Mothers' Attitudes as Organizers of Discipline Practices and Related Anticipatory Processes

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Abstract

We hypothesized that mothers' negative attitudes toward their toddlers would set in motion an anticipatory social cognitive-affective cascade that influenced their parenting during immediately subsequent discipline encounters. Ninety-seven mothers of 2- to 3-year-old children completed a laboratory assessment consisting of (a) an interview/observational measure of their attitudes toward their toddlers, questionnaires tapping (b) expectancies of their children's difficult behavior in upcoming discipline encounters and (c) anticipatory changes in their own experience of negative emotion, (d) measures of anticipatory changes in their heart rate and electrodermal activity, and (e) observations of their overreactive and lax discipline. Negative maternal attitudes were associated with lax discipline, negative expectancies, and anticipatory electrodermal reactivity. Negative expectancies were associated with anticipatory increases in mothers' experience of negative emotion. Other than negative maternal attitudes, however, no factor in the hypothesized social cognitive-affective cascade predicted discipline. Thus, the hypothesized model was not fully supported by the data.

Keywords: Parenting; attitudes; expectancies; emotion; psychophysiology; social cognition; toddlers.

Introduction

Research suggests that parents' responses to their children's transgressions are influenced not only by the nature of their children's behavior, but also by how they think about, interpret, and emotionally respond to their children. Harsh/overreactive and/or permissive/lax discipline is associated with such social cognitive factors as parents' negatively biased appraisals of their children's behavior and child centered attributions for aversive child behavior (Lorber, O'Leary, & Kendziora, 2003; MacKinnon-Lewis, Lamb, Hattie, & Bardaran, 2001), as well as affective factors such as the experience of negative emotion (summarized in the meta-analysis by Rueger, Katz, Risser, & Lovejoy, 2011) and physiological responses (Joosen, Mesman, Bakermans-Kranenburg, & van IJzendoorn, 2013; Lorber & O'Leary, 2005) to child stimuli and during discipline encounters. Moreover, there is evidence that such social cognitive-affective factors are interrelated, sometimes working in concert to predict maladaptive discipline (Crouch et al., 2017; Leung & Slep, 2006; Lorber & O'Leary, 2005; Mence et al., 2014; Rodriguez, Russa, & Kircher, 2015).

Much of the above research has focused on parents' thoughts, feelings, and physiological responses during discipline encounters or in response to analog stimuli meant to simulate aversive child behavior. Such research is explicitly or implicitly predicated on the idea that social cognitive-affective processes that occur "in the heat of the moment" may be especially important determinants of parental behavior. Yet this may only be part of the story. Before an interaction has begun, mothers' negative attitudes toward their children may set in motion an anticipatory social cognitive-affective cascade that influences their parenting during immediately subsequent discipline encounters.

Definitions of the term *attitude* have varied somewhat. Here we adopt the one offered by Greenwald and colleagues (2002) in their unified theory of attitudes: the mental representation of an association of a social object (e.g., "my child") or social group concept with a valence attribute (e.g., "negative"). Applying the model of Greenwald et al. (2002), parental attitudes here refer to the associative links of the child and parent-child relationship with global valence attributes. Based on this definition, attitudes are distinct from, but can perhaps be thought of as one facet of, relational schemas. Relational schemas are typically conceptualized in broad terms and include such phenomena as separate schemas about the self and other in the relationship, scripts for social interchanges, as well as beliefs about people and behavior more broadly (Azar, Reitz, & Goslin, 2008; Baldwin, 1992; Milner, 2003). It is further important to distinguish our use of the term parental attitudes from attitudes toward

parenting (e.g., the acceptability of parenting practices; Budd et al., 2012); these are general views of parental behavior, rather than of a specific child or parent-child relationship.

The mental representations that family members form about one another are widely viewed as organizers of cognition, emotion, and behavior within interpersonal relationships (Azar et al., 2008; Baldwin, 1992; Dix & Meunier, 2009; Fincham, Garnier, Gano-Phillips, & Osborne, 1995; Milner, 2003). As such, direct attitude-parenting associations are possible. For example, having an attitude toward one's child and the parent-child relationship may activate behavior toward the child that is congruent with the valence of the attitude (e.g., hostility activated by a negative attitude). In support of this possibility, prior studies have found that critical remarks and other negative comments made about the child and/or parent-child relationship during extemporaneous speech samples are associated with parents' negative behaviors observed during parent-child interactions (Bullock & Dishion, 2007; McCarty, Lau, Valeri, & Weisz, 2004; Pasalich, Dadds, Hawes, & Brennan, 2011). Such critical remarks are suggestive of a corresponding negative attitude and the above findings may thus reflect attitude-parenting behavior associations.

