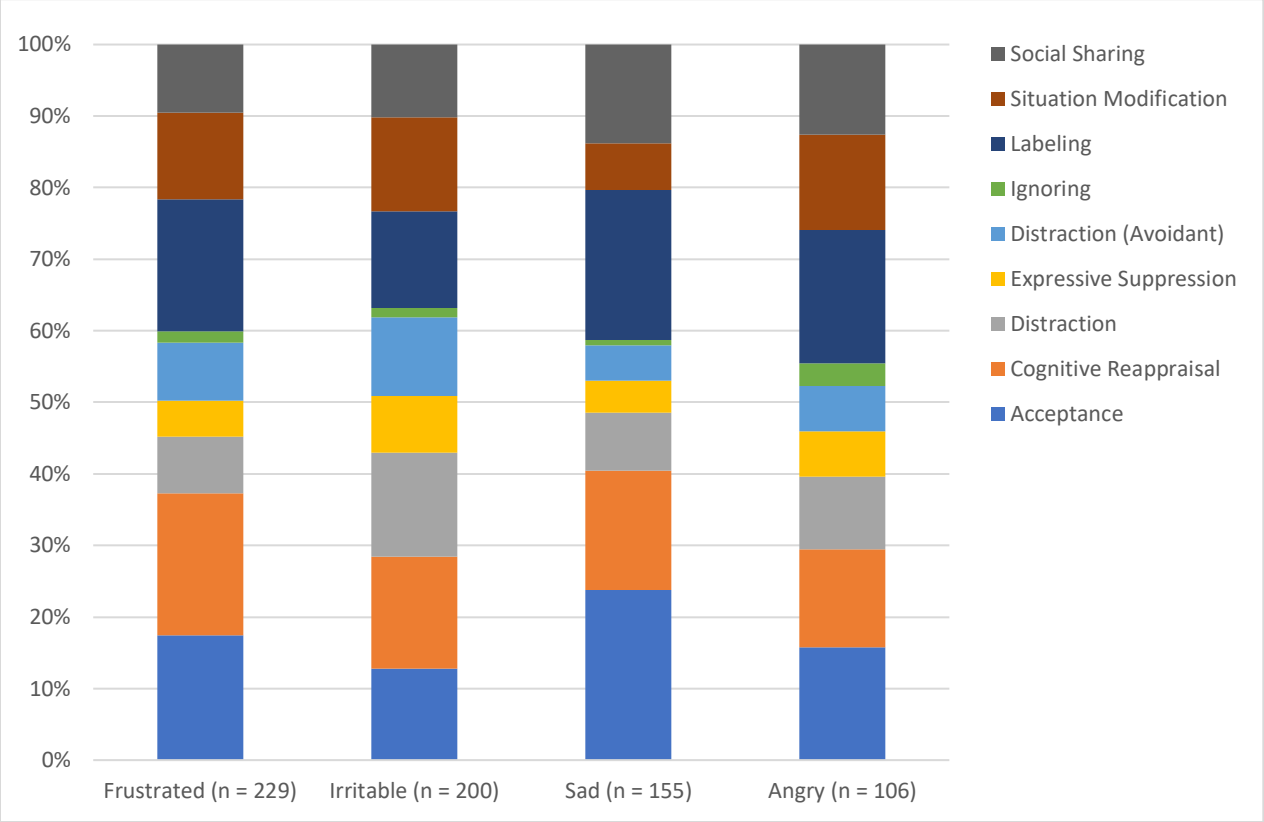
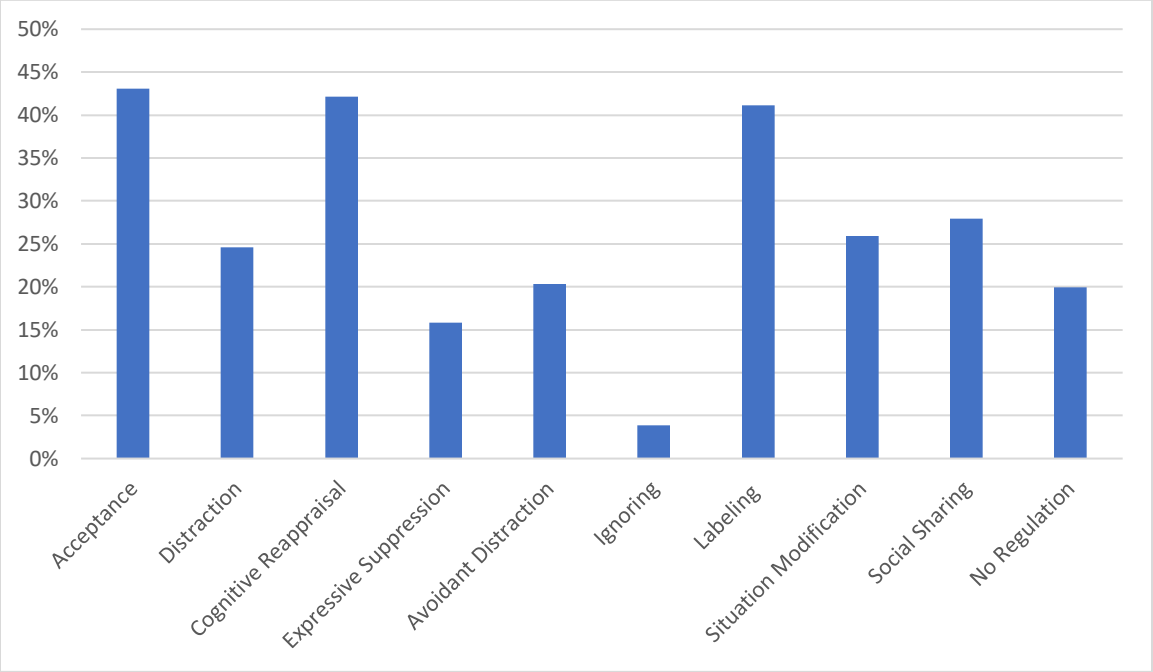


Figure 9 reports the average person-level frequency of each ER strategy. Overall, caregivers reported supporting their child with acceptance, cognitive reappraisal, and/or labeling in approximately 40%-45% of instances of negative child emotion. Ignoring and expressive suppression were least frequently reported.

Figure 9

Average Person-Level Frequency of EMA ERSBs

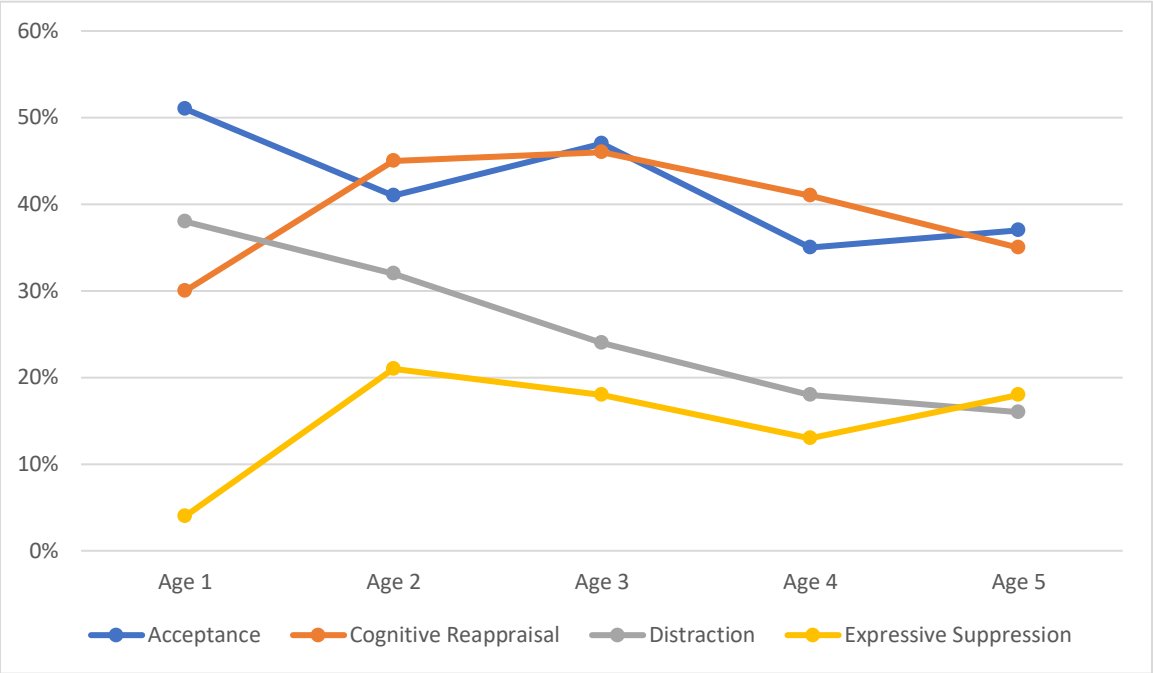


Note. Data represent responses to child negative emotion only. Percentages do not sum to 100 because data are person-level averages. For example, caregivers, on average, reported labeling in 41% of their total check-ins completed in response to child negative emotion.

Figure 10 disaggregates person-level averages of caregiver assistance for child ER strategies by child age. Support for child use of distraction to regulate negative emotion was reported less frequently by caregivers of older children. Expressive suppression was reported more frequently among caregivers of older children. Acceptance and cognitive reappraisal trends by age varied, but overall caregivers with older children reported slightly less frequently helping their child accept negative emotions and slightly more frequently helping their child use cognitive reappraisal.

Figure 10

Average Person-Level Frequency of EMA ERSBs by Child Age



Note. Data represent responses to child negative emotion only. Percentages do not sum to 100 because data are person-level averages. For example, caregivers, on average, reported labeling in 41% of their total check-ins completed in response to child negative emotion.

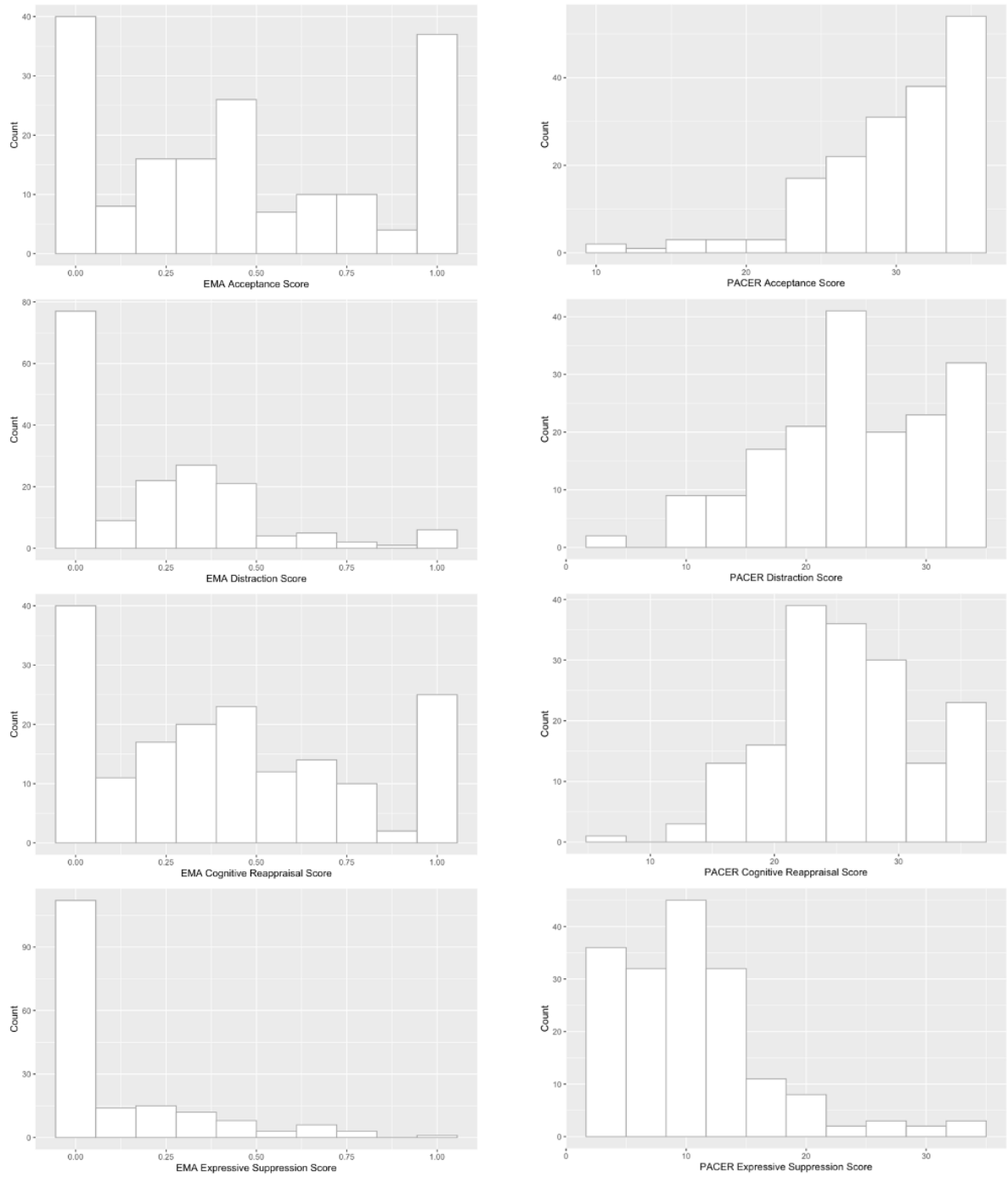
This descriptive work provides context for the results to follow. First, caregivers in this sample reported negative child emotion infrequently, with the majority reporting child negative emotion less than four times across the 21 possible data collection timepoints. The most frequently child negative emotions were frustration, irritability, and sadness. Among the momentary ERSBs included in this study, acceptance and cognitive reappraisal were most common. Although not included in the present study, caregivers also often helped their child label negative emotions. Patterns of ERSB use were relatively consistent across discrete child negative emotions, although caregivers tended to use acceptance more frequently in response to child sadness and cognitive reappraisal more frequently in response to child frustration.

