

Caregiver Emotion Socialization & Child Adjustment in Context of Pediatric Cancer

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**Abstract**

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The current study assessed parent emotion socialization as a potential protective factor for child adjustment during the first year of pediatric cancer treatment and examined whether this association varied as a function of treatment intensity and child age. Families of children newly diagnosed with cancer ( $N = 159$ ;  $M_{\text{age}} = 5.6$  years; range = 2-17 years) were recruited from two children's hospitals to participate in a one-year longitudinal study. Multilevel models were used to test whether specific dimensions of parent meta-emotion philosophy (PMEP; i.e., awareness and acceptance of their own negative emotions and awareness, acceptance, and coaching of their child's negative emotions) were associated with the level and trajectory of child psychopathology, with treatment intensity and child age as moderators. The trajectory of children's symptom levels over the course of the year differed depending on parent acceptance of their own and their children's negative emotions; other PMEP dimensions did not predict child adjustment at the end of the first year. Treatment intensity acted as a moderator between all PMEP dimensions and internalizing symptoms at the end of the year. Although caregiver awareness, acceptance, and coaching of negative emotions seems to be adaptive for children undergoing less intense treatment, these approaches may be less effective in the face of high-intensity treatment.

## **Caregiver Emotion Socialization & Child Adjustment in Context of Pediatric Cancer**

Most prevailing developmental psychopathology models recognize the potential importance of stress in the etiology and maintenance of both internalizing and externalizing disorders in youth (e.g., Cicchetti & Toth, 1997). Studies have consistently pointed to family-based variables like parenting behaviors as potential mechanisms of the relation between chronic stress and youth psychological symptoms, including depression, anxiety, and conduct problems (e.g., West et al., 1991). One promising parenting practice that is thought to play an integral role in children's psychosocial adjustment is emotion socialization, or the way parents think and talk about their own and others' emotion. Emotion socialization can encompass many parenting behaviors and attitudes, including meta-emotion philosophy (i.e., awareness, acceptance, and coaching of emotions; Gottman et al., 1996, 1997; Katz et al., 2012). Studies of normative development suggest a potential protective effect of supportive meta-emotion philosophy on child outcomes (Eisenberg et al., 1998; Katz et al., 2012; Morris et al., 2007). In contrast, dismissing or punitive responses to children's emotions have been linked to worse social-emotional functioning and psychopathology, with associations extending into adulthood (Eisenberg et al., 1998; Katz et al., 2012; Morris et al., 2007).

Less is understood about how emotion socialization processes operate for children who are exposed to atypical environmental contexts, including those characterized by stress and trauma, that place them at increased risk for psychosocial maladaptation. The limited available evidence is consistent with findings from samples without a history of trauma exposure: emotion socialization practices appear to act as protective factors in children's development of psychopathology in contexts characterized by elements of risk, including domestic violence

(Katz & Windecker-Nelson, 2006), maternal incarceration (Zeman et al., 2016), military deployment (He et al., 2015) and economic instability (Labella, 2018).

Guided by Eisenberg's conceptual model of emotion socialization (Eisenberg et al., 1998) and Gottman's model of meta-emotion philosophy (Gottman et al., 1997), the present study adopted a longitudinal, multi-level modeling approach to examine a period characterized by significant life stress: the first year of treatment for children newly diagnosed with cancer and their primary caregivers. Specifically, the aim of this study was to examine how parental emotion socialization processes in this context interact with child characteristics and treatment-related stressors to exacerbate or ameliorate child and adolescent symptoms of psychopathology.

### **Emotion Socialization**

*Emotion socialization* refers to the direct and indirect ways that caregivers promote children's capacities to experience emotions, identify and understand emotions in themselves and in others, and efficiently manage their emotions (Eisenberg et al., 1998; Morris et al., 2007). Emotion socialization shapes youths' affective experiences, including their ability to identify, express, and regulate emotion (McKee et al., 2022). Parents' reactions to negative emotions, in particular, show strong links to youth psychopathology. A robust literature suggests that parents who respond to negative affect with supportive emotion socialization (e.g., encouraging affective expression, focusing on problem- or emotion-related coping) promote better emotion regulation skills among their children (Lunkenheimer et al., 2007; Morris et al., 2017). Conversely, children of parents who express non-supportive reactions (including minimizing the child's experience or reacting punitively) are more likely to have difficulty regulating their affective response to distress (e.g., Shaffer et al., 2012), which may have subsequent implications for the onset of psychopathology. Certainly, it makes sense that supportive behaviors would both assist children

in regulating their negative emotions in the moment and provide adaptive models of self-regulation that facilitate later socioemotional development.

One aspect of emotion socialization that has been found to be predictive of child adjustment is parental meta-emotion philosophy (PMEP), an organized set of beliefs, thoughts, and feelings about emotions that guides emotion socialization behaviors (Gottman et al., 1996). PMEP consists of parents' awareness and acceptance of their own and their children's emotions, as well as coaching of their children's emotions (Gottman et al., 1996, 1997; Katz et al., 2012). The role of PMEP in normative development has been widely explored, with specific beliefs and behaviors consistently documented as adaptive versus maladaptive for children (Suveg et al., 2005). PMEP characterized by high coaching and acceptance of emotion predicts lower levels of behavior problems (Shortt et al., 2010; Katz & Hunter, 2007). For example, maternal coaching of positive and negative emotions is related to fewer adolescent depressive symptoms (Katz & Hunter, 2007). In contrast, lower levels of awareness, acceptance, and coaching of children's negative emotions are associated with increased externalizing behaviors (Gottman et al., 1996; Katz & Windecker-Nelson, 2004). In general, the more parents value emotions and prioritize talking about them with their children, the better adjusted their children are in multiple areas of development (Eisenberg et al., 1998).