Negative parental attitudes may also influence discipline practices via intermediate social cognitive-affective processes. A parent's attitude, as one aspect of a broader relational schema, may activate an associated interpersonal script, or a mental representation of a behavioral sequence (Baldwin, 1992). To illustrate, a negative parental attitude may activate the interpersonal script for a difficult discipline encounter in which the parent issues a command, the child is defiant, and the parent punishes the child. The script is thought to involve a declarative component (an explicit *expectancy* or prediction of how the interaction will proceed), as well as a procedural component (a behavioral response) that may be enacted in an automatic fashion. This conceptualization is based on Baldwin's (1992) relational schema model, but is also similar to that offered in interdependence theory in which a person's interpersonal disposition (including attitudes) toward an interactive partner influences both the expected features of the interaction and the expected dispositions of the partner, which in turn activates strategies for responding (Holmes, 2002).

As an interpretive note, we contrast our use of the term "expectancy" to the notion of "expectations" described by other investigators (e.g., Azar et al., 2008). Expectancy, in our usage, is a prediction about how a future interaction with the child will turn out (e.g., "my child will be compliant"), consistent with the definition of Biernat and Billings (2001) and Caselles and Milner's (2002) notion of predicted or expected child behavior. By contrast,

expectations are beliefs about how future interactions should turn out (e.g., "children should be compliant").

The relation between parental attitudes toward their children and parents' expectancies of their children's behavior has yet to be documented. However, the results of a recent study suggest that newly formed child-related attitudes (reflected in the evaluations of a photograph of an unfamiliar child) are associated with adults' expectancies of the need for future discipline of that child (Milner, Wagner, & Crouch, 2016). Moreover, the results of studies of other interpersonal relationships suggests the plausibility of the link. For example, in intimate couples, relationship dissatisfaction (interpreted as a marker of a negative attitude) has been linked to negative expectancies for the partner (e.g., Fincham et al., 1995).

The interpersonal script and its associated expectancies activated by a negative parental attitude toward the child and parent-child relationship may also contain an affective component, per Baldwin's (1992) relational schema model. To revisit the hypothetical parent, feeling and expressing anger may be part of the script activated by his/her negative attitude. Although not yet studied in the parenting literature, emotion is common in the conflict-related scripts of adult intimate couples (Fehr, Baldwin, Collins, Patterson, & Benditt, 1999). Alternatively, expectancies may impact parental emotion. The anticipation of blocked goals (e.g., my child is going to prevent me from having a peaceful afternoon) may be particularly provocative, as perceived goal blockage is a primary cause of anger in appraisal accounts of emotion (Kuppens, Van Mechelen, & Rijmen, 2008). In the most relevant results, Fincham et al. (1995) found that expectancies for difficult intimate partner behavior were associated with negative experienced emotion prior to an upcoming interaction. Although the link between scripts/expectancies and parental emotion has yet to be documented, a substantial literature ties parents' experienced emotion to other child-related cognitions such as appraisals of and causal attributions for child behavior (e.g., Crouch et al., 2017; Leung & Slep, 2006; Lorber & O'Leary, 2005; Rodriguez, 2016).

In addition to the anticipatory experience of negative emotion, the negative expectancies that result from a negative attitude toward one's child and the parent-child relationship may also influence discipline practices by causing an anticipatory physiological reaction. Physiological reactions to evocative stimuli may reflect a channel(s) of emotion distinct from the experiential sense of affect (Mauss, Levenson, McCarter, Wilhelm, & Gross, 2005). Accordingly, electrodermal and cardiovascular responses may respond to negative expectancies in a manner similar to experienced emotion. In relevant evidence from studies outside the parenting literature, increased electrodermal and cardiovascular reactivity has been found to result from negative anticipatory states, such as an upcoming social

stressor or other forms of aversive stimuli (Dawson, Schell, & Courtney, 2011; Feldman, Cohen, Hamrick, & Lepore, 2004). These physiological responses may be related to the aversiveness of the anticipated stimulus. Additionally, increased cardiovascular responses in anticipation of an upcoming stressor, in particular, are likely linked to the metabolic demands of responding to the stressor (Berntson & Cacioppo, 2000).