Suppression, although infrequent overall, was more often employed in response to child irritability. ERSB use appeared to vary somewhat across child age, with an increase in expressive suppression and cognitive reappraisal from ages one to two, and a decrease in use of distraction among caregivers with older children. Among caregivers with five-year-old children, rates of cognitive reappraisal were relatively similar those with children age one, while suppression rates were higher and acceptance and distraction rates were lower.

Lastly, histograms of momentary and global ERSB scores provide visual comparison of the distributions of each (Figure 11). PACER scores for acceptance tended to be high, while EMA acceptance scores varied, with a bimodal distribution showing most caregivers reporting using acceptance either very seldom or in almost 100% of check-ins completed. PACER scores for distraction were also quite high, although approaching a more normal distribution, while EMA scores for distraction were low, with more than half of the sample reporting distraction in less than 25% of check-ins completed. PACER cognitive reappraisal scores were also quite high and somewhat normally distributed, while the EMA cognitive reappraisal distribution was bimodal and similar to that for EMA acceptance. Caregivers reported low levels of expressive suppression in both EMA and PACER measures. These distributions suggest that in the sample overall, caregivers globally reported relatively high levels of support for child acceptance, distraction, and cognitive reappraisal, but lower or more variable levels of those same strategies in momentary reports. Endorsement of expressive suppression was consistently low in both measures. The main analyses for Research Question 1 to follow test this observation statistically.

Figure 11

EMA and PACER Histograms



Research Question 1

As a first step for examining ERSB correspondence, bivariate correlations between global and momentary report of ERSB strategies were calculated. Spearman's rank correlation was used because momentary ERSBs were non-normally distributed and therefore a Pearson correlation was not suitable. The Spearman test assumes a monotonic relationship between variables (Conover & Iman, 1981), meaning that the relationship between the pair does not change direction. Scatter plots showed that all four variable pairs (i.e., momentary acceptance to global acceptance) met this assumption (Appendix G). *P*-values were adjusted for multiple comparisons using the Benjamin-Hochberg method (Benjamini & Hochberg, 1995).

Correlations were organized in a multitrait-multimethod matrix (MTMM), a tool originally from Campbell and Fiske (1959) for examining convergent and discriminant validity for multiple measures of the same construct(s). An MTMM organizes constructs within methods to compare monotrait-monomethod relationships (reliability), monotrait-heteromethod (i.e., two different methods for assessing the same trait), heterotrait-monomethod (i.e., two different traits assessed by the same method), and heterotrait-heteromethod (i.e., different traits assessed by different methods) correlations. Campbell & Fiske (1959) proposed four criteria for evaluating MTMM matrices:

1. The validity diagonal values (monotrait-heteromethod correlations) should be statistically significant and large enough to justify further examining validity.
2. The validity diagonal values (monotrait-heteromethod correlations) should be larger than the heterotrait-heteromethod values in the row and column of the validity value.
3. The validity value (monotrait-heteromethod correlations) should be higher than the associated monomethod-heterotrait values. In other words, a variable should correlate

more with a different method for assessing the same trait than with other traits assessed via the same method.

4. The patterns of interrelationships between traits should be similar in monomethod and heteromethod blocks.

Campbell and Fiske's (1959) original MTMM analytic approach has been critiqued for insufficient guidance for judging whether the above criteria are met and lack of parsing method variance from random error (Schmitt & Stults, 1986), and recent work offers additional approaches for analyzing MTMM matrices (Hensler et al., 2015). However, for the purposes of the present study, the original structure and criteria are employed as a useful means of visualizing ERSB correlations within and across global and momentary measures, as a preliminary step toward main regression analyses.

Correlational results organized in an MTMM are presented in Table 8. The monotrait-heteromethod pairs (dark grey cells) are the focus of the present study, as they show the correlations between momentary and global reports of the same ERSB construct. Momentary acceptance was moderately, positively associated with global acceptance, $r = .31$, $p < .01$, and momentary expressive suppression was moderately, positively associated with global expressive suppression, $r = .30$, $p < .01$. The monotrait-heteromethod correlations for acceptance and expressive suppression met Campbell and Fiske's second criteria (#2 above), but the monotrait-heteromethod correlations for distraction and cognitive reappraisal did not. The third criteria were partially met. Monotrait-heteromethod correlations for acceptance and expressive suppression were higher than all correlations within the momentary monomethod block, but lower than some significant correlations in the global monomethod block. In the latter, global acceptance was significantly, negatively associated with global expressive suppression ($r = -.40$,

$p < .001$), and global distraction was positively, significantly associated with global reappraisal ($r = .45$, $p < .001$) and global expressive suppression ($r = .30$, $p < .01$). Reliabilities (Cronbach's alpha, black cells) are higher than all other coefficients in the matrix, as expected.

Together, these results indicate limited to no correspondence between momentary measures of distraction and cognitive reappraisal and their global counterparts. The validity coefficient for cognitive reappraisal was especially low compared to heterotrait-monomethod correlations, suggesting that this trait factor was not necessarily stronger than the method factor. Momentary acceptance and expressive suppression were significantly correlated to their global counterpart in the expected direction, although this effect was moderate. These results are probed further in regressions while controlling for covariates.

Although not central to the research question, heterotrait-heteromethod and heterotrait-monomethod correlations are also important to note. Caregivers who reported higher levels of acceptance tended to report lower levels of expressive suppression, a trend that held true within and across methods. Caregivers who reported higher levels of global distraction also tended to report higher levels of global cognitive reappraisal and global expressive suppression, but this trend was not evident in momentary data.

Table 8

Multitrait-Multimethod Analysis

		Method 1: EMA				Method 2: PACER			
	Traits	Acceptance	Distraction	Reappraisal	Suppression	Acceptance	Distraction	Reappraisal	Suppression
Method 1: EMA	Acceptance	N/A							
	Distraction	**.02**	N/A						
	Reappraisal	**.23***	**.08**	N/A					
	Suppression	**-.28****	**.15**	**.12**	N/A				
Method 2: PACER	Acceptance	**.31****	**.00**	**.04**	**-.28****	**(.89)**			
	Distraction	**-.03**	**.12**	**.11**	**.13**	**-.02**	**(.96)**		
	Reappraisal	**-.01**	**-.05**	**.04**	**-.01**	**.22**	**.45*****	**(.92)**	
	Suppression	**-.20**	**-.01**	**.02**	**.30****	**-.40*****	**.30****	**.11**	**(.92)**

Note. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal - = Cognitive Reappraisal. Suppression = Expressive Suppression. Grey and white cell values are Spearman correlations. Black cell values are scale reliabilities calculated using Cronbach's alpha. All *p* values are corrected for multiple comparisons using the Benjamini-Hochberg method.

* $p < .05$

** $p < .01$

*** $p < .001$

Black cells: Reliability (monotrait-monomethod)

Dark grey cells: Validity (monotrait-heteromethod)

Light grey cells: Heterotrait-monomethod

White cells: Heterotrait-heteromethod

Upper left and lower right blocks: Monomethod blocks

Lower left block: Hetereomethod block

To further examine these relationships, four multiple linear regression models were tested, one for each of the four global ERSBs as the dependent variable. All models controlled for child age, child sex, caregiver sex, caregiver education level, and child lack of impulse control. All models also included all four momentary ERSB strategies as independent variables because is possible that individuals who tend to use one ERSB strategy may also tend to use multiple strategies. Regressing all momentary ERSB strategies onto each global measure helped evaluate whether global reports were uniquely associated with their corresponding momentary report, holding constant any general tendencies to use multiple ERSB strategies in daily life.

Tables 9-12 report results for acceptance, distraction, cognitive reappraisal, and expressive suppression, respectively. Overall, results affirmed correlational findings, with significant associations in the expected direction between momentary and global acceptance (Table 9) and momentary and global expressive suppression (Table 12). Momentary cognitive reappraisal and momentary distraction were associated with their global counterparts in the expected direction, but these effects were not significant (Tables 10 and 11). Correcting for multiple comparisons using the Bejamini-Hochberg procedure (Benjamini & Hochberg, 1995) did not change results.

Although not central to Research Question 1, other findings from these models are worth noting to shed light on predictors of global ERSBs. Momentary suppression was significantly, negatively related to global acceptance (Table 9). Child age was positively associated with global cognitive reappraisal and this effect was borderline significant, and child lack of impulse control was significantly, negatively associated with global cognitive reappraisal (Table 10). Momentary expressive suppression was positively, significantly associated with global distraction (Table 11).

Momentary acceptance was significantly negatively associated with global expressive suppression (Table 12).

Table 9

Multiple Linear Regression of EMA ERSBs Predicting PACER Acceptance

Effect	*B*	*SE*	*t*	*p*	*95% CI*
Intercept	32.28	3.14	10.28	.000	[26.08, 38.49]
EMA					
Acceptance	3.48	0.94	3.69	.000	[1.62, 5.34]
Distraction	0.54	1.36	0.40	.691	[-2.15, 3.24]
Reappraisal	-0.07	0.97	-0.07	.941	[-1.98, 1.84]
Suppression	-6.05	1.71	-3.54	.001	[-9.43, -2.67]
Child Age	-0.10	0.29	-0.36	.723	[-0.67, 0.47]
Child Sex [a]	-0.34	0.60	-0.56	.576	[-1.52, 0.85]
Caregiver Sex [b]	-1.37	1.40	-0.98	.328	[-4.14, 1.39]
Caregiver Education [c]	-0.07	0.13	-0.51	.613	[-0.33, 0.19]
Child Lack of Impulse Control [d]	-0.06	0.06	-0.99	.321	[-0.11, 0.12]

Note. ERSBs = Emotion-related socialization behaviors. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. Child Lack of Impulse Control (Integrative Child Temperament Scale, Zentner, 2020).
[a] Child Sex coded 1 = Female, 0 = Not Female
[b] Caregiver Sex coded 1 = Female, 0 = Not Female
[c] Years of education completed, *z*-scored
[d] Composite of frustration proneness and reversed attentional control subscales; higher scores indicate more child difficulty with impulse control

Table 10

Multiple Linear Regression of EMA ERSBs Predicting PACER Distraction

Effect	*B*	*SE*	*t*	*p*	*95% CI*
Intercept	24.62	5.34	4.61	.000	[14.07, 35.18]
EMA					
Acceptance	1.16	1.53	0.76	.451	[-1.87, 4.19]
Distraction	2.99	2.16	1.39	.167	[-1.27, 7.25]
Reappraisal	2.17	1.57	1.38	.169	[-0.93, 5.28]
Suppression	7.32	2.57	2.85	.005	[2.24, 12.49]
Child Age	-0.11	0.48	-0.24	.813	[-1.06, 0.83]
Child Sex [a]	-0.33	1.01	-0.33	.744	[-2.33, 1.67]
Caregiver Sex [b]	-3.55	2.29	-1.55	.123	[-8.07, 0.97]
Caregiver Education [c]	0.10	0.22	0.44	.663	[-0.34, 0.54]
Child Lack of Impulse Control [d]	-0.03	0.10	-0.25	.802	[-0.23, 0.17]

Note. ERSBs = Emotion-related socialization behaviors. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. Child Lack of Impulse Control (Integrative Child Temperament Scale, Zentner, 2020).