### **Pediatric Cancer as an Ecologically Valid Context for Studying Emotion Socialization**

With growing focus in the research literature on the importance of emotion socialization, there is a need for more work on the protective role of emotion socialization practices in unique developmental contexts, including serious challenges and severe stress. To examine the role of emotion socialization during stressful life events in an ecologically valid manner, we focus on a sudden, intense, and prolonged stressor that affects the entire family. Pediatric cancer diagnosis

and initial treatment is characterized by heightened stress and emotions, invasive procedures and difficult treatment decisions, and risk of complications and death (Van Schoors et al., 2018). In addition to psychosocial research in pediatric oncology that focuses on children and families who are off-treatment or well into survivorship, a growing body of work has followed families prospectively from diagnosis or during treatment (Long & Marsland, 2011). This period provides a rich opportunity to observe how relations between chronic stress and youth outcomes vary by parenting beliefs and practices thought to help or hinder youth psychosocial adjustment to stress (Faith et al., 2024). Overall, pediatric illness has been found to have a significant negative impact on child adjustment (Katz et al., 2018; Myers et al., 2014). For children with cancer specifically, results have been more mixed, with some studies reporting elevated internalizing symptoms (e.g., Pinquart & Shen, 2011) and others finding no difference (e.g., Howard Sharp et al., 2015). There is wide variability in psychopathology symptom levels among children with cancer, with a subset exhibiting clinically relevant symptoms (Katz et al., 2018). An important next step is to examine risk and protective factors for psychopathology in children with cancer to help determine targets for intervention.

To date, very little research has investigated parent emotion socialization behaviors and the related impact on child adjustment among families of children with cancer. Relevant findings examining general family support in studies of pediatric cancer consistently point to the importance of parent-child communication (Rodriguez et al., 2013), making the role of emotion-specific communication in this context a promising unexplored area of research. Children and adolescents with cancer frequently identify parents as their main source of support, and this support has been shown to be protective against stress (Woodgate, 2006). Following diagnosis, children may be uncertain about how to manage new stressors and emotions associated with their

diagnosis and look to parents for guidance. Even for adolescents without chronic illness, significant adult figures may be more essential than peers in promoting resilience (Criss et al., 2017). Given many parents' discomfort with children's negative emotions during cancer (Pöder et al., 2010), this is an important population to study regarding effective parenting practices related to emotions.

It is important to examine specific emotion socialization behaviors that confer risk versus resilience toward youth with cancer, as these may differ from those that are adaptive in other populations. While research has consistently linked supportive, coaching responses to better social-emotional adjustment and suppression responses to maladjustment (e.g., Morris et al., 2007), some studies suggest that there may be contexts (i.e., certain developmental stages, specific stressors) in which supportive responses are detrimental and suppression responses become more beneficial in promoting adjustment (Dunbar et al., 2022; Mirabile et al., 2018). Studies of parent communication in the context of children's acute medical procedure distress (e.g., injections) typically find that children cope most adaptively when parents help them avoid procedure-related negative affect (Cline et al., 2006; Mahoney et al., 2010). Preliminary findings from initial months of pediatric cancer treatment indicate that parents decline over time in their belief that they should coach children's emotions (Faith et al., 2024). Links between parent emotion socialization and longer-term child outcomes have not yet been investigated and could prove important in identifying intervention targets for families navigating pediatric cancer.

### **Moderators of Relations between Emotion Socialization and Child Adjustment**

A secondary aim of this study is to examine potential moderators of this association. To begin to build understanding of whether emotion socialization-focused intervention or prevention approaches could be helpful for families of children with cancer, it is important to thoroughly

characterize when and for whom this association holds. Eisenberg's model of emotion socialization includes several potential moderators of the link between emotion socialization and child developmental outcomes (Eisenberg et al., 1998). Two such proposed moderators are child developmental level and contextual factors.

### ***Child Developmental Level***

Despite the importance of emotion-related competencies across development, emotion socialization research has focused primarily on the narrow developmental period of early childhood (e.g., Eisenberg et al., 1998). Identifying the emotion-related family factors that enhance psychosocial adjustment beyond early childhood is an important research goal. Parental influences may be stronger for younger children who require more parental assistance to regulate their emotions, but emotion socialization continues to be important well into adolescence (McKee et al., 2022). However, it is unclear which emotion socialization strategies are adaptive for children with cancer at different stages of development. Parental influences may vary less with child age because the diagnosis or relapse of cancer is a novel source of stress for children of all ages. Indeed, in one study of older children's coping in this context, Monti et al. (2017) did not find evidence that parental predictors were moderated by child age. An important next step is to examine child age as a potential moderator of parent emotion socialization on child adjustment.

### ***Contextual Factors: Treatment Intensity***

Cancer treatment can vary significantly in intensity, and treatment intensity may be a contextual factor that potentially moderates the association between parent emotion socialization and child adjustment. Different emotion socialization strategies may intensify or weaken emotional experiences in different contexts, particularly those characterized by stress (Kiel &

Kalomiris, 2015). While some information has been gleaned regarding the influence of contextual factors on outcomes in the context of pediatric cancer (Bemis et al., 2015; Galtieri et al., 2022), few studies have focused on stressors specific to cancer treatment. For both children and parents, higher levels of perceived cancer-related stress are associated with poorer adjustment (Rodriguez et al. 2012), drawing attention to the potential role of emotion socialization philosophy in the context of more versus less intense treatment.

### **The Current Study**

The purpose of the present study was to understand how parental emotion socialization is related to youth symptoms of psychopathology in the context of pediatric cancer. We chose to examine longitudinal growth trajectories of child adjustment during the first year of cancer treatment to determine whether emotion socialization predicts symptoms over time. This approach allows us to capture the dynamic nature of adjustment, setting a foundation for understanding the long-term impact of parental emotion socialization and how the association between emotion socialization and symptoms evolves as treatment progresses. Based on the literature reviewed above, the following hypotheses were proposed. First, we hypothesized that parent awareness and acceptance of their own and their child's negative emotions, as well as coaching of their child's negative emotions, would moderate the relation between time and child adjustment. Specifically, we expected that higher levels of these dimensions of emotion socialization would predict greater decreases in the trajectories of child internalizing, externalizing, and PTSS across the first year of treatment. Second, we expected that higher levels of these same dimensions of emotion socialization would predict lower child internalizing, externalizing, and PTSS at the end of the first year of treatment. Third, we predicted that treatment intensity would moderate the association between emotion socialization and child

adjustment, such that awareness, acceptance, and coaching would be less protective in the context of more intense treatment. Finally, we expected that awareness, acceptance, and coaching would predict symptom trajectories and end-of-year outcomes for younger children more strongly than for older children.