Integrating insights from the above literatures, the affective state associated with a negative attitude toward the child/parent-child relationship and expectancies of difficult upcoming child behavior may prime a parent for dysfunctional discipline behavior before an interaction has begun. The experience of negative anticipatory emotion, an increasingly quickly beating heart, and an increase in sweating may be indicative of an affective state that undermines a parent's skilled responses to the challenges of child behavior in the upcoming discipline encounter. This process has not yet been studied in the parenting literature. However, aggressive parenting is associated with negative expectancies of child behavior in discipline encounters (Caselles & Milner, 2002). Moreover, negative maternal emotion measured immediately prior to mother-child interactions predicts subsequent discipline behavior (per an unpublished association from Arnold & O'Leary, 1995; Elizabeth Harvey, personal communication, May 31, 2016) and meta-analytic results suggest the association of negative parental emotion with compromised parenting more generally (Rueger, Katz, Risser, & Lovejoy, 2011). Furthermore, increased cardiac and/or electrodermal reactivity during discipline encounters, and in response to analog stimuli simulating aversive child behavior, are associated with harsh or overreactive discipline (Joosen et al., 2013; Lorber & O'Leary, 2005). Accordingly, if anticipatory increases in the experience of negative emotion, heart rate, and electrodermal activity are triggered by negative parental attitudes and expectancies, they may be mechanisms that link parental attitudes to discipline practices.

Our present hypotheses and methodology were informed principally by the unified attitude theory of Greenwald et al. (2002) and the relational schema model of Baldwin (1992), building also on related social information processing models in the parenting literature (e.g., Azar et al., 2008; Milner, 2003), and informed by prior findings in both the parenting and intimate couples literatures. We hypothesized that mothers' negative attitudes toward their children would set in motion an anticipatory social cognitive-affective cascade that influenced their parenting during immediately subsequent discipline encounters. Operationally, we hypothesized that negative maternal attitudes would lead to both overreactive and lax discipline on a pathway mediated by negative expectancies for child behavior and anticipatory affective reactivity (experienced emotion, heart rate, and

electrodermal activity). The conceptual model is depicted in the top panel of Figure 1. The confounding influence of maternal depressive symptoms was also evaluated to ensure that the hypothesized pathway was not due to a global negative response set associated with depression (Foster & Cone, 1995).

Method

Participants

The present investigation uses the sample of Lorber and O'Leary (2005). Maternal attitudes and anticipatory processes related to their parenting have not been reported in any prior publication based on this sample. Ninety-seven mothers (M age in years = 35.18, SD = 4.77) and their 2- to 3-year-old toddlers (M age in months = 31.76, SD = 6.04; 49.5% of them female) residing in the suburbs of a major city in the northeastern United States were recruited to participate in the study in return for a one-session parenting workshop. Participants were recruited through advertisements in community newspapers, notices posted in the community, phone calls to potential participants based on published birth records in a local newspaper, and a random digit telephone dialing procedure. Most mothers self-identified as Caucasian 93.8%, with the remaining mothers identifying as Hispanic/Latino (4.1%), Asian (1.0%), and Native American (1.0%). They had a median annual family income of \$90,000. For comparison, US Census data indicates that 84.6% of the county from which the sample was drawn self-identify themselves as "White" and the median household income is \$65,288 (U.S. Census Bureau, 2003). All mothers had at least a high school education; 64.9% had undergraduate degrees and 21.7% had graduate or professional degrees. Approximately 37.5% reported being not employed, 35.4% employed part time, and 27.1% employed full time. Most mothers were married (89.7%), with 7.2% separated or divorced, and 3.1% never married.

Procedure

Attitude interview. After obtaining informed consent, the experimenter administered a videotaped interview to assess each mother's attitude toward her child and the parent-child relationship. Mothers were told that two questions would be asked, and that these questions were designed to get them talking open-endedly for approximately 5 min. The attitude interview consisted of two questions: (1) "Tell me a little bit about [child]. What are his/her best and worst qualities?" (2) "What are the best and worst things about your relationship with him/her?" Two-and-one-half minutes were allotted for responses to each question.

Questionnaires. Following the interview, mothers completed a battery of questionnaires to assess child and maternal characteristics, demographic information, and baseline negative maternal experienced emotion.