[a] Child Sex coded 1 = Female, 0 = Not Female

[b] Caregiver Sex coded 1 = Female, 0 = Not Female

[c] Years of education completed, *z*-scored

[d] Composite of frustration proneness and reversed attentional control subscales; higher scores indicate more child difficulty with impulse control

Table 11

Multiple Linear Regression of EMA ERSBs Predicting PACER Cognitive Reappraisal

Effect	B	*SE*	*t*	*p*	*95% CI*
Intercept	29.23	4.45	6.57	.000	[20.44, 38.02]
EMA					
Acceptance	0.03	1.30	0.02	.982	[-2.55, 2.61]
Distraction	-0.39	1.87	-0.21	.834	[-4.08, 3.30]
Reappraisal	1.65	1.32	1.25	.213	[-0.96, 4.26]
Suppression	2.70	2.19	1.23	.219	[-1.62, 7.03]
Child Age	0.73	0.39	1.90	.060	[-0.03, 1.50]
Child Sex [a]	-1.14	0.82	-1.39	.166	[-2.76, 0.48]
Caregiver Sex [b]	-1.96	1.90	-1.03	.304	[-5.71, 1.80]
Caregiver Education [c]	-0.06	0.19	-0.31	.757	[-0.43, 0.31]
Child Lack of Impulse Control [d]	-0.21	0.08	-2.46	.015	[-0.37, -0.04]

Note. ERSBs = Emotion-related socialization behaviors. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. Child Lack of Impulse Control (Integrative Child Temperament Scale, Zentner, 2020).

[a] Child Sex coded 1 = Female, 0 = Not Female

[b] Caregiver Sex coded 1 = Female, 0 = Not Female

[c] Years of education completed, *z*-scored

[d] Composite of frustration proneness and reversed attentional control subscales; higher scores indicate more child difficulty with impulse control

Table 12

Multiple Linear Regression of EMA ERSBs Predicting PACER Expressive Suppression

Effect	*B*	*SE*	*t*	*p*	*95% CI*
Intercept	12.23	4.13	2.96	.004	[4.07, 20.40]
EMA					
Acceptance	-2.56	1.15	-2.22	.028	[-4.83, -0.28]
Distraction	0.28	1.68	0.17	.867	[-3.04, 3.60]
Reappraisal	0.29	1.20	0.24	.812	[-2.09, 2.67]
Suppression	8.49	2.24	3.79	.000	[4.06, 12.91]
Child Age	-0.16	0.35	-0.47	.637	[-0.85, 0.52]
Child Sex [a]	0.08	0.75	0.10	.919	[-1.40, 1.55]
Caregiver Sex [b]	0.67	2.09	0.32	.749	[-3.46, 4.80]
Caregiver Education [c]	-0.04	0.17	-0.24	.807	[-0.37, 0.29]
Child Lack of Impulse Control [d]	-0.08	0.07	-1.10	.275	[-0.23, 0.07]

Note. ERSBs = Emotion-related socialization behaviors. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. Child Lack of Impulse Control (Integrative Child Temperament Scale, Zentner, 2020).
[a] Child Sex coded 1 = Female, 0 = Not Female
[b] Caregiver Sex coded 1 = Female, 0 = Not Female
[c] Years of education completed, *z*-scored
[d] Composite of frustration proneness and reversed attentional control subscales; higher scores indicate more child difficulty with impulse control

Research Question 2

Next, four linear regression models tested the moderating effect of global caregiver stress (measured using the PSI-4-SF Parental Distress subscale) on correspondence among momentary and global reports for acceptance, distraction, cognitive reappraisal, and expressive suppression. Each model tested the effects of the interaction term (caregiver stress X momentary ERSB) as a predictor of the corresponding global ERSB. IVs for the two interaction term variables were grand mean centered to aid interpretation. Results are presented in Tables 13-16.

Caregiver stress did not moderate the association between momentary and global ERSBs in any models, and the addition of interaction terms resulted in minimal change to the R^2 in these models compared to original models from Research Question 1. Caregiver stress also did not show direct effects on global ERSBs, except for expressive suppression, with which it was significantly, negatively associated (Table 16).

Table 13

Multiple Linear Regression of Moderating Effect of Caregiver Stress on ERSB Correspondence for Acceptance

Effect	*B*	*SE*	*t*	*p*	*95% CI*
Intercept	33.21	3.10	10.71	.000	[27.08, 39.34]
EMA Distraction	0.57	1.38	0.41	.681	[-2.15, 3.29]
EMA Reappraisal	-0.19	0.97	-0.20	.844	[-2.12, 1.73]
EMA Suppression	-6.04	1.71	-3.53	.001	[-9.42, -2.66]
Child Age	-0.10	0.29	-0.36	.719	[-0.67, 0.47]
Child Sex [a]	-0.38	0.60	-0.63	.530	[-1.57, 0.81]
Caregiver Sex [b]	-1.23	1.41	-0.87	.384	[-4.00, 1.55]
Caregiver Education [c]	-0.06	0.13	-0.42	.673	[-32, 0.21]
Child Lack of Impulse Control [d]	0.03	0.06	0.51	.611	[-0.09, 0.15]
EMA Acceptance [e]	3.54	0.94	3.75	.000	[1.67, 5.40]
Caregiver Stress [e]	0.05	0.04	1.23	.222	[-0.03, 0.12]
EMA Acceptance [e] x Caregiver Stress [e]	-0.06	0.11	-0.60	.550	[-0.28, 0.15]

Note. ERSB = Emotion-related socialization behaviors. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. Child Lack of Impulse Control (Integrative Child Temperament Scale, Zentner, 2020). Caregiver Stress = Parent Stress Index-4-Short Form Parental Distress subscale (Abidin, 2012).

[a] Child Sex coded 1 = Female, 0 = Not Female

[b] Caregiver Sex coded 1 = Female, 0 = Not Female

[c] Years of education completed, *z*-scored

[d] Composite of frustration proneness and reversed attentional control subscales; higher scores indicate more child difficulty with impulse control

[e] Grand-mean centered

Table 14

Multiple Linear Regression of Moderating Effect of Caregiver Stress on ERSB Correspondence for Distraction

Effect	*B*	*SE*	*t*	*p*	*95% CI*
Intercept	25.64	5.43	4.72	.000	[14.90, 36.37]
EMA Acceptance	1.04	1.57	0.66	.507	[-2.06, 4.15]
EMA Reappraisal	2.22	1.59	1.40	.163	[-0.91, 5.36]
EMA Suppression	7.28	2.61	2.79	.006	[2.12, 12.43]
Child Age	-0.12	0.48	-0.26	.797	[-1.08, 0.83]
Child Sex [a]	-0.31	1.02	-0.30	.765	[-2.32, 1.71]
Caregiver Sex [b]	-3.67	2.33	-1.58	.117	[-8.27, 0.93]
Caregiver Education [c]	0.10	0.23	0.42	.672	[-0.35, 0.54]
Child Lack of Impulse Control [d]	-0.03	0.11	-0.28	.781	[-0.24, 0.18]
EMA Distraction [e]	3.02	2.17	1.39	.167	[-1.28, 7.32]
Caregiver Stress [e]	-0.02	0.06	-0.26	.797	[-0.14, 0.11]
EMA Distraction [e] x Caregiver Stress [e]	0.08	0.23	0.35	.727	[-0.38, 0.54]

Note. ERSBs = Emotion-related socialization behaviors. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. Child Lack of Impulse Control (Integrative Child Temperament Scale, Zentner, 2020). Caregiver Stress = Parent Stress Index-4-Short Form Parental Distress subscale (Abidin, 2012).

[a] Child Sex coded 1 = Female, 0 = Not Female

[b] Caregiver Sex coded 1 = Female, 0 = Not Female

[c] Years of education completed, *z*-scored

[d] Composite of frustration proneness and reversed attentional control subscales; higher scores indicate more child difficulty with impulse control

[e] Grand-mean centered

Table 15

Multiple Linear Regression of Moderating Effect of Caregiver Stress on ERSB Correspondence for Cognitive Reappraisal

Effect	*B*	*SE*	*t*	*p*	*95% CI*
Intercept	28.85	4.58	6.30	.000	[19.90, 37.90]
EMA Distraction	-0.58	1.87	-0.31	.758	[-4.28, 3.12]
EMA Acceptance	0.02	1.31	0.01	.989	[-2.58, 2.16]
EMA Suppression	3.01	2.20	1.37	.174	[-1.35, 7.36]
Child Age	0.70	0.39	1.82	.071	[-0.06, 1.47]
Child Sex [a]	-1.17	0.83	-1.42	.158	[-2.80, 0.46]
Caregiver Sex [b]	-1.71	1.91	-0.89	.373	[-5.49, 2.07]
Caregiver Education [c]	-0.05	0.19	-0.28	.782	[-0.43, 0.32]
Child Lack of Impulse Control [d]	-0.16	0.09	-1.80	.074	[-0.34, 0.02]
EMA Reappraisal [e]	1.64	1.32	1.24	.215	[-0.97, 4.26]
Caregiver Stress [e]	0.07	0.05	1.40	.164	[-0.03, 0.17]
EMA Reappraisal [e] x Caregiver Stress [e]	-0.04	0.15	-0.24	.808	[-0.34, 0.27]

Note. ERSBs = Emotion-related socialization behaviors. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. Child Lack of Impulse Control (Integrative Child Temperament Scale, Zentner, 2020). Caregiver Stress = Parent Stress Index-4-Short Form Parental Distress subscale (Abidin, 2012).

[a] Child Sex coded 1 = Female, 0 = Not Female

[b] Caregiver Sex coded 1 = Female, 0 = Not Female

[c] Years of education completed, *z*-scored

[d] Composite of frustration proneness and reversed attentional control subscales; higher scores indicate more child difficulty with impulse control

[e] Grand-mean centered

Table 16

Multiple Linear Regression of Moderating Effect of Caregiver Stress on ERSB Correspondence for Expressive Suppression

Effect	*B*	*SE*	*t*	*p*	*95% CI*
Intercept	15.23	4.13	3.69	.000	[7.07, 23.39]
EMA Reappraisal	0.44	1.18	0.37	.713	[-1.90, 2.77]
EMA Acceptance	-2.71	1.13	-2.39	.018	[-4.95, -0.47]
EMA Distraction	0.02	1.66	0.01	.989	[-3.26, 3.31]
Child Age	-0.13	0.34	-0.39	.694	[-0.81, 0.54]
Child Sex [a]	0.25	0.74	0.34	.732	[-1.20, 1.71]
Caregiver Sex [b]	0.43	2.06	0.21	.836	[-3.64. 4.50]
Caregiver Education [c]	-0.08	0.16	-0.46	.649	[-0.40, 0.25]
Child Lack of Impulse Control [d]	-0.16	0.08	-2.04	.043	[-0.31 -0.01]
EMA Suppression [e]	7.74	2.22	3.49	.001	[3.36, 12.12]
Caregiver Stress [e]	-0.11	0.05	-2.44	.016	[-0.20, -0.02]
EMA Suppression [e] x Caregiver Stress [e]	-0.14	0.20	-0.71	.478	[-0.54, 0.25]

Note. ERSBs = Emotion-related socialization behaviors. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. Child Lack of Impulse Control (Integrative Child Temperament Scale, Zentner, 2020). Caregiver Stress = Parent Stress Index-4-Short Form Parental Distress subscale (Abidin, 2012).
[a] Child Sex coded 1 = Female, 0 = Not Female
[b] Caregiver Sex coded 1 = Female, 0 = Not Female
[c] Years of education completed, *z*-scored
[d] Composite of frustration proneness and reversed attentional control subscales; higher scores indicate more child difficulty with impulse control
[e] Grand-mean centered

Research Question 3

Next, four linear regression models tested the moderating effect of household SES on correspondence among momentary and global reports for acceptance, distraction, cognitive reappraisal, and expressive suppression. Each model tested the effects of the interaction term (household SES X momentary ERSB) as a predictor of the corresponding global ERSB. Interaction term variables were grand mean centered. Results are presented in Tables 17-20.

Household SES did not moderate the association between momentary and global ERSBs in any models, and the addition of interaction terms resulted in minimal change to the R^2 in these models compared to original models from Research Question 1. No direct associations between household SES and global ERSBs were significant.

Table 17

Multiple Linear Regression of Moderating Effect of Household SES on ERSB Correspondence for Acceptance

Effect	*B*	*SE*	*t*	*p*	*95% CI*
Intercept	33.73	4.34	7.77	.000	[25.15, 42.31]
EMA Reappraisal	-0.16	0.99	-0.16	.874	[-2.11, 1.79]
EMA Suppression	-5.81	1.73	-3.35	.001	[-9.23, -2.38]
EMA Distraction	0.73	1.37	0.53	.596	[-1.98, 3.44]
Child Age	-0.05	0.29	-0.17	.869	[-0.62, 0.53]
Child Sex [a]	-0.53	0.63	-0.84	.402	[-1.77, 0.71]
Caregiver Sex [b]	-0.76	1.53	-0.50	.620	[-3.77, 2.26]
Caregiver Education [c]	-0.08	0.24	-0.33	.739	[-0.55, 0.39]
Child Lack of Impulse Control [d]	-0.01	0.06	-0.13	.900	[-0.13, 0.11]
EMA Acceptance [e]	3.26	0.95	3.42	.001	[1.37, 5.15]
Household SES	0.18	0.70	0.26	.793	[-1.19, 1.56]
EMA Acceptance [e] x Household SES	-0.26	1.19	-0.22	.826	[-2.61, 2.08]

Note. ERSBs = Emotion-related socialization behaviors. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. Child Lack of Impulse Control (Integrative Child Temperament Scale, Zentner, 2020). Household SES = household socioeconomic status calculated as caregiver education (years) and household annual income z-score composite.