## **Methods**

### **Procedures**

Families were contacted as part of a larger longitudinal study conducted at two major children's hospitals in the Southeast and Northwest United States. All procedures were approved by both hospitals' Institutional Review Boards. Families were approached by their physician or nurse within 2 weeks of their child's cancer diagnosis. Interested families were then approached by a member of the research team. Families were considered eligible if they were English-speaking, the child had no history of developmental delay, and the caregivers at the time of enrollment were the same as before the child's diagnosis. Participants with relapsed cancer, secondary malignancies, or neurofibromatosis Type I were excluded, as the focus was on families of children newly diagnosed with cancer. Of the 502 families eligible for participation across both sites, 309 were approached, 176 provided informed consent, and 159 completed at least one study component. Common reasons that eligible families were not approached included: a) physician did not consent to approach because child was too ill or did not approve within the study window; or b) families were recruited by a competing study. Families who declined participation most commonly reported that they were unable to commit the time required to participate in the study.

Data were collected over a 12-month period, beginning with a questionnaire packet distributed at the time of consent, followed by monthly questionnaire packets distributed by mail

(12 points of measurement total). The initial (T1) packet, returned on average 1.5 months post-diagnosis, included forms collecting demographic data on age, race, ethnicity, economic status, education, and employment. All families remained eligible through the course of the study, and no children died while their families participated in the study. If a completed questionnaire packet was not received by the study team within 2 weeks of mailing, the packet was skipped and the next month's packet was sent. Primary caregivers completed 6.8 packets on average. After the initial packet, the highest proportion of primary caregivers was retained at Month 6 (67.5%) and the lowest at Month 2 (5%). Number of completed packets was not associated with any demographic variables, and no relationship was found between initial psychopathology symptom scores and amount of missing data.

Within 3 months of diagnosis, approximately 65% of participating families ( $n = 103$ ) completed the Parent Meta-Emotion Interview (PMEI; Katz & Gottman, 1986), a semi-structured interview about their beliefs about and reactions to their own and their child's experience of sadness, anger, and fear. The interview includes questions like "What is it like for you to be scared?" and "How do you know when your child is angry?" Interviews were conducted by phone and lasted about 1 hour on average.

### **Participants**

Participants were children diagnosed with cancer between the ages of 2 and 17 years old ( $M = 6.31$  years,  $SD = 3.53$  years) and their families. Ninety percent of children were age 10 or younger; approximately half (48%) were male and most (86%) were identified by caregivers as White. All children had recently been diagnosed with cancer, including leukemia (33%), CNS tumors (23%), lymphoma (12%), sarcoma (11%), Wilms' tumor (9%), neuroblastoma (5%), and "other" (7%).

Families were asked to self-identify the child's primary and secondary caregivers to participate in the study. Most families identified mothers as the primary caregiver (87%), followed by fathers (11%). A few families identified the primary caregiver as a grandmother or a stepparent. The present study will exclusively focus on primary caregivers, as they were the most engaged in the child's treatment and spent the most time with the child. The average age of primary caregivers was 36.32 years old ( $SD = 7.96$ ), and like their children, most were White (90%). Families on average were of high socioeconomic status (median family income between \$60,000 and \$69,000) and 64% had completed post-secondary education.

## **Measures**

### ***Emotion Socialization***

Responses to the PMEI were audio-recorded and coded using the Meta-Emotion Coding System (Katz et al., 1994), a checklist rating system of Likert-type scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The following subscales were used in this study: 1) *Awareness* of own and child's emotions (17 items), which includes noticing and distinguishing the emotion from others, displaying insight into the emotion, and knowing the cause of the emotion; 2) *Acceptance* of own and child's emotions (10 items), which includes valuing the emotion, empathizing with their child's emotion, and wanting their child to express emotion; and 3) *Coaching* of child's emotions (6 items), which includes showing respect for and involvement in the child's emotional experience, teaching the child self-soothing strategies, and having given thought to what the child knows about emotions.

All interviews were coded by primary coders, and 67% of interviews were coded by a second coder to determine inter-rater reliability. Primary codes were used for all analyses. Using one-way random interclass-correlations, reliability ranged from 0.64 to 0.83 with a mean

reliability of 0.71 across subscales. Scores were calculated from the mean of each subscale's scores for sadness, anger, and fear. Items reflecting poorer emotion socialization (e.g., dislikes the way others express this emotion, prefers child to be soothed before getting involved) are reverse-coded, so higher scores indicate higher levels of that dimension (e.g., higher awareness, more coaching).

### ***Child Adjustment***

Children's internalizing and externalizing symptoms were measured via primary caregiver report using the Child Behavior Checklist (CBCL; Achenbach, 1991), a well-validated measure that assesses numerous domains of children's psychosocial functioning. Caregivers were asked to rate the frequency of symptoms within the past month. Caregivers of children ages 2-5 completed the preschool form, and those of children ages 6-18 completed the school-age form. *T* scores normed for child age and gender were used for the present study. The broad internalizing scale includes anxious/depressed symptoms, withdrawn/depressed symptoms, and somatic complaints, while the broad externalizing scale includes rule-breaking behavior and aggressive behavior subscales. Reliability was high across timepoints, with a Cronbach's  $\alpha$  of 0.91 at Month 12. As previous work has demonstrated that the somatic complaints subscale may not be valid when used in chronically ill populations (Perrin et al., 1991), it was excluded from the internalizing measure. The mean internalizing symptoms *T* score including somatic complaints was 51.43 and 54.11 without it (averaged across the year), indicating that exclusion of this subscale did not result in underreporting of internalizing symptoms. In addition, analyses were conducted using both versions of the internalizing scores, and results did not differ.

Children's post-traumatic stress symptoms (PTSS) were assessed via primary caregiver report using the UCLA Posttraumatic Stress Disorder – Reaction Index (UCLA PTSD-RI;

Steinberg et al., 2004). This 21-item questionnaire assesses trauma exposure and PTSS in children within the past month and yields an overall symptom severity score ranging from 0 to 68. Reliability was high over the course of the study, with a Cronbach's  $\alpha$  of 0.84 at Month 12.