Pre-interaction. Upon completing the questionnaires, electrodes were attached for physiological recording. The mother was then escorted to the interaction room while a research assistant attended to the child in a different room. The interaction room contained an adult-size chair, a telephone, a string mobile that hung within reach of the child, three low tables (within reach of the child) with a variety of non-toy attractive items (e.g., typewriter, bell, colored pencils, clear jar of candy), a set of attractive toys arranged on the floor next to an empty plastic container, a different set of toys (boring, age-inappropriate toys) in a crate out of view beneath the chair, and a string that ran across the floor, marking the interaction space. The mother was instructed to sit quietly for a few minutes while the experimenter was in the adjoining room. This 4 min period served as an adaptation phase prior to the collection of resting physiological measures. Following the adaptation phase, the mother's resting physiology was assessed for 5 mins.

Next, the experimenter administered instructions for the interaction. Mothers were told that the interaction would consist of three tasks (clean-up, phone, and quiet time) and that each would take approximately 10 min. Because of the possibility that the validity of the phone task depends in part on the expectation that it will be followed by the quiet time task, mothers were given instructions for the quiet time task, despite the fact that the interaction was terminated at the end of the phone task. The three task protocol make-up a well-established laboratory discipline encounter protocol (e.g., Arnold & O'Leary, 1995; Del Vecchio & O'Leary, 2006) and the authors wished to keep the instructions consistent with this standard. The mothers were told what desired child behavior was for each task. For the clean-up task, the child was to clean up an attractive set of toys as quickly and independently as possible. For the phone task, the child was to play with a second set of (boring) toys quietly and independently while the mother conversed with the experimenter on the phone, with the first set of toys now being off limits. For the quiet time task, the child was expected to read a picture book quietly and independently while the mother worked on a questionnaire, with all toys being off limits. Other attractive items that were off-limits throughout the entire interaction were pointed out. These items – objects that are attractive to children in this age range, but are not typically considered toys – were within easy reach of the children. Furthermore, the mother was told to keep her child from crossing a string that ran across the floor, to keep her child in the range of the video camera.

Anticipatory period. Following the task instructions, mothers completed questionnaires assessing their expectancies of child misbehavior and their own anticipatory negative emotion. When these were complete, the

experimenter told the mothers that he needed to leave the room to make a few technical adjustments, and that the interaction would begin upon his return. This provided time for the collection of an additional 2 min of physiological data that might reflect anticipatory activation in the mothers.

Interaction. The mother was then videotaped interacting with her child for up to 22 min (minimum = 12; $M = 17$ min), divided into two of the tasks described above (i.e., clean-up and phone tasks), which were designed to elicit child misbehavior. Variability in the length of interaction was due to the speed with which the child put away toys in the clean-up task, ranging from 2 to 12 min; the phone task was always 10 min.

Measures

Mothers' negative attitudes toward their children. The measurement of attitudes has been a longstanding challenge in the social psychology. Attitudes are cognitive structures that cannot be measured directly. One's verbal response to a query about an attitude object (e.g., "Tell me about your child.") may in part reflect one's attitude, but also motivation and opportunity factors and may be subject to response editing (Fazio, 2007; Greenwald et al., 2002; Schwarz, 2008). Given these difficulties, our approach was to triangulate in on mothers' attitudes toward their children with a multi-informant observational approach that tapped both verbal and nonverbal behaviors during the attitude interview. We rated the content of mothers' remarks about their children and their mother-child relationship during the attitude interview, similar the approach of several other investigators (Bullock & Dishion, 2007; McCarty et al., 2004; Pasalich et al., 2011). However, we reasoned that a mother's emotion displays while she talked about her child and the parent-child relationship would provide a complementary avenue to glean evidence of the mother's association of her child with a valence attribute – that is to say her attitude toward the child and parent-child relationship. Multiple theorists suggest that attitudes can be inferred by emotional responses to the attitude object (Eagley & Chaiken, 2007; Fridja, 2000; Schwartz, 2008); moreover, Milner (2003) suggests that parental schemas include affective components. Thus, we also rated maternal emotion displays during the attitude interview.

Maternal Sentiment Code. A study specific observational measure, the Maternal Sentiment Code, was used to rate the content of and emotion expressed in mothers' responses during the attitude interview. The code jointly incorporated the number of negative comments made about the child and mother-child relationship, the degree of emphasis placed on those comments, as well as the extent of negative emotion (e.g., sadness and anger; as indicated by facial and vocal channels) exhibited during the interviews. Mothers' responses to each interview question were scored on a scale ranging from 1 (the mother has nothing negative to say about her child/relationship; no frowns, sad,

angry, disgustful, or contemptuous expressions, no evidence of negative tone of voice) to 5 (the mother has many and very negative things to say both about the child/relationship; she is very angry, sad, disgusted, or contemptful, both in how she looks, and her tone of voice). The validity of similar extemporaneous speech assessments has been demonstrated in prior research (e.g., Daley, Sonuga-Barke, & Thompson, 2003).