[a] Child Sex coded 1 = Female, 0 = Not Female

[b] Caregiver Sex coded 1 = Female, 0 = Not Female

[c] Years of education completed, *z*-scored

[d] Composite of frustration proneness and reversed attentional control subscales; higher scores indicate more child difficulty with impulse control

[e] Grand-mean centered

Table 18

Multiple Linear Regression of Moderating Effect of Household SES on ERSB Correspondence for Distraction

Effect	*B*	*SE*	*t*	*p*	*95% CI*
Intercept	22.89	7.16	3.20	.002	[8.74, 37.05]
EMA Acceptance	1.09	1.57	0.70	.487	[-2.01, 4.19]
EMA Reappraisal	2.32	1.62	1.43	.156	[-0.89, 5.53]
EMA Suppression	7.23	2.62	2.76	.007	[2.05, 12.41]
Child Age	-0.03	0.49	-0.06	.950	[-1.00, 0.94]
Child Sex [a]	-0.42	1.06	-0.40	.693	[-2.52, 1.68]
Caregiver Sex [b]	-2.63	2.52	-1.04	.298	[-7.61, 2.35]
Caregiver Education [c]	0.17	0.39	0.43	.669	[-0.61, 0.94]
Child Lack of Impulse Control [d]	-0.01	0.11	-0.12	.906	[-0.22, 0.20]
Momentary Distraction [e]	3.23	2.21	1.46	.146	[-1.14, 7.61]
Household SES	-0.25	1.18	-0.21	.832	[-2.58, 2.08]
EMA Distraction [e] x Household SES	1.57	3.02	0.52	.604	[-4.40, 7.55]

Note. ERSBs = Emotion-related socialization behaviors. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. Child Lack of Impulse Control (Integrative Child Temperament Scale, Zentner, 2020). Household SES = household socioeconomic status calculated as caregiver education (years) and household annual income z-score composite.

[a] Child Sex coded 1 = Female, 0 = Not Female

[b] Caregiver Sex coded 1 = Female, 0 = Not Female

[c] Years of education completed, *z*-scored

[d] Composite of frustration proneness and reversed attentional control subscales; higher scores indicate more child difficulty with impulse control

[e] Grand-mean centered

Table 19

Multiple Linear Regression of Moderating Effect of Household SES on ERSB Correspondence for Cognitive Reappraisal

Effect	*B*	*SE*	*t*	*p*	*95% CI*
Intercept	28.90	5.91	4.89	.000	[17.22, 40.58]
EMA Distraction	0.13	1.82	0.07	.945	[-3.48, 3.73]
EMA Acceptance	0.09	1.28	0.07	.943	[-2.43, 2.61]
EMA Suppression	2.66	2.13	1.25	.214	[-1.55, 6.88]
Child Age	0.78	0.38	2.07	.040	[0.04, 1.53]
Child Sex [a]	-0.78	0.82	-0.95	.344	[-2.40, 0.84]
Caregiver Sex [b]	-2.28	2.00	-1.14	.256	[-6.24, 1.67]
Caregiver Education [c]	-0.08	0.32	-0.26	.798	[-0.71, 0.55]
Child Lack of Impulse Control [d]	-0.14	0.08	-1.72	.088	[-0.31, 0.02]
EMA Reappraisal [e]	1.78	1.30	1.37	.173	[-0.79, 4.34]
Household SES	0.04	0.94	0.04	.969	[-1.81, 1.89]
EMA Reappraisal [e] x Household SES	2.51	1.68	1.49	.138	[-0.82, 5.84]

Note. ERSBs = Emotion-related socialization behaviors. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. Child Lack of Impulse Control (Integrative Child Temperament Scale, Zentner, 2020). Household SES = household socioeconomic status calculated as caregiver education (years) and household annual income z-score composite.

[a] Child Sex coded 1 = Female, 0 = Not Female

[b] Caregiver Sex coded 1 = Female, 0 = Not Female

[c] Years of education completed, *z*-scored

[d] Composite of frustration proneness and reversed attentional control subscales; higher scores indicate more child difficulty with impulse control

[e] Grand-mean centered

Table 20

Multiple Linear Regression of Moderating Effect of Household SES on ERSB Correspondence for Expressive Suppression

Effect	*B*	*SE*	*t*	*p*	*95% CI*
Intercept	17.13	5.18	3.31	.001	[6.90, 27.37]
EMA Reappraisal	0.22	1.19	0.18	.855	[-2.14, 2.58]
EMA Acceptance	-2.32	1.11	-2.08	.039	[-4.52, -0.12]
EMA Distraction	-0.22	1.62	-0.14	.891	[-3.43, 2.98]
Child Age	-0.28	0.34	-0.84	.400	[-0.95, 0.38]
Child Sex [a]	0.05	0.75	0.07	.946	[-1.43, 1.53]
Caregiver Sex [b]	-0.19	2.30	-0.08	.936	[-4.73, 4.36]
Caregiver Education [c]	-0.18	0.28	-0.66	.510	[-0.73, 0.37]
Child Lack of Impulse Control [d]	-0.11	0.07	-1.48	.140	[-0.25, 0.04]
EMA Suppression [e]	8.51	2.17	3.92	.000	[4.21, 12.80]
Household SES	0.34	0.80	0.42	.675	[-1.25, 1.92]
EMA Suppression [e] x Household SES	-3.98	2.43	-1.64	.103	[-8.78, 0.81]

Note. ERSBs = Emotion-related socialization behaviors. EMA = ecological momentary assessment. PACER = Parent Assistance with Child Emotion Regulation (Cohodes et al., 2022). Reappraisal = Cognitive Reappraisal; Suppression = Expressive Suppression. Child Lack of Impulse Control (Integrative Child Temperament Scale, Zentner, 2020). Household SES = household socioeconomic status calculated as caregiver education (years) and household annual income z-score composite.

[a] Child Sex coded 1 = Female, 0 = Not Female

[b] Caregiver Sex coded 1 = Female, 0 = Not Female

[c] Years of education completed, *z*-scored

[d] Composite of frustration proneness and reversed attentional control subscales; higher scores indicate more child difficulty with impulse control

[e] Grand-mean centered

Exploratory Analysis: Moderation by Momentary Caregiver Stress

The absence of a moderating effect of either caregiver stress of household SES on ERSB correspondence was surprising, and prompted consideration of whether momentary factors may be more meaningful as potential moderators of ERSB correspondence. Specifically, we thought that momentary stress may be more relevant to ERSB correspondence than global stress. For example, momentary stress may interfere with caregivers' ability to support their child with more

cognitively demanding ER strategies such as cognitive reappraisal, or in other ways affect caregivers' use of the ER strategies in their repertoire. To explore this, regression models similar to those for RQ2 and RQ3 were run, with caregivers' momentary stress scores added to the models using the same methods described above. At each check-in, caregivers were asked "How stressed have you felt in the last four hours?" Caregivers responded on a scale of 1 ("Not at all stressed") to 6 (Extremely stressed"). Each caregivers' ratings were summed and averaged by the total number of check-ins they completed to gain an average momentary stress score. Caregiver momentary stress was normally distributed (M = 3.2, SD = .99, min = 1, max = 6). Caregiver momentary stress was grand mean centered for interactions.

Results showed no significant associations between the interaction terms (momentary stress x momentary ERSB) and global ERSBs. Momentary stress was also not significantly related to global ERSBs, although approached significance in a negative association with global cognitive reappraisal, B = -0.737, $SE(B)$ = .43, t(-1.71) = 1.19, p = .089.

CHAPTER IV

DISCUSSION AND CONCLUSION

Summary of Study Goals and Sample

The present study aimed to investigate the correspondence of global and momentary self-reports of caregiver assistance with child use of four specific strategies for emotion regulation (acceptance, distraction, cognitive reappraisal, and expressive suppression). We also sought to evaluate whether caregiver stress or household socioeconomic status moderated ERSB correspondence.

No studies to date have examined young children's emotions and caregiver responses to young children's emotions using EMA methods (Reitsema et al., 2021). Little is known about caregiver assistance with specific emotion regulation strategies, especially in early childhood (Mancini et al., 2022). Therefore, the present study contributes novel descriptions of young children's emotions in daily life and caregivers' assistance for child emotion regulation strategies. Given primary caregivers' central roles in supporting young children's emergent ER skills, understanding caregiver ERSBs in naturalistic contexts contributes to knowledge of family emotion socialization processes. Furthermore, prior research has not clarified whether global ERSB reports reflect day-to-day implementation. The present study addressed this gap by examining correspondence between global and momentary reports of caregiver support for child acceptance, distraction, cognitive reappraisal, and expressive suppression for regulating negative emotions. This adds valuable information for future emotion socialization research, particularly considering widespread reliance on global measures and recognition of the salience of contextual factors for ERSB selection, implementation, and effectiveness. Finally, the present study also sought to clarify whether ERSB correspondence varied depending on caregiver stress or

household SES. This information can help researchers consider goodness of fit of their ERSB measures with their populations of interest.

The final analytic sample included 174 caregivers from diverse geographic locations across the United States. Children averaged 3.1 years old and caregivers averaged 43 years old. Most caregivers identified as mothers (95%), White (85%), with average household annual incomes of $112,177 and 44% holding at least a bachelor's degree. Caregivers reported relatively high global stress levels and moderate levels of child difficulty with impulse control. Sample characteristics should be kept in mind when interpreting findings and limit generalizability of results. Nonetheless, the present study provides a detailed picture of caregiver support for child ER and highlights key measurement considerations for future emotion socialization research.

Discussion of Key Findings

Descriptive Results of ERSB Use in Daily Life

Preliminary analyses describe patterns of child emotion and caregiver support for child ER in this sample and offer context for main results. Among child negative emotions, caregivers most often reported child frustration, irritability, and sadness (although all three were less common than positive emotions). Caregivers most frequently responded to child negative emotion by conveying to the child that it was okay to feel their emotion (acceptance), helping them with different ways to interpret the situation (cognitive reappraisal), or verbally identifying their emotion (labeling). Caregivers also often reported redirecting child attention to something pleasant (positive distraction), physically changing the situation to remove the stimuli inducing the negative emotion (situation modification) or encouraging the child to share how they were feeling (social sharing). Caregivers reported infrequent use of expressive suppression, consistent

with prior research (Cohodes et al., 2022; Mancini et al., 2022). On average, caregivers in this sample supported their children with 5.3 different emotion regulation strategies (M = 2.4) at least once across all check-ins they completed. Visual inspection of momentary ERSB use by child age showed an increase in distraction and a decrease in expressive suppression with child age, although the bivariate correlation for the latter was not significant. These patterns align partially with prior research on developmental trajectories of emotion socialization. For example, among caregivers with children ages 0-5, Mancini et al. (2022) found that caregiver scaffolding of more complex cognitive strategies (i.e., reappraisal) increased significantly with child age. From a developmental perspective, factors underlying children's ER skills (i.e., executive function, inhibitory control, social learning) develop rapidly in the early years (Gross & Cassidy, 2029), so caregivers may adjust their ERSB use accordingly over time. For example, McKee et al. (2021) used the CCNES to identify profiles of emotion socialization in families with children ages 3-12, finding that parents of younger children were more likely to be in the "emotion coaching" profile and parents of older children more likely to be in the "emotion dismissing" profile.

Main Effects: ERSB Correspondence

The present research primarily aimed to evaluate correspondence between momentary and global reports of caregiver assistance for child emotion regulation strategies in a sample of primary caregivers with young children. We expected to find relatively weak correspondence overall between global and momentary measures, and varying degrees of correspondence between the different strategies examined.

Overall, results supported this hypothesis. Correlational analyses showed weak to moderate ERSB correspondence for acceptance and expressive suppression, but none for distraction or cognitive reappraisal. Using multiple linear regression, we further tested these

relationships by examining the effect of each momentary ERSB on its conceptually aligned global ERSB while controlling for the other ERSBs and covariates. Results affirmed correlational analyses. While accounting for covariates, momentary acceptance was positively related to global acceptance and momentary expressive suppression was positively related to global expressive suppression. Momentary distraction and momentary cognitive reappraisal were related to their global counterpart in the expected direction, but none of these effects were significant at the $p < .05$ level.