### ***Treatment Intensity***

Caregivers gave permission for research staff to access the child's medical data, where diagnosis and treatment-related information were extracted by a pediatric oncologist. The Intensity of Treatment Rating (ITR-3; Kazak et al., 2012) was used to assess more objective treatment intensity. Intensity ratings ranged from 1 (*least intensive*) to 4 (*most intensive*) based on specific diagnosis, stage or risk level, and number of treatment modalities. Validation of the most recent revision of this measure showed strong psychometric properties (Kazak et al., 2012).

### **Data Analytic Strategy**

Multilevel models were used to test whether emotion socialization was associated with the level and trajectory of child psychopathology, with treatment intensity and child age as moderators. A priori power calculations were used to determine a goal sample size of 155 participants at baseline (assuming 65% participation and 10% attrition) to have power of .80 to detect small regression effects ( $b = .10 - .15$ ) and power approaching 1.0 to detect moderate ( $b = .30$ ) effects within a multilevel framework. The 159 families who participated in the study exceeded this goal, and interview data were available for 103 families, meeting our expected participation rate. According to sensitivity analyses conducted using G\*Power 3.1 (Erdfelder et al., 1996), the smallest detectable effect with a sample size of 103 would be  $f^2 = 0.07$  (consistent with the expected small-to-medium effect size). Based on prior studies of the association between emotion socialization and child adjustment (e.g., Shortt et al., 2010; Katz & Hunter,

2007; Katz et al., 2008), we expected a small-to-medium effect size for own and child acceptance and coaching and a small effect size for own and child awareness.

## Results

### Missing Data

Missingness analyses demonstrated that completion rate of the child adjustment measures (i.e., number of completed time points) was not correlated with PMEP scores. Caregivers with more children in the family completed fewer packets ( $r = -.20, p = .01$ ). There was also a small, negative correlation between packet completion rate and average child internalizing ( $r = -.20, p = .02$ ), suggesting that caregivers of more distressed children may have been less likely to complete measures. Packet completion was not correlated with average child externalizing or PTSS. Neither packet nor PMEI completion were correlated with treatment intensity ratings. Families who completed the PMEI had a significantly higher family income compared to those who did not ( $p = .01$ ), but there were no other differences between PMEI completers versus non-completers. An advantage of MLM is its ability to utilize all available data from timepoints with differing numbers of observations for each individual, which allowed us to use data from caregivers who did not provide data at every timepoint (Kwok et al., 2008).

### Growth Models

Descriptive statistics are presented in Table 1. Prior to examining the association between PMEP and child adjustment, we constructed growth models to determine the average trajectory of each individual adjustment outcome (internalizing, externalizing, and PTSS). Time was coded from -11 (Month 1) to 0 (Month 12) so that the intercept reflected psychopathology at Month 12. We first estimated an unconditional growth model with a linear time function. This provided us with an estimated fixed intercept, reflecting the average final level of each outcome, and an

estimated fixed slope parameter, reflecting the average rate of change for each outcome. On average, child symptoms of psychopathology decreased over the course of the year.

We then added random effects, first for the intercept and then for both the intercept and slope, testing for between-family differences in final levels of psychopathology as well as rate of change. We also examined the fit of quadratic and cubic models of change in the outcomes over time; however, the models with cubic time functions did not converge. To determine the final model, we compared model fit using the log-likelihood, Akaike information criteria, and Bayesian information criteria. The inclusion of random slopes and intercepts with a quadratic function of time (hereafter referred to as time<sup>2</sup>) best characterized our data, indicating that there was variation in children's trajectories of change in psychopathology between families that could potentially be explained by predictors.

### **PMEP Predicting Trajectories of Child Adjustment**

PMEP dimensions (awareness of own and child emotion, acceptance of own and child emotion, child coaching) were added as predictors to the models to test whether they predicted child adjustment, as indicated by statistical significance and improvement in model fit.

Acceptance of child emotions improved model fit for child externalizing ( $\chi^2(13) = 11.82, p < .01$ ). No other predictors improved model fit.

Average trajectories of adjustment were moderated by acceptance of emotions. Parents reporting high acceptance of child emotions had children who decreased in internalizing and externalizing symptoms for the first half of the year, followed by a steady increase for the rest of the year. The opposite was observed for children with parents low in acceptance, who approached the at-risk range of symptoms before decreasing around Month 4 (see Figure 1). Figure 1 shows that symptoms converged at the tails, indicating that children are starting and

ending the first year of treatment with similar adjustment. Figure 2 shows an opposite trend for PTSS and parent acceptance of their own negative emotions, though this was only marginally significant. No significant effects of PMEP on end-of-year child symptoms were found (see Table 2 for regression coefficients).

### **Moderators**

Child age did not moderate the relation between PMEP and child adjustment (trajectory or end-of-year) in any model. Treatment intensity moderated relations between all PMEP dimensions and internalizing symptoms at the end of the year (see Figure 3). At higher levels of treatment intensity, awareness and acceptance of own and child emotions, as well as coaching of child emotions, all predicted higher child internalizing symptoms. At lower levels of treatment intensity, each of these dimensions predicted lower levels of internalizing. A similar interaction effect was observed for child externalizing and PTSS, but only with parent acceptance of their own emotions. Treatment intensity did not significantly moderate the relation between PMEP and trajectory of child adjustment in any model (see Table 3 for regression coefficients).

### **Discussion**

Primary caregivers are responsible for providing an environment in which children have space and support to successfully move through the developmental tasks of childhood (Bruner, 1975). By serving as a scaffold, parents can address their children's changing developmental needs, including strategies for dealing with strong emotions (Howes et al., 2000). Our findings highlight the nuanced nature of the emotion socialization process and add to the literature on the effect of emotion socialization on child adjustment, particularly in very stressful contexts.