Two research assistants who were blind to the hypotheses, and who only coded sentiment, performed the coding. Because no preexisting recordings of attitude interviews existed from which to train coders, the first author coded a randomly selected set of 17 interviews from the present study and used these data for training purposes. Subsequent to successful training, the two coders rated the remaining 80 interviews. Judged from these 80 interviews, the one-way random effects intraclass correlation (ICC) for average measures was .94 for negative attitude, indicating good intercoder agreement. The coders then recoded the 17 training interviews. Thus, each coder eventually rated 100% of the interviews. A composite negative maternal sentiment score was constructed by first averaging each coder's ratings of mothers' responses to the two interview questions, and then averaging the two coders' mean ratings.

Nonverbal emotion display coding. A second group of seven coders rated nonverbal emotion from the attitude interviews. These coders were free to use their own rating criteria. We specified only that they (a) rate the intensity of five negative emotions (anger, irritation, contempt, disgust, and criticism) on a response scale ranging from 0=*none* to 9=*extreme*, and (b) were not permitted to listen to the interviews. This method reflected a "crowdsourcing" approach of combining the views of multiple untrained or naïve assessors' judgments (Surowiecki, 2005). The present measure is study specific. However, the validity of this approach is suggested for observational measures of such behaviors as parenting (Lorber, 2006) and intimate partner emotion (Waldinger, Schuz, Hauser, Allen, & Crowell, 2004).

Each coder's ratings of the five negative emotions were averaged. Within-rater Cronbach's alpha (α) across the five emotion items averaged .79 ($SD = 0.08$). Despite the coders' lack of training, the one-way random effects ICC for average measures was .82, suggesting acceptable interrater agreement and supporting the appropriateness of combining data across raters. We subsequently transformed each coder's negative emotion mean to z-scores and then formed a multi-informant composite negative nonverbal emotion score by averaging across the coders' z-scores.

Composite attitude score. The negative sentiment and negative nonverbal emotion variables described above ($r = .40, p < .001$) were each converted to z-scores and averaged to form the composite attitude score used in

hypothesis testing. The validity of this measure is suggested by its associations with parenting dissatisfaction, child externalizing behavior, and child responsibility attributions, reported in the on-line supplement to this article, as well as its associations with expectancies and anticipatory EDA reactivity reported below.

Expectancies of difficult child behavior. After hearing task instructions, mothers' expectancies of their toddlers' misbehavior during the upcoming interaction were assessed with nine face valid study specific questions. Mothers rated the degree to which their children would "misbehave," "be difficult," and "say or do something [the mother did] not like" on separate 7-point scales for each of the three interaction tasks (clean-up, phone, and quiet time tasks). Internal consistency was acceptable ($\alpha = .87$), and the item average score was the variable used in subsequent analyses.

Anticipatory experienced negative emotion reactivity. Mothers' present experienced emotion was assessed via 16 questions on two occasions: at the end of their first questionnaire packet (baseline emotion score), and after the interaction instructions had been given and their expectancies had been assessed (post-instruction emotion score). Using 7-point scales to reflect their experienced emotion at the moment they completed the questionnaires, mothers first rated how "positive" and "negative" they felt, with the remainder of the items consisting of adjectives that described negatively valenced anticipatory emotion, such as "edgy," "agitated," "angry," "nervous," and "stressed." These study specific emotion items were similar to those of the Positive and Negative Affect Schedule Negative Affect subscale (Watson, Clark, & Tellegen, 1988), but were selected to reflect an anticipatory emotional state. The response choices ranged from 1=*not at all* to 7=*extremely*.

Responses to these questions were averaged for each assessment, with "positive" reverse scored. Internal consistency was acceptable at baseline and post-instruction ($\alpha s = .89$). Reactivity scores were calculated by subtracting the baseline emotion scores from post-instruction emotion scores to yield an index of anticipatory experienced emotion reactivity. Positive reactivity values indicated an increase in negative emotion from baseline.