One possible explanation for the stronger evidence of ERSB correspondence for acceptance and expressive suppression than for distraction or cognitive reappraisal is that the former are easier to identify in the moment and/or accurately recall retrospectively than the latter. Prior research partially supports this possibility regarding expressive suppression. Aldao and Nolen-Hoeksema (2012) found that implementation of adaptive ER strategies (such as cognitive reappraisal) varied more depending on contextual factors than maladaptive strategies (such as expressive suppression). Contextual factors may have had little effect on caregivers' use of momentary expressive suppression in the present study, so global reports could index momentary frequency with relative accuracy. Relatedly, McMahon & Naragon-Gainey (2020) also found stronger correspondence between momentary and global reports for maladaptive ER strategies, including expressive suppression, than for adaptive ones.

However, this does not explain why correspondence was also observed for global and momentary acceptance. Acceptance is understood as a cognitive or covert ER strategy employed selectively in response to specific situations (Naragon-Gainey et al., 2017), so it would have been reasonable to see correspondence patterns more like those for cognitive reappraisal than like those for expressive suppression. ERSB correspondence may have been similar for

acceptance and expressive suppression because these strategies represent opposite ends of a single continuum (see Naragon-Gainey et al., 2017). Prior studies of emotion socialization profiles have often observed an "emotion coaching" profile (caregivers who tend to acknowledge, label, and accept children's emotions) and an "emotion dismissing" profile (caregivers who tend to distract, ignore, dismiss, or suppress children's emotions) (Frogley et al., 2023; Gottman et al., 1996). In the present study, caregivers who regularly help their child accept negative emotion rarely encouraged their child to suppress negative emotion, and this was consistent across measurement modalities. In addition to regression findings, the correlational patterns within and across methods support this possibility.

Results did not show evidence of correspondence for cognitive reappraisal. This finding echoes prior research illustrating discrepancies between measurement modalities for cognitive reappraisal. Koval et al. (2022) found weak correspondence between global and momentary measures of cognitive reappraisal compared to other ER strategies. They suggested that correspondence may be weaker for cognitive reappraisal because it is a more nuanced, covert process compared to overt behavioral strategies like expressive suppression. Reappraisal requires substantial cognitive resources (McRae et al., 2012a), so it follows that caregiver support for child use of reappraisal is also cognitively demanding. This may make it difficult to for caregivers to accurately capture in their momentary reports and/or to retrospectively recall, leading to discrepancies between the two measures.

Furthermore, discrepancies in global and momentary cognitive reappraisal reports may in fact indicate caregiver flexibility and adaptiveness in implementing this strategy in daily life. As the process model of emotion regulation highlighted (see Introduction), ER occurs in stages: identifying the need to regulate, selecting a regulation strategy, and implementing the strategy

(McRae & Gross, 2020). Global measures may reflect presence of cognitive reappraisal in caregivers' ER repertoires but be a less precise index of their cognitive reappraisal implementation. In other words, caregivers in the present study who had strong trait-level knowledge of cognitive reappraisal as a supportive ER strategy may have often considered cognitive reappraisal at the strategy selection stage but opted for other strategies instead, as reflected in momentary reports. This may indicate caregivers' ability to implement cognitive reappraisal selectively when they perceived it to be a good fit to their child's ER needs. Situation-dependent variability in implementation of cognitive reappraisal may indicate ER flexibility – selecting a strategy appropriate to situational goals rather than relying on habitual ER strategies (Aldao & Nolen-Hoeksema, 2012).

The child age composition of this sample supports this possibility of selective cognitive reappraisal use contributing to ERSB discrepancies. Children's cognitive reappraisal capacities are in nascent stages before age 5 and requires substantial caregiver scaffolding (De France & Hollenstein, 2022; Willner et al., 2022). Caregivers who tended to endorse high levels of cognitive reappraisal globally may have often used their knowledge of this strategy to determine that it was not feasible, helpful, or developmentally appropriate in momentary context. For example, these caregivers may have known that their child could only engage in scaffolded cognitive reappraisal in specific circumstances, such as in response to low-intensity but not high-intensity negative emotions.

Additionally, cognitive reappraisal may be especially difficult to assess via typical EMA methods such as the ones employed here. As Koval et al. (2022) write,

> […] whereas suppression and rumination […] are arguably unidimensional constructs, reappraisal may be more heterogeneous (see, e.g., McRae, Ciesielski, & Gross, 2012; Uusberg et al., 2019). The multifaceted nature of reappraisal makes it more difficult to assess comprehensively, particularly in daily life

> studies, which often use single item measures. Thus, future studies should focus on assessing reappraisal selection correspondence using multi-item measures in daily life, paying particular attention to the specific form(s) of reappraisal being measured. (p. 13)

Given its heterogeneity, measuring cognitive reappraisal implementation might be better accomplished by assessing distinct subcomponents or tactics (McRae et al., 2012b), further underscoring the difficulty of using single-item measures. Assessing subcomponents of cognitive reappraisal might be especially important in samples with young children, given the reliance on caregiver scaffolding described above. For example, developmentally appropriate caregiver support for child cognitive reappraisal may involve multiple nuanced steps including other forms of verbal or cognitive support. Indeed, the Early Emotion Regulation Behavior Questionnaire developed for children under age 6 did not include a cognitive reappraisal scale but had a "verbal help-seeking" scale referring to when children elicit caregiver ER support through dialogue about the emotionally evocative situation (Perry & Dollar, 2021). In sum, assessing cognitive reappraisal using single-item measures is difficult, and assessing caregiver support for young children's use of cognitive reappraisal may be uniquely challenging. These limitations may have contributed to the discrepancies between momentary and global cognitive reappraisal reports observed in the present study.

As with cognitive reappraisal, results showed no evidence of correspondence for global and momentary distraction. Although early forms of distraction emerge in infancy (i.e., infants looking away from aversive stimuli), voluntary use of distraction in toddlerhood, preschool, and beyond requires executive functions like attentional control (Cole et al., 2020). Like cognitive reappraisal, distraction may be a more complex, multifaceted ERSB strategy for caregivers to implement with their children. It may also be used in tandem with other strategies, making accurate recall difficult. This may have contributed to misalignment between global and

momentary reports. The PACER validation study by Cohodes et al. (2022) found that distraction was less stable in test-retest 1 week apart than most of the other PACER scales, suggesting a greater level of within-person temporal variability in use of this strategy.

Together, these results partially align with Robinson and Clore's (2002) accessibility model of emotion self-report which posits that global versus momentary reports draw from different sources of information. Robinson and Clore's (2002) suggested that EMA reports draw from highly contextual but fleeting information that is not readily encoded in memory, while individuals draw on more abstract conceptualization of the self when answering global reports. Previous work suggests that this theory is applicable to narrow constructs such as emotion regulation (Koval et al., 2022). The results of the present study suggest that this theory applies to ERSBs as well, particularly for distraction and cognitive reappraisal.

In sum, results presented here showed evidence of ERSB correspondence for acceptance and expressive suppression but not for distraction or cognitive reappraisal. Results from prior research in this area are mixed but have also often found greater alignment for expressive suppression measures than for other strategies. The variable correspondence results found here may reflect the structure and function of these ER strategies, their developmental trajectories, and associated measurement challenges.

Moderation by Caregiver Stress

Secondarily, the present study aimed to test caregiver stress as a moderator of the relationship between global and momentary ERSB reports. Despite its theorized relationship to parenting behavior (i.e., Belsky 1984, Conger et al., 2010) including emotion socialization behaviors (Havinghurst & Kehoe, 2017), caregiver stress measured via the PSI-4 SF parental distress scale had little effect on momentary or global ERSB reports or the correspondence

between them in the present study. This is somewhat contrary to prior research. For example, Cohodes et al. (2022) found that PSI-4 SF scores were positively associated with PACER subscales considered maladaptive, although they did not report specific results. On the other hand, results echo findings from Thompson et al. (2020) who observed no association between maternal depressive symptoms and mothers' self-reported responses to child negative emotion.

Methodological differences between the present study and prior research in this area may have contributed to this unexpected result. Herbers et al. (2017) found that caregiver stress weakened the association between positive and negative parenting, but they compared their global measure of parenting to an observational measure rather than using EMA methods. Also, they used the CES-D (Radloff 1977) to measure caregiver distress, while the present study used the PSI-SF 4 parental distress subscale. Results here suggest that the depression distortion mechanism suggested by other studies – in which depressive symptoms are associated with caregiver biases in self-reports of parent and/or child behaviors – is not evident for caregiver distress and the ERSB reports examined here.

Characteristics of caregiver stress in this sample should be considered when interpreting these results. Caregiver stress was high overall, with a mean score of 40, which is in the 90th percentile based on the norming sample (Abidin, 2012). Other studies have also found high stress levels among caregivers of young children, for example showing, among families with typically developing children, a decrease in caregiver stress across early and middle childhood, driven at least in part by changes in child behavior (Neece et al., 2012; Williford et al., 2007). Relatively high stress may be normative for caregivers in this sample and, in the absence of other risk factors, may not spill over to impact ERSBs or ERSB correspondence. Beckerman et al. (2020) found that mothers' global stress was associated with increased negative attributions of child

behavior only when combined with situational stress. It would be useful to examine how global stress interacts with momentary stress and other momentary factors to influence ERSB use and momentary-global ERSB correspondence.

Moderation by Household Socioeconomic Status

The present study also aimed to examine the degree to which household SES moderated the relationship between momentary and global ERSB reports. Contrary to the hypothesis, household SES, as operationalized using caregiver-reported household annual income and level of education completed, did not significantly affect the relationship between global and momentary ERSBs. Household SES did not significantly relate to momentary or global ERSBs directly (except for a weak, negative correlation with momentary distraction). Overall, results indicate that in this sample household SES was not related to ERSB use (momentary or global) or to ERSB correspondence.

Studies of SES as a moderator of correspondence between monotrait-heteromethod parenting measures are scarce, so this research adds insight into this issue as it relates to ERSBs. Null results of a moderating effect are contrary to findings from Herbers et al. (2017) who found weaker associations between self-reported and observed parenting measures for lower SES participants. Herbers et al. (2017) suggested that SES-related differences in parenting beliefs, item interpretation, or levels of parenting self-efficacy may drive the between-method discrepancies they observed, although they did not test these mechanisms directly. Factors that could affect ERSB correspondence (such as caregiver self-efficacy) may have been unrelated to household SES in the present study sample.

Household SES characteristics of this sample may have also influenced results. Caregivers reported high annual incomes on average (M = $112,177) and high education levels

(70% had at least a Bachelor's degree), although there was also a wide range (income *SD* = $83,596). A direct effect of SES on ERSBs or a moderating effect on ERSB correspondence may have been evident in a sample with greater representation of households with lower annual incomes and caregiver education levels. Our operationalization of household SES may have also impacted the results. Our household SES composite included annual income and caregiver education level, based on previous research recognizing these as key SES components to consider in parenting research, but did not include marital status which is also related (Herbers et al., 2017; Vreeland et al., 2019).

Another potential explanation of these null effects is that examining SES alone as a predictor of ERSBs or a moderator of ERSB correspondence is too simplistic. Studies examining effects of SES on emotion socialization processes point toward the complexity of these relationships. For example, Shaffer et al., (2012) observed more unsupportive responses to child negative emotion among lower SES families. More recently, however, McKee et al. (2021) found that families living with 150% of the federal poverty level were more likely to display emotion coaching behaviors than higher income families. Caregiver emotion socialization goals are embedded not only in economic but also in broader social and cultural contexts (Raval & Walker, 2019) as well as caregivers' own ER (Zimmer-Gembeck et al., 2022) and other factors. The effect of household SES on ERSBs or ERSB correspondence may be limited overall or may only be evident in interaction with other factors.

Momentary Caregiver Stress and Other Potential Moderators

Like global caregiver stress, momentary stress did not moderate ERSB correspondence for any strategies. This further supports the findings from RQ2, suggesting that ERSB correspondence does not vary by caregiver stress, whether measured globally or via momentary

reports. Momentary stress was also not directly associated with any global ERSBs, indicating that caregivers' in-the-moment stress levels, averaged across a week, are unrelated to their global ERSB tendencies.

A potential momentary moderator not examined in this study were ERSB variability. Shiffman et al. (2008) posited that individuals whose momentary behaviors are more stable may more accurately report this retrospectively, so future research can explore caregiver momentary ERSB profiles to examine whether those with more variable ERSBs differ in terms of global-momentary ERSB correspondence.