We anticipated that, as in other populations, children with cancer whose caregivers displayed high levels of emotional awareness, acceptance, and coaching would have better

psychological adjustment throughout and at the end of the first year after their diagnosis. Unexpectedly, PMEP largely did not predict child adjustment at the end of the year. Conversely, the trajectory of children's symptom levels over the course of the year differed depending on parent acceptance of their child's negative emotions. These findings suggest that children may benefit from different kinds of emotion socialization at different points in the year. Feeling that their negative emotions are accepted by their parents may not be as important for children's adjustment to the initial diagnosis of cancer (see Figure 1). Trajectories then begin to diverge as the year progresses, with the largest differences in child adjustment seen around the six-month mark. Pediatric cancer treatment and prognosis varies widely, so there are no common milestones around this time that would explain these differences (Institute of Medicine, 2003). However, findings from studies on parent coping have noted that the phase of cancer should be considered when determining the adaptive value of any given strategy (e.g., Vrijmoet-Wiersma et al., 2008). For example, avoidance may be functional closer to diagnosis, but loses its adaptive value and is associated with parent anxiety and depression in the active treatment and maintenance stages (Hoekstra-Weebers et al., 1999; Lindahl-Norberg et al., 2005). Similarly, it seems that different points in treatment may require different emotions socialization approaches. Future studies could benefit from inclusion of idiographic changes in treatment over time as predictors of the impact of emotion socialization.

Further, the children with the most favorable symptom trajectories throughout the year seemed to be those who had caregivers with more moderate PMEP, rather than very high levels of each dimension. For example, parents who scored around 3 on acceptance of their child's negative emotions had children who consistently decreased over the course of the year (see Figures 1 and 2). Parents of children with cancer may be overly attentive to negative emotions,

perhaps due to being dysregulated themselves or simply experiencing higher distress (Katz et al., 2018; Okado et al., 2016). Future research may test nonlinear associations to understand whether there are “optimal” levels of awareness, acceptance, and coaching, such that parents can successfully label and respond to emotions but without being overly attentive or sensitive to negative emotions.

It is also possible that higher levels of these PMEP dimensions are not risk factors by themselves but only when paired with the absence of regulation strategies. Interactions between dimensions of meta-emotion philosophy and emotion regulation may be an important direction for future exploration. It may be that in the case of an uncontrollable stressor such as pediatric cancer, greater awareness and acceptance of negative emotions might increase distress in the form of emotional experiencing and rumination if not combined with teaching children positive coping strategies, such as problem-solving and/or emotion regulation skills. Emotion regulation skills are known to be implicated in various psychopathologies at different stages of development (Aldao et al., 2016). The importance of explicitly teaching children emotion regulation skills has been demonstrated to be an effective target of recent parenting interventions (Katz et al., 2020; Maliken & Katz, 2013), indicating that it could be incorporated into new therapeutic interventions for families navigating pediatric cancer.

Treatment intensity also significantly moderated the associations between PMEP and child internalizing symptoms, but not externalizing or PTSS. At lower levels of treatment intensity, emotion socialization seems to function as would be expected based on prior literature (Shortt et al., 2010; Katz & Hunter, 2007). That is, caregivers who were more aware, accepting, and coaching had children with lower internalizing symptoms at the end of the year. In contrast, at higher levels of treatment intensity, each of these PMEP dimensions predicted significantly

greater child internalizing symptoms, indicating that they may be counterproductive in the face of high-intensity treatment. One possible explanation for this finding is that these are circumstances under which consistent focus on negative emotions amplifies the perception of distress. Increased effort to express and probe emotions may exhaust already limited resources, such as when disease risk is higher or more treatment modalities are involved. Relatedly, the medical demands and frequent disruptions associated with high-intensity treatment could shift focus to managing practical and immediate medical needs, limiting the time and energy caregivers have to engage in effective emotion socialization. Alternatively, caregivers who engage more in these behaviors may be more responsive to their children's emotions during times of intense treatment, resulting in greater recognition of children's internalizing symptoms. This heightened responsiveness could mean that caregivers are more attuned to their child's distress, which might lead to increased reporting or awareness of these symptoms.

While this study represents an important step in understanding the effects of emotion socialization in a high-stress context, it is important to recognize limitations that should be addressed in future research. First, given the intensive nature of cancer treatment and families being approached at a busy and stressful time, not all families completed the interview assessing parent emotion socialization practices, which limited power to detect significant effects. It is also worth noting that PMEP was not evaluated at the time of study enrollment, but two months later, so it is unknown whether the timing of these data capture parents' strategies for dealing with emotions directly following their child's diagnosis. Recent research has found decreases in parent emotion coaching beliefs over the first four months of pediatric cancer treatment, possibly due to an initial inflation of these beliefs at time of diagnosis while perceiving increased need for child emotional support (Faith et al., 2024).

Second, although participants were recruited from two separate US sites, they were mostly White and of high socioeconomic status (SES). Thus, findings may not capture experiences of individuals from diverse ethnic and racial backgrounds or those in lower SES contexts, who may be more likely to experience greater stress associated with caring for a child with cancer (Bemis et al., 2015). Finally, the larger project did not include child-report measures on emotion socialization. Research with other populations experiencing chronic stress has revealed unique findings from child perspectives (e.g., Shipman & Zeman, 2001).

Even considering study limitations, this work still holds several implications for clinical practice. Better understanding the relation between parental emotion socialization and child psychopathology may provide a novel avenue by which to intervene with families to enhance child adjustment. Emotion socialization has been shown to be amenable to intervention efforts with healthy samples, and changes in PMEP have been found to relate to improved parental emotion regulation and child adjustment (Havighurst et al., 2009; Katz et al, 2020). Including instruction specifically related to emotion socialization may be one avenue by which families currently not benefitting from available parenting interventions can be treated effectively (Maliken & Katz, 2012).

The results of this study also have specific implications for intervention for families of children with cancer, suggesting an avenue for screening families' psychosocial risk during cancer treatment. Future research should examine the long-term impact of caregiver responses to emotions when managing intense stressors such as medical treatment to inform interventions that help caregivers effectively support their children. With additional research and support to identify families at high risk for difficulties, we can provide more effective care to promote resilience even in the most challenging treatment circumstances.