Another relevant factor not observed in this study is caregivers' capacities for accurate identification of their child's emotion, which may have been related to caregiver global and momentary ERSB reports and the relationship between them. Effective ER scaffolding from caregivers depends in part on caregivers' ability to accurately identify their child's emotion (Morey et al., 2017). According to Gottman and colleagues, caregivers' awareness of child emotion and ability to identify emotion type and intensity are integral to meta-emotion philosophy which underlies emotion socialization (Gottman et al., 1996). Prior research has observed individual differences in emotion recognition, including finding greater perceptual sensitivity to expressions of anger among individuals with a history of child maltreatment (Luke & Banerjee, 2013; Pollak et al., 2002). In the present study, caregivers reported their child's emotion in EMA check-ins, but the accuracy of this emotion recognition was not measured. Accurate emotion recognition may help caregivers be more consistent in the ERSB strategies they select and how they implement them, which could facilitate stronger ERSB correspondence. Also, caregivers who tend to accurately recognize their child's emotion may have greater access to strategies like acceptance and cognitive reappraisal, whereas caregivers with weaker emotion identification skills may have relied more on distraction or expressive suppression which do not require acknowledging the specific child emotion.

Stronger emotion identification skills may also be related to greater ERSB success, which may affect how caregivers global and momentary ERSB reports. The effect of individual differences in emotion identification on ERSBs and ERSB correspondence warrants further investigation.

Implications

The results presented here showed evidence of ERSB correspondence for acceptance and expressive suppression, but not for cognitive reappraisal and distraction. The lack of correspondence for the latter could indicate retrospective bias or other limitations of global reports. Some of these ERSB constructs may also be difficult to capture in single-item EMA measures and thereby contribute to discrepancies. Furthermore, the nature of each specific strategy is also important to consider. For example, global reports may be less ecologically valid for highly complex strategies such as cognitive reappraisal or may not capture caregivers' flexibility in selecting and implementing such strategies only when they perceive it to be a good fit to the child's current emotion, emotion intensity, and other situational factors. Future research can clarify this, explore how best to assess these constructs in momentary data, and further examine the ecological validity of global measures.

This is an important pursuit for the emotion socialization research field, particularly given that ER strategies themselves are not adaptive or maladaptive; rather, their adaptiveness depends on situational ER goals, for which momentary measures can be very useful. For example, ER repertoire and flexibility – competence in multiple ER strategies and the ability to select and implement a strategy effectively in context – may be a more meaningful indicator of ER skill than overall habitual use (Aldao & Nolen-Hoeksema, 2012). According to Naragon-Gainey et al. (2017, p. 414):

> […] dispositional strategy use is of limited value if one wants to examine certain higher-order abilities related to strategy use (e.g., emotion regulation flexibility),

> how contextual features lead to selection and implementation of strategies, or the functions and goals of emotion regulation attempts […]

EMA methods and other real-time naturalistic assessments of ER strategy implementation are promising for evaluating ERSB dynamics in context. Greater availability of validated EMA ERSB measures would strengthen future research in this area.

The present study did not aim to establish one form of assessment as inherently better than another. Results presented here affirm prior research suggesting that the two measurement modalities provide somewhat different information for some strategies. Future emotion socialization research and evaluation of interventions targeting emotion socialization should consider the information afforded by each measurement approach when selecting assessment tools and interpreting results.

Strengths, Limitations, and Future Directions

The present study had several strengths for understanding caregiver ERSBs and examining correspondence between momentary and global ERSB reports. Remote recruitment and data collection allowed for a geographically diverse sample of caregivers from across the United States. The sample was relatively large for EMA studies, had acceptable compliance rates, and transparently reported missing data beyond an overall average. Examination of semantic similarity between EMA items and their global counterparts as a potential confound of correspondence results was more thorough than in previous studies. The use of EMA data and the examination of specific ER strategies adds granularity to existing knowledge of emotion socialization practices among caregivers of young children.

The present study had some limitations which should be considered when interpreting results. First, despite targeted efforts to recruit a diverse sample, most caregivers identified as White and female, limiting generalizability of results. Also, most caregivers reported relatively

low levels of child negative affect, so ERSB patterns observed here may not generalize to caregivers whose children rely more frequently on them for regulating negative emotion. These patterns indicate potential issues with selection bias, a key concern in EMA studies due to response burden and other factors (Stone et al., 2023). For example, it may be that caregivers whose children experience more frequent negative affect self-selected out of the study because they anticipated difficulty responding to EMA prompts while meeting their child's needs (see van den Heuvel et al., 2021). It was not possible to quantify selection bias in the present study, as data on caregivers who received information about the study but did not enroll is not available. Future research can build on this work by recruiting a sample with more racial and ethnic diversity, more male-identifying caregivers, and more caregivers of children who are more likely to experience higher levels of negative affect, for example in clinical populations.

Second, momentary ERSBs were measured via single items created for this study. This is a common approach in experience sampling studies of emotion regulation (Koval et al., 2022). However, these measures were not validated and, without further testing, cannot be considered as a "gold standard" criterion variable for determining validity of global measures (McMahon & Naragon-Gainey et al., 2020). Future research should aim to use validated EMA scales if available (i.e., Medland et al., 2020) or previously used EMA items – for example, from the ESM Item Repository (Kirtley et al., 2019).

Third, the EMA and global ERSB measures were both self-reports. Factors such as social desirability can compromise the validity of parent self-reports of parenting behavior for some constructs (Morsbach & Prinz, 2006). However, parent self-report also has important benefits, including the rich, day-to-day knowledge caregivers have of their child and their family interactions, and has demonstrated superior ecological validity to laboratory tasks (Herbers et al.,

2017). Future research could examine correspondence for observational measures of ERSBs as well, as observational measures are considered "gold standard" criterion measures for parenting practices (Bardack et al., 2017).

Fourth, between-scale variation in semantic similarity of EMA items and their global counterparts may have influenced results. Other similar studies of correspondence have given this issue surprisingly little attention other than noting the importance of conceptual alignment (i.e., Herbers et al., 2017; McMahon & Naragon-Gainey et al., 2020). The present study explored semantic similarity quantitatively and qualitatively and found that some global items appeared to be worded more similarly to their EMA counterpart than others. However, given that results here align with prior correspondence trends (i.e., stronger correspondence for expressive suppression), it seems unlikely that results are due to semantic similarity alone. Future research should design EMA items to align as closely as possible to their global counterpart to identify correspondence above and beyond the effect of item wording.

Fifth, missing EMA data may have affected the results presented. Despite efforts to increase participant compliance (training video, incentivized reimbursement scheme based on number of EMA check-ins completed) the overall compliance rate (72.97%) was slightly lower than the recommended 75%-90% (Rintala et al., 2020). The present study handled missing EMA data by restricting the analytic sample to individuals with at least 20% compliance, as has been done previously (i.e., Kerr et al., 2021), and weighting regressions by compliance percent. Checks of demographic differences between included and excluded participants showed that caregivers excluded due to very low compliance were more likely to have lower levels of education, echoing previous findings that socioeconomic factors are associated with lower EMA responses among mothers (Dzubur et al, 2018). Future studies may be able to minimize missing

EMA data by increasing training, although more empirical research into best practices for increasing EMA compliance is needed (Stone et al., 2023).

Finally, the present study took a between-subjects approach to analyzing EMA data by averaging momentary ERSBs for each person and did not examine within-person ERSB variance. This is an established method for leveraging EMA data to get rich, person-level information and explore individual differences (Heron et al., 2019). It was also an appropriate analytic choice given the research questions, which aimed to use the EMA information as an indicator of typical ERSB behaviors in daily life and compare that with a global measure. Future analysis of these data using hierarchical linear modeling could examine within-individual variation in momentary ERSB use, which may shed light on the results presented here. Nested models could also test whether momentary factors such as caregiver stress predict caregiver ERSBs at subsequent timepoints.

Conclusion

Emotion socialization by primary caregivers is central to young children's emotion regulation development. Most emotion socialization research to date has relied on global, retrospective surveys in which parents report the overall frequency with which they engage in emotion-related socialization behaviors. However, little is known about whether global reports align with momentary reports of emotion socialization behaviors in daily life. The present study addressed this gap by examining associations between momentary and global reports of caregiver assistance with child emotion regulation strategies in a United States sample of caregivers with young children. The present study also examined whether ERSB correspondence varied depending on caregiver stress and socioeconomic status.

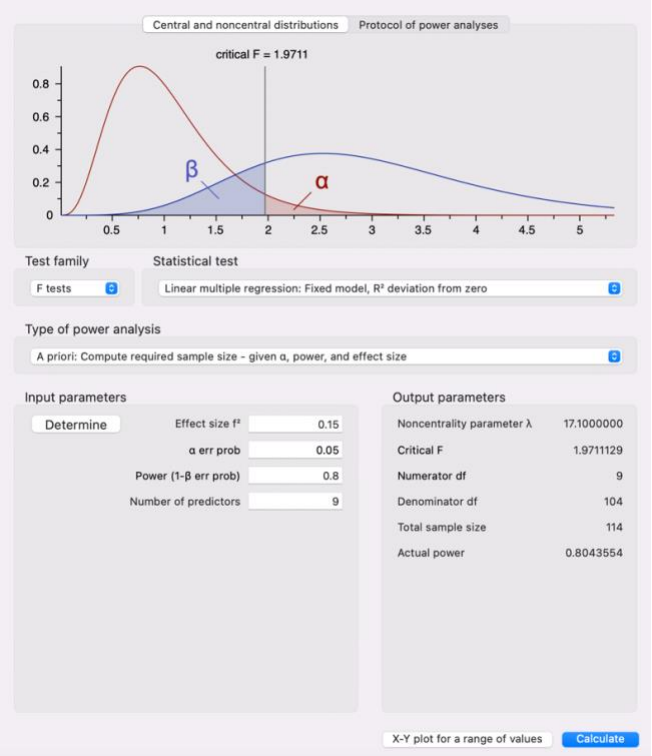
Results showed evidence of ERSB correspondence for caregiver support for child acceptance of negative emotion and expressive suppression of negative emotion, but not for

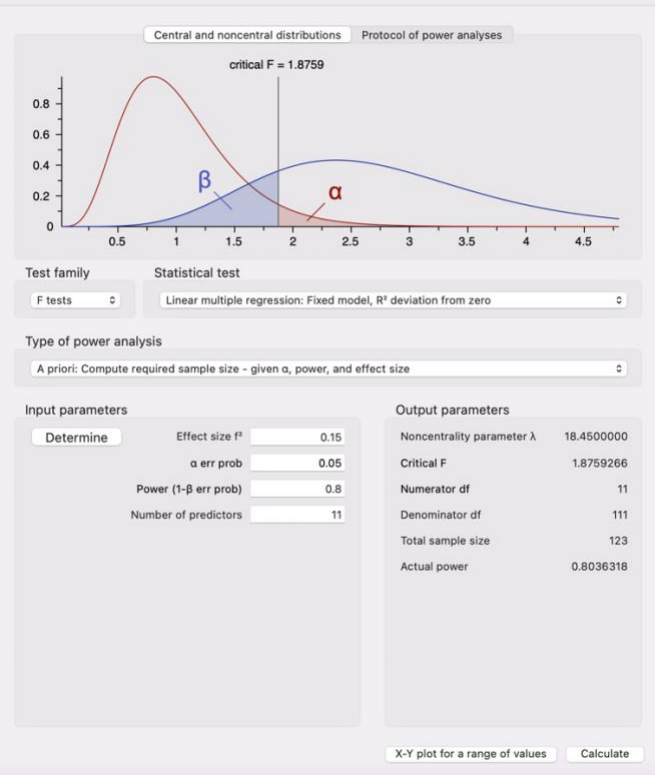
caregiver support for child use of distraction or cognitive reappraisal. Global caregiver stress, household socioeconomic status, and momentary caregiver stress did not moderate ERSB correspondence for any of the emotion regulation strategies examined.

Findings indicate that global and momentary reports of caregiver support for child emotion regulation strategies provided different information for some ERSB strategies in this sample. Emotion socialization researchers should consider potential differences in information yielded by global versus momentary reports to select measures appropriate to their research goals and interpret results. Future research can build on this work by drawing from more diverse samples, using validated momentary measures worded similarly to their global counterparts, and examining variation in ERSB correspondence to identify drivers of discrepancies.