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**Table 1***Descriptive Information for Relevant Study Variables*

	<i>M</i>	<i>SD</i>	Observed Range
Child Age (in years)	6.31	3.53	2 – 17
Treatment Intensity (1–4)	2.60	0.71	1 – 4
PMEP at Month 3 (1–5)			
Own Awareness	3.44	0.39	2.11 – 4.26
Own Acceptance	3.01	0.37	2.33 – 4.33
Child Awareness	3.54	0.41	1.75 – 4.36
Child Acceptance	3.56	0.33	2.72 – 4.72
Child Coaching	3.34	0.37	2.28 – 4.39
Child Adjustment (across year)			
Internalizing (Anxious/Depressed) <i>T</i> score	54.11	6.67	50 – 87
Externalizing <i>T</i> score	46.52	11.54	28 – 95
PTSS (0–68)	11.13	8.43	0 – 47

*Note.* PMEP = parent meta-emotion philosophy. PTSS = post-traumatic stress symptoms.

**Table 2**  
*Regression Coefficients for PMEP Predicting Child Adjustment*

	Internalizing b(SE)	Externalizing b(SE)	PTSS b(SE)
Own Awareness			
Own Awareness	2.673 (2.03)	2.691 (2.95)	0.399 (2.52)
Time x Aware	0.284 (0.55)	0.091 (0.61)	-0.964 (0.60)
Time <sup>2</sup> x Aware	0.013 (0.05)	-0.008 (0.05)	-0.085 (0.05)
Own Acceptance			
Own Acceptance	<b>-3.477 (1.99)<sup>†</sup></b>	-3.67 (2.92)	-3.001 (2.45)
Time x Accept	-0.414 (0.53)	-0.431 (0.59)	<b>-0.989 (0.57)<sup>†</sup></b>
Time <sup>2</sup> x Accept	-0.016 (0.05)	-0.028 (0.05)	-0.082 (0.05)
Child Awareness			
Child Awareness	0.494 (1.75)	-0.338 (2.61)	0.865 (2.15)
Time x Child Aware	0.236 (0.46)	0.006 (0.51)	-0.385 (0.51)
Time <sup>2</sup> x Child Aware	0.017 (0.04)	0.015 (0.05)	-0.026 (0.05)
Child Acceptance			
Child Acceptance	1.861 (2.25)	-1.225 (3.33)	2.755 (2.76)
Time x Child Accept	<b>1.34 (0.58)*</b>	<b>2.039 (0.61)*</b>	-0.072 (0.66)
Time <sup>2</sup> x Child Accept	<b>0.100 (0.05)<sup>†</sup></b>	<b>0.170 (0.06)*</b>	-0.040 (0.06)
Child Coaching			
Child Coaching	0.685 (2.01)	-1.834 (2.97)	0.102 (2.47)
Time x Coaching	0.570 (0.53)	0.555 (0.59)	-0.185 (0.59)
Time <sup>2</sup> x Coaching	0.048 (0.05)	0.051 (0.05)	0.003 (0.05)

Note. \*  $p < .05$ , <sup>†</sup>  $p < .10$

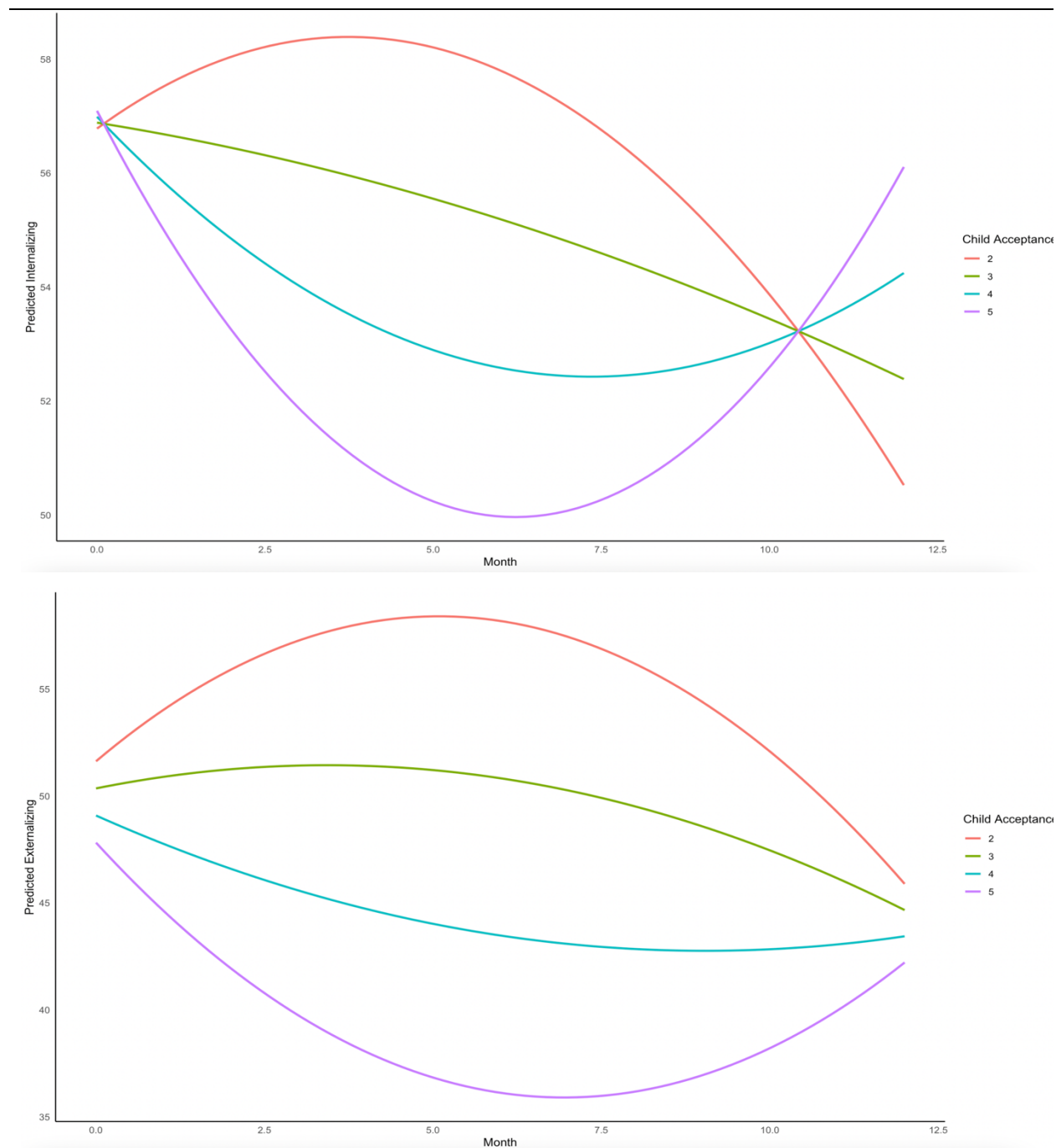
**Table 3**  
*Regression Coefficients for Moderation Analyses*