APPENDIX A

POWER ANALYSES





APPENDIX B

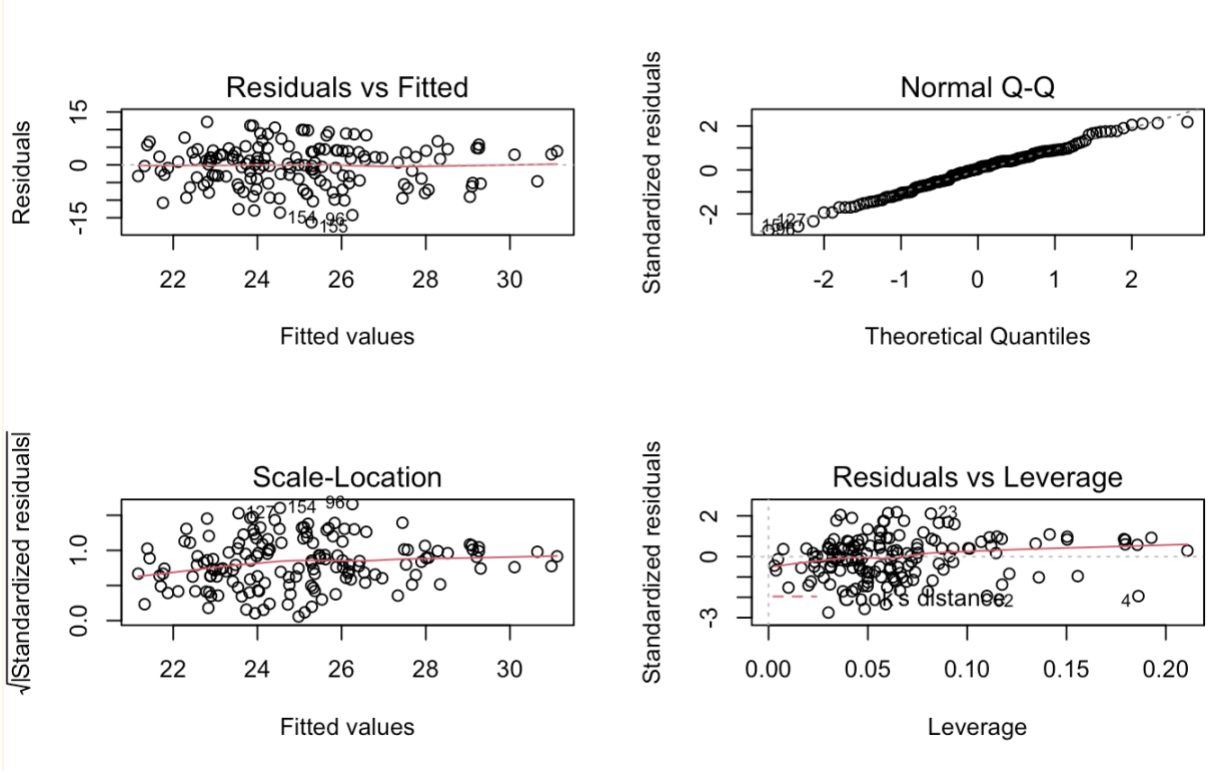
ALL MOMENTARY ERSB ITEMS

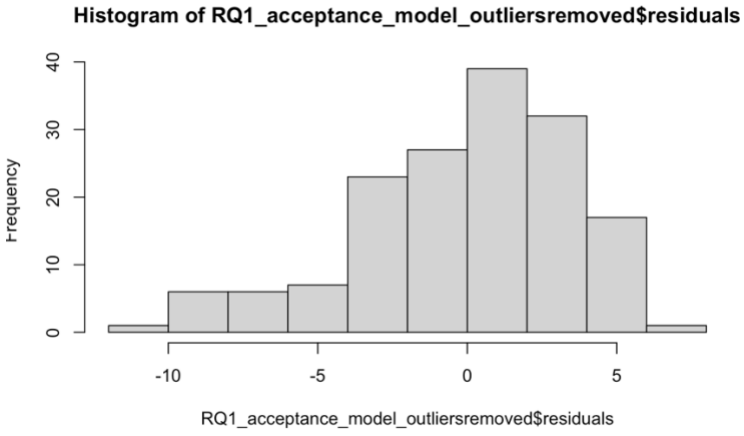
ERSB Strategy	Item
Acceptance	I expressed that it was OK to feel their emotion
Cognitive Reappraisal	Offered them ways to interpret the situation (e.g., explained reasoning)
Distraction (Positive)	I encouraged them to do something pleasant (e.g., watch cartoons)
Distraction (Avoidant)	I encourage them to do something more productive (e.g., pick up toys)
Expressive Suppression	I verbally encouraged them to change their emotion (e.g., "don't cry")
Ignoring	I ignored their behaviors or feelings
Labeling	I verbally provided a label for the emotion (e.g., "you're feeling sad"
Situation Modification	I physically changed the situation (e.g., hid broken toy so they couldn't see it, removed child from environment)
Social Sharing	I encouraged them to share how they were feeling (e.g., "tell me more"
No Regulation	I did not try to change their emotion

APPENDIX C

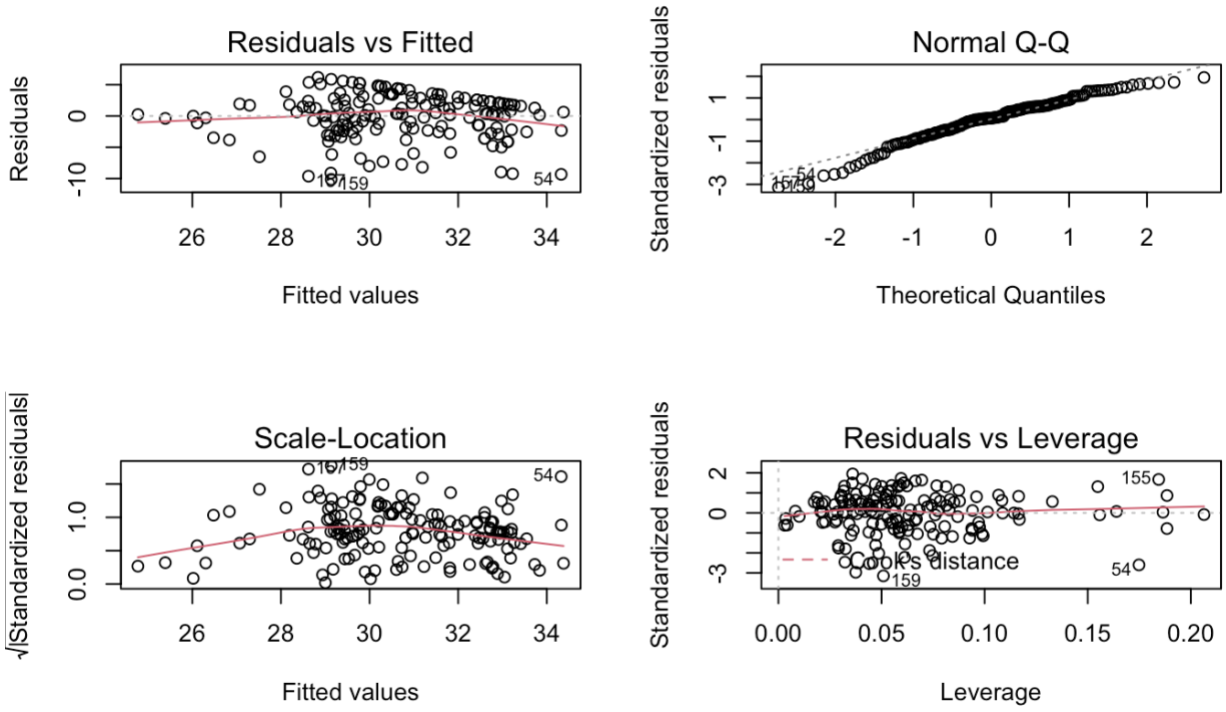
REGRESSION DIAGNOSTICS FOR RQ1 MODELS

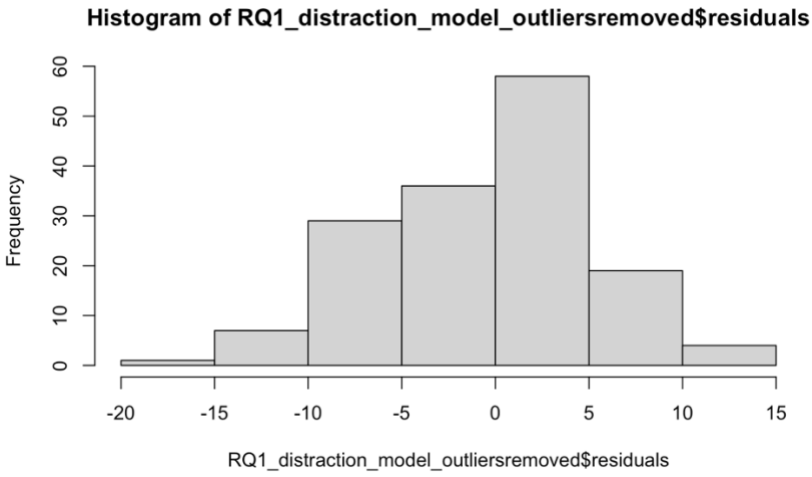
RQ1 Acceptance Model



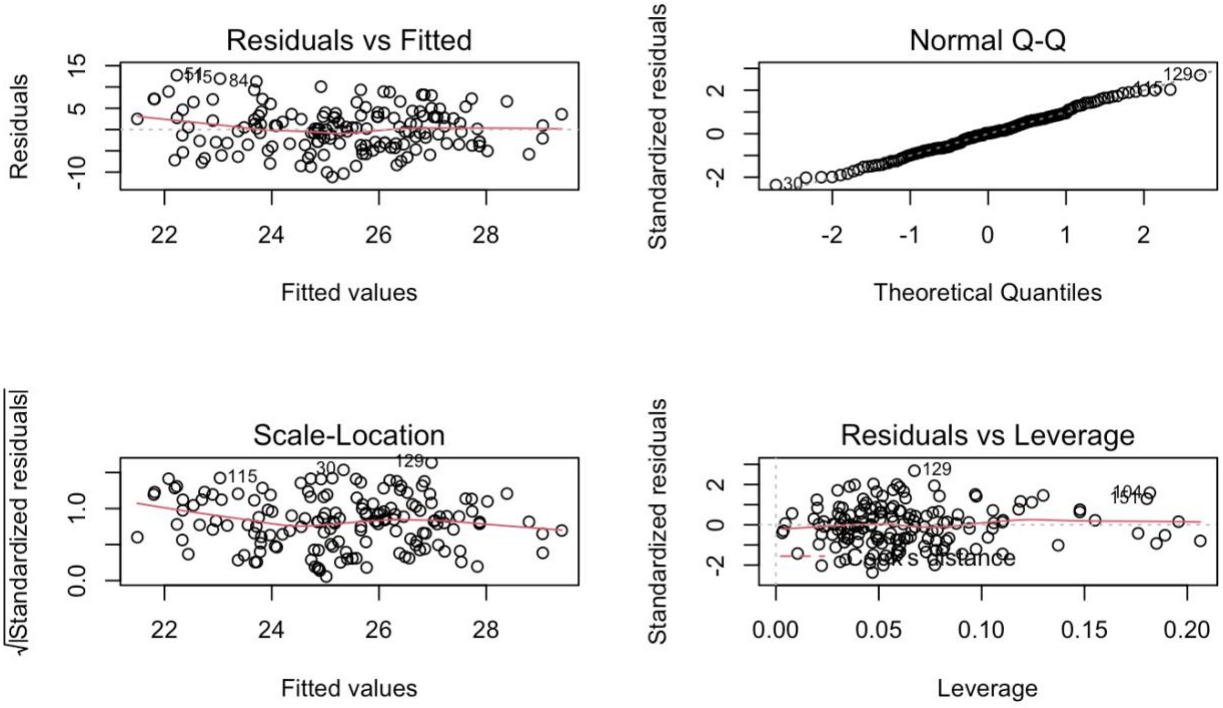


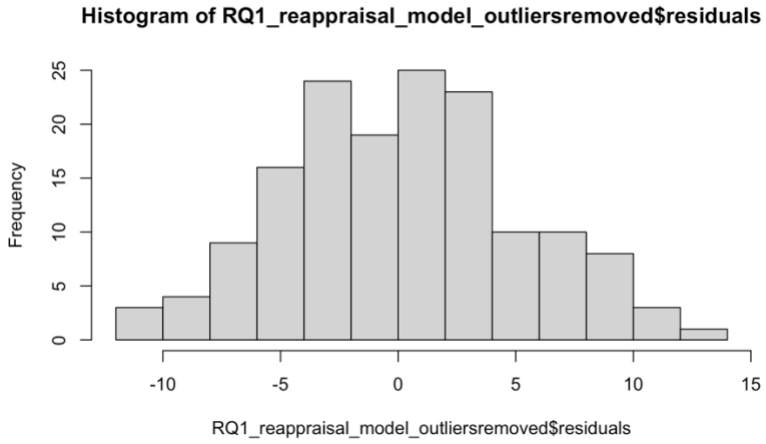
RQ1 Distraction Model



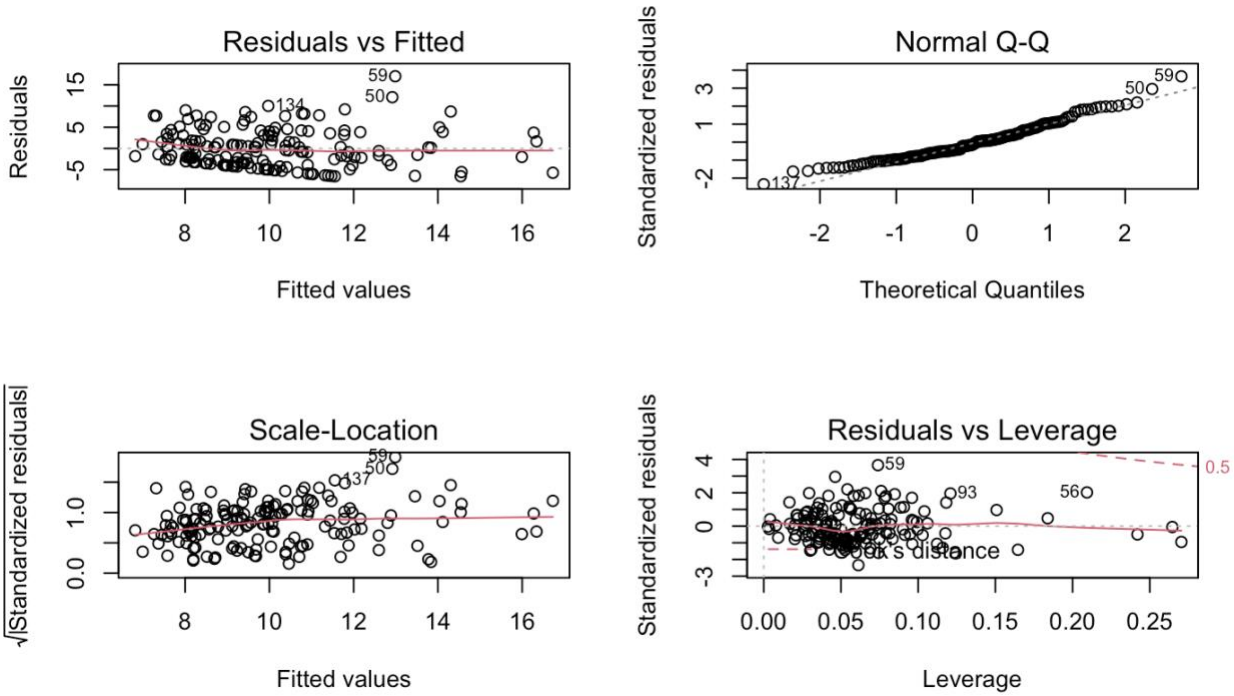


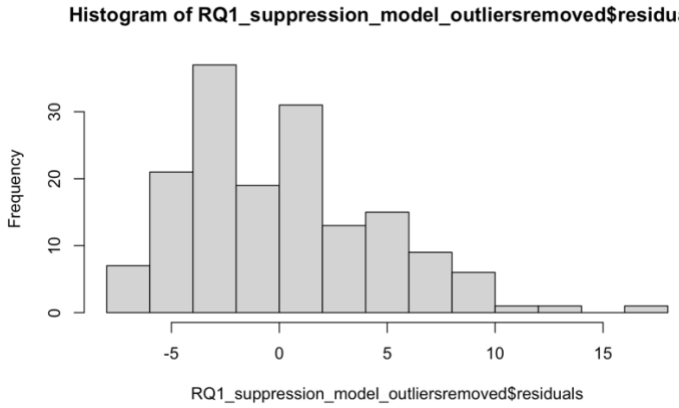
RQ1 Cognitive Reappraisal Model





RQ1 Expressive Suppression Model





APPENDIX D

SEMANTIC SIMILARITY: COSINE VALUES

ERSB Strategy	EMA Item	PACER Item	Item cosine	Average cosine
Acceptance	I expressed that it was okay to feel their emotion	I help my child understand that it's okay to have negative feelings.	.93	.90
		I help my child accept their negative feelings.	.85	
		I help my child accept the way they are feelings if they are unable to change the situation causing those feelings.	.92	
		I tell my child that having negative feelings is okay.	.86	
		I stress to my child that it can be helpful to accept negative feelings in some situations.	.94	
Cognitive Reappraisal	Offered them ways to interpret the situation (e.g., explained reasoning)	I help my child think of a situation in a positive light.	.81	.91
		I help my child see the situation from a different perspective.	.94	
		I help my child try to see the positive aspects of a situation that is making them have negative feelings.	.92	
		I help my child change their feelings by thinking differently about their current situation.	.92	
		I encourage my child to think of the positive side to their negative feelings.	.94	
Distraction	I encouraged them to do something pleasant (e.g., watch cartoons)	I help my child find ways to distract themselves from their negative feelings.	.87	.88
		I help my child distract themselves from their negative feelings by finding other things to do.	.88	
		I help my child take their mind off of things that are making them have negative feelings.	.87	
		I help my child take their attention off something that is making them have negative feelings.	.89	
		I help my child think about something other than what is making them have negative feelings.	.89	
Expressive Suppression	I verbally encouraged them to change their emotion (i.e. "don't cry")	I help my child to not show their negative feelings.	.92	.92
		I help my child try to hide their feelings from others.	.90	
		I help my child hide their physical expressions of their negative feelings.	.87	
		I help my child hide their negative feelings so that it is very hard for other people to tell how they are feeling in the moment.	.94	
		I encourage my child to hide negative feelings from others.	.96	

APPENDIX E

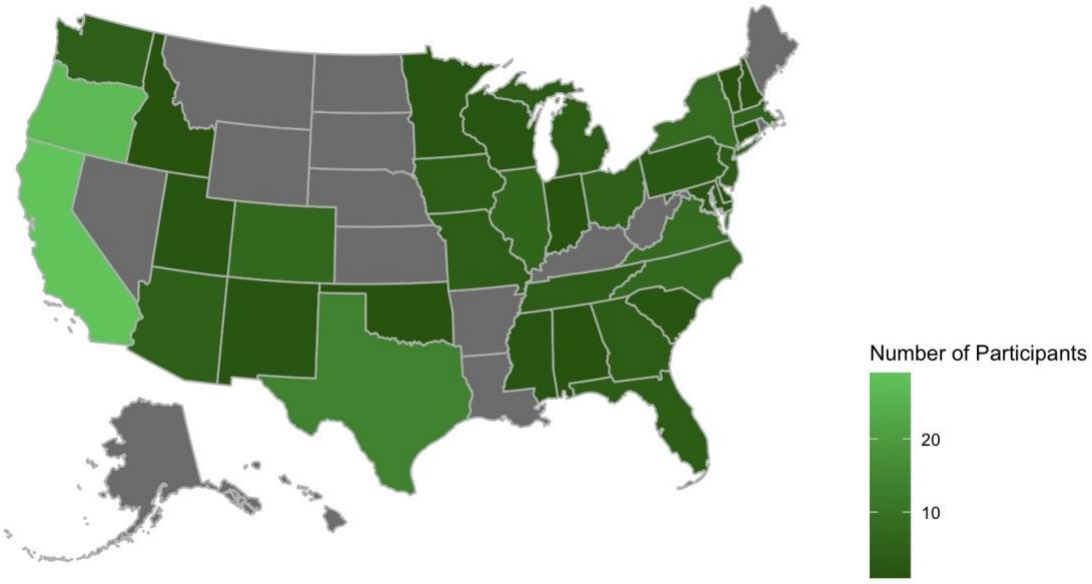
SEMANTIC SIMILARITY: BIVARIATE CORRELATIONS

ERSB Strategy	EMA Item	PACER Item	Inter-item r	Scale r
Acceptance	I expressed that it was okay to feel their emotion	I help my child understand that it's okay to have negative feelings.	.35***	.31***
		I help my child accept their negative feelings.	.29***	
		I help my child accept the way they are feelings if they are unable to change the situation causing those feelings.	.27***	
		I tell my child that having negative feelings is okay.	.32***	
		I stress to my child that it can be helpful to accept negative feelings in some situations.	.21***	
Cognitive Reappraisal	Offered them ways to interpret the situation (e.g., explained reasoning)	I help my child think of a situation in a positive light.	.07	.04
		I help my child see the situation from a different perspective.	.10	
		I help my child try to see the positive aspects of a situation that is making them have negative feelings.	.05	
		I help my child change their feelings by thinking differently about their current situation.	.05	
		I encourage my child to think of the positive side to their negative feelings.	-.06	
Distraction	I encouraged them to do something pleasant (e.g., watch cartoons)	I help my child find ways to distract themselves from their negative feelings.	.08	.12
		I help my child distract themselves from their negative feelings by finding other things to do.	.13	
		I help my child take their mind off of things that are making them have negative feelings.	.11	
		I help my child take their attention off something that is making them have negative feelings.	.11	
		I help my child think about something other than what is making them have negative feelings.	.11	
Expressive Suppression	I verbally encouraged them to change their emotion (i.e. "don't cry")	I help my child to not show their negative feelings.	.28***	.30***
		I help my child try to hide their feelings from others.	.25**	
		I help my child hide their physical expressions of their negative feelings.	.29***	
		I help my child hide their negative feelings so that it is very hard for other people to tell how they are feeling in the moment.	.25**	
		I encourage my child to hide negative feelings from others.	.30***	

* $p < .05$, ** $p < .01$, *** $p < .000$

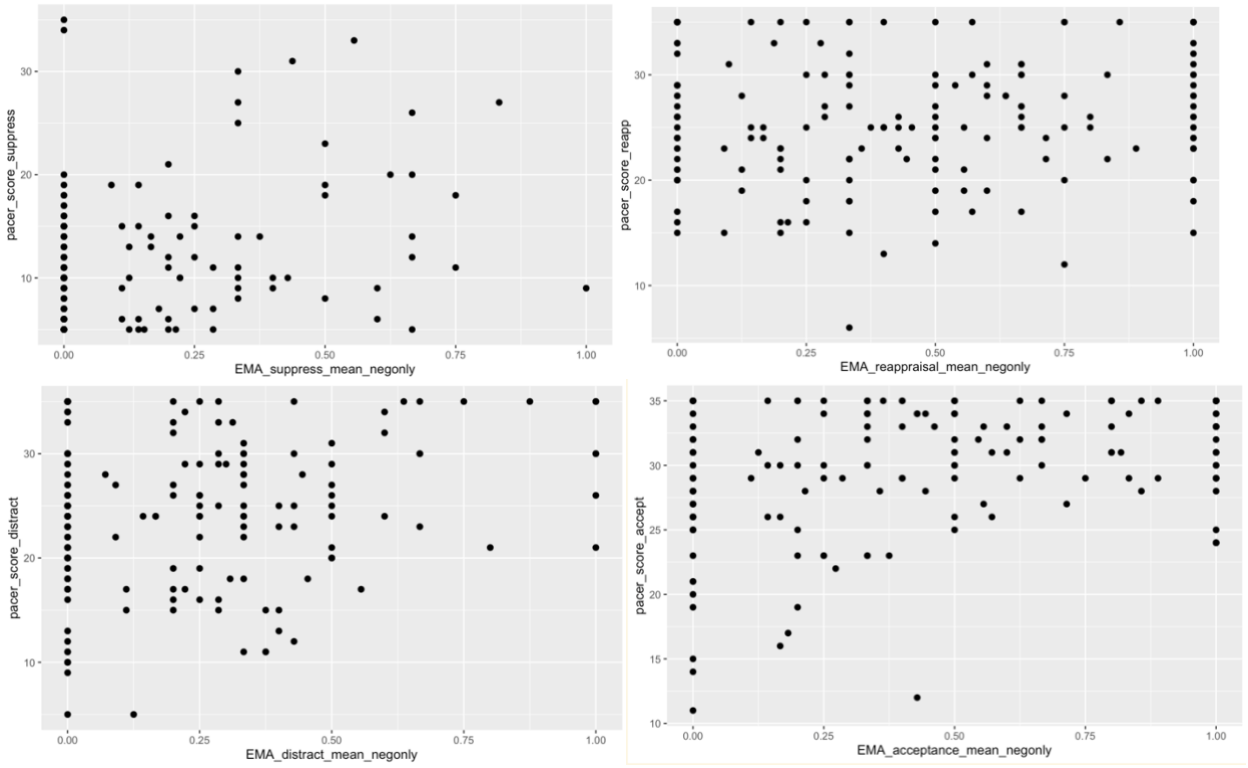
APPENDIX F

GEOGRAPHIC LOCATIONS OF PARTICIPANTS



APPENDIX G

SCATTER PLOTS OF RELATIONSHIP BETWEEN MOMENTARY AND GLOBAL ERSBS



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