	Internalizing b(SE)	Externalizing b(SE)	PTSS b(SE)
Age			
Own Awareness			
Aware x Age	0.002 (0.64)	-1.282 (0.92)	-0.417 (0.79)
Aware x Age x Time	0.189 (0.17)	-0.172 (0.19)	-0.203 (0.19)
Aware x Age x Time <sup>2</sup>	0.015 (0.01)	-0.018 (0.02)	-0.022 (0.02)
Own Acceptance			
Accept x Age	-0.313 (0.58)	-0.579 (0.85)	0.034 (0.69)
Accept x Age x Time	0.210 (0.15)	0.048 (0.17)	0.209 (0.16)
Accept x Age x Time <sup>2</sup>	0.014 (0.01)	-0.004 (0.01)	0.009 (0.01)
Child Awareness			
Child Aware x Age	0.016 (0.40)	-0.365 (0.59)	-0.261 (0.48)
Child Aware x Age x Time	0.070 (0.10)	-0.064 (0.11)	-0.049 (0.12)
Child Aware x Age x Time <sup>2</sup>	0.006 (0.01)	-0.011 (0.01)	-0.004 (0.01)
Child Acceptance			
Child Accept x Age	-0.208 (0.71)	<b>-1.729 (1.04)<sup>†</sup></b>	0.232 (0.87)
Child Accept x Age x Time	0.222 (0.18)	-0.211 (0.19)	-0.004 (0.21)
Child Accept x Age x Time <sup>2</sup>	0.019 (0.02)	-0.022 (0.02)	-0.008 (0.02)
Child Coaching			
Coach x Age	-0.148 (0.51)	-1.034 (0.76)	-0.035 (0.62)
Coach x Age x Time	0.088 (0.13)	-0.145 (0.15)	0.024 (0.15)
Coach x Age x Time <sup>2</sup>	0.008 (0.01)	-0.017 (0.01)	-0.001 (0.01)
ITR			
Own Awareness			
Aware x ITR	<b>7.301 (3.02)*</b>	4.965 (4.44)	1.664 (3.90)
Aware x ITR x Time	-0.911 (0.85)	-0.444 (0.95)	-0.242 (0.95)
Aware x ITR x Time <sup>2</sup>	<b>-0.131 (0.07)<sup>†</sup></b>	-0.092 (0.09)	-0.006 (0.08)
Own Acceptance			
Accept x ITR	<b>4.879 (2.95)<sup>†</sup></b>	<b>8.165 (4.43)<sup>†</sup></b>	<b>7.551 (3.61)*</b>
Accept x ITR x Time	-0.143 (0.81)	0.880 (0.90)	0.857 (0.89)
Accept x ITR x Time <sup>2</sup>	0.001 (0.07)	0.054 (0.08)	0.044 (0.04)
Child Awareness			
Child Aware x ITR	<b>7.237 (3.00)*</b>	4.638 (4.45)	0.334 (3.79)
Child Aware x ITR x Time	0.497 (0.82)	0.342 (0.92)	0.967 (0.93)
Child Aware x ITR x Time <sup>2</sup>	0.002 (0.07)	-0.008 (0.08)	0.093 (0.08)
Child Acceptance			
Child Accept x ITR	<b>8.526 (3.16)*</b>	3.881 (4.94)	6.031 (3.98)
Child Accept x ITR x Time	0.329 (0.83)	-1.388 (0.88)	0.326 (0.99)
Child Accept x ITR x Time <sup>2</sup>	-0.000 (0.07)	-0.092 (0.08)	0.015 (0.09)
Child Coaching			
Coach x ITR	<b>5.927 (2.95)<sup>†</sup></b>	6.856 (4.46)	5.156 (3.67)
Coach x ITR x Time	-0.576 (0.79)	-0.174 (0.89)	0.727 (0.90)
Coach x ITR x Time <sup>2</sup>	-0.063 (0.07)	-0.038 (0.08)	0.060 (0.08)

Note. \*  $p < .05$ ,  $† p < .10$

**Figure 1**

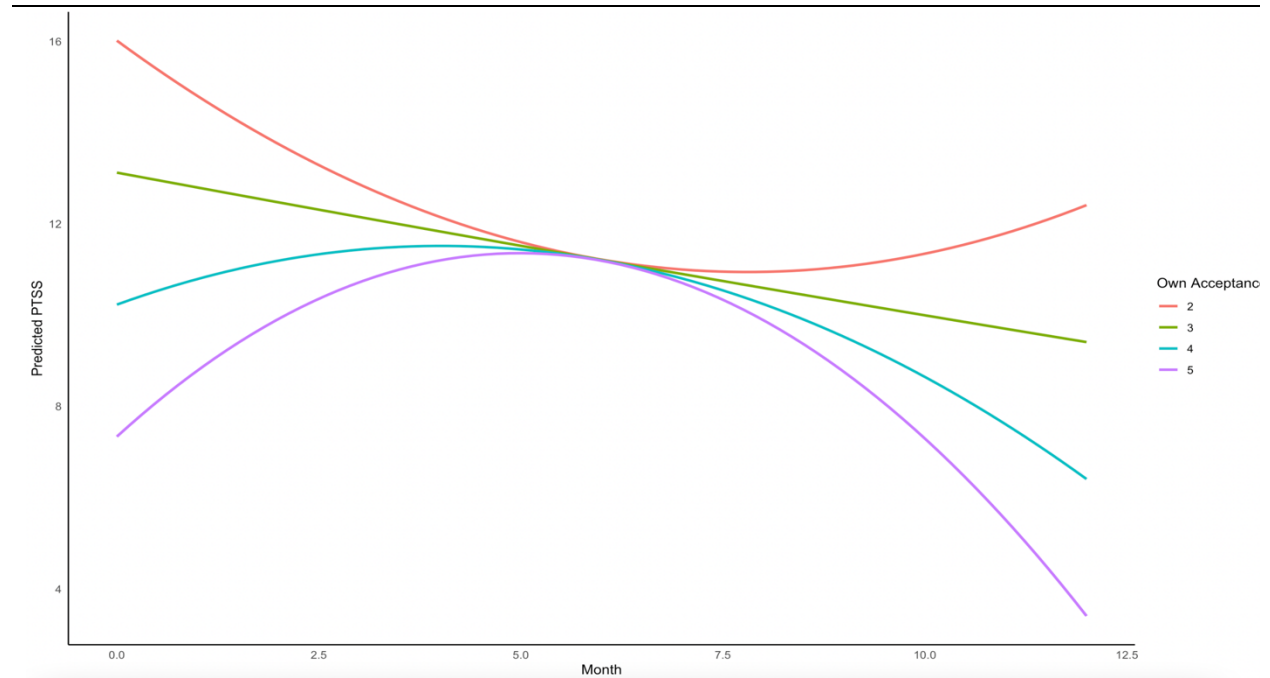
*Predicted Trajectories of Child Internalizing and Externalizing Symptoms Grouped by Levels of Caregiver Acceptance of Child Negative Emotions*



*Note.* Child Acceptance is a dimension of PMEP, on which possible scores range from 1 to 5, with 1 indicating very low levels of that dimension and 5 indicating very high levels. Number of parents who scored below 2 was too low to be represented in figure.

**Figure 2**

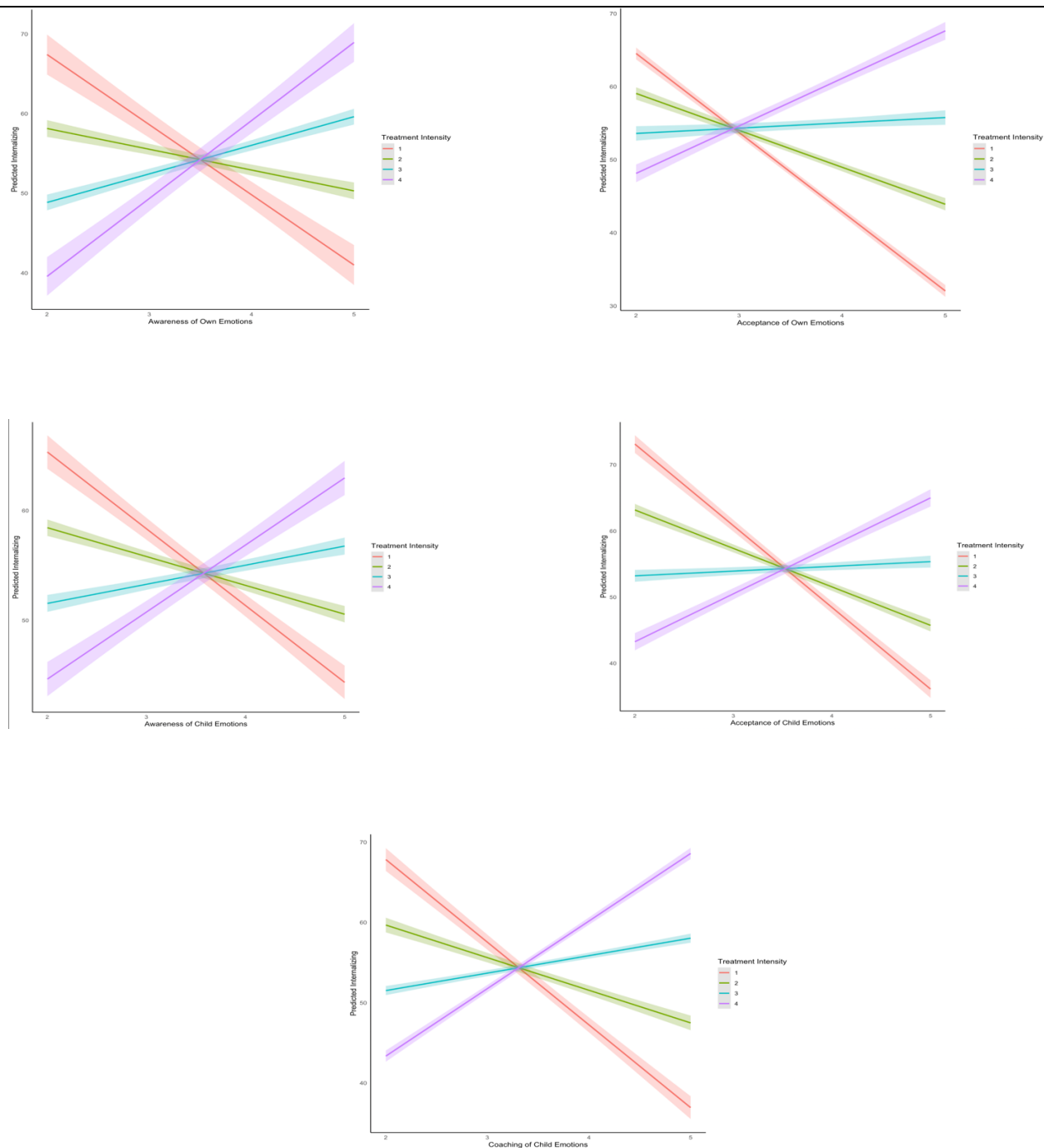
*Predicted Trajectories of Child PTSS Grouped by Levels of Caregiver Acceptance of Own Negative Emotions*



*Note.* PTSS = post-traumatic stress symptoms. Own Acceptance is a dimension of PMEP, on which possible scores range from 1 to 5, with 1 indicating very low levels of that dimension and 5 indicating very high levels. Number of parents who scored below 2 was too low to be represented in figure.

**Figure 3**

*Associations Between PMEP and Month 12 Child Internalizing, Grouped by Treatment Intensity*



*Note.* Shaded regions indicated 95% confidence intervals. Treatment Intensity levels represent the four possible levels according to ITR-3 (Kazak et al., 2012), with 4 representing the highest level of treatment intensity.