Anticipatory cardiac and electrodermal reactivity. Cardiac and electrodermal responses were recorded by a Biolog ambulatory physiological monitor (UFI, Moro Bay, California). Skin conductance was measured, at a sampling rate of 100 Hz, by passing a small voltage between 2 electrodes attached to the volar surfaces (second segment from tip) of two adjacent fingers on each subject's non-dominant hand. The frequency of skin conductance responses greater than .05 μ Seimens was recorded in continuous 30 s intervals. Skin conductance frequency was

chosen in lieu of other measures of EDA (e.g., skin conductance level) because it is the most sensitive electrodermal measure of sympathetic nervous system activation (Blascovich & Kelsey, 1990).

Cardiac interbeat interval (IBI) data were collected to derive HR (IBI/60,000) scores. Cardiac IBI is measured as the time interval between successive R-waves (i.e., corresponding to heart beats) of the electrocardiogram (ECG), which was recorded at a sampling rate of 1 KHz. Mean HR was calculated in 30 s intervals.

Mean HR and EDA were computed for two separate periods: a 5 min resting baseline following a 4 min adaptation period that took place after the questionnaires were completed (baseline physiology), and the 2 min immediately after the interaction instructions have been given (post-instruction physiology). Anticipatory reactivity scores were computed for each physiological measure by subtracting mean baseline levels from mean post-instruction levels.

Overreactive and lax discipline. Global ratings of maternal discipline were made on scales whose validity has been shown in several studies, in which they were associated with self-reported discipline, as well as a variety of constructs in their nomological network (e.g., negative child behavior and negative maternal emotion; Del Vecchio & O'Leary, 2006; Lorber, 2006; Lorber & O'Leary, 2005). Prior to coding the present study's data, coders were trained to a .80 reliability criterion against coded observations from prior studies. Overreactivity during the phone task was rated on a 7-point scale that reflected both the degree and frequency of anger or irritation exhibited by the mother through vocal or nonverbal channels in response to child misbehavior. Two research assistants who were blind to the hypotheses and who only coded overreactivity coded 100% of the interactions. Because the data were positively skewed, Finn's r (Heyman, Lorber, Eddy, & West, 2014) was used to assess reliability (Finn's $r = .91$, indicating acceptable interrater agreement). The two coders' ratings were averaged for use in subsequent analyses.

Phone task laxness was rated on a 7-point scale that reflected the frequency and extremity of mothers' permissiveness (e.g., not following through on commands and giving in). Three naïve coders each rated 45 dyads; a random overlapping sample of 29 was selected for a reliability check. Their one-way single measures ICC was .78, indicating acceptable interrater agreement. Analyzed laxness scores came from each coder in roughly equal numbers.

Depressive symptoms. Mothers completed the 21-item Beck Depression Inventory-II (BDI-II; Beck, Steer, Ball, & Ranieri, 1996), which was used as a control variable in the present analyses. The BDI-II is one of the most

widely used measures of depressive symptoms and has been repeatedly validated (e.g., Brouwer, Meijer, & Zevalkink, 2013). BDI-II items (e.g., "I am so sad and unhappy that I can't stand it") were rated on 4-point scales ranging from 0 to 4 and averaged to form the depressive symptoms variable for analysis ($\alpha = .89$).

Data Analyses

We hypothesized that negative maternal attitude would lead to both overreactive and lax discipline on a pathway mediated by negative expectancies for child behavior and anticipatory affective reactivity, reflected in experienced emotion and autonomic reactivity. Prior to examining each indirect effect in full, four criteria first needed to be met. The predictor (negative maternal attitude) would need to be significantly associated with (1) the criterion variables (overreactive and lax discipline) and (2) each of the mediators (negative expectancies, anticipatory negative emotion and autonomic reactivity). Also (3) negative expectancies (initial mediator) would have to be significantly associated with anticipatory negative emotion reactivity and autonomic reactivity (second set of mediators), and (4) anticipatory negative emotion reactivity and autonomic reactivity (mediators) would have to be associated with discipline (criterion variables). These criteria were judged from the correlation matrix of Table 1. A parallel set of Pearson and Spearman correlations is presented given the nonnormality of several study variables (e.g., overreactivity); the results were similar with either statistic. These analyses were followed-up by path analyses of the model implied by the data, estimated with Mplus version 7 software (Muthén & Muthén, 1998-2012) and using robust maximum likelihood estimation to handle the nonnormality present in the data.

Results

In partial support of the hypothesized cascade, negative maternal attitude was positively associated with laxness (criterion 1), negative expectancies (criterion 2), and anticipatory EDA reactivity (criterion 2). Negative expectancies were also positively associated with anticipatory negative experienced emotion reactivity (criterion 3). However, in contrast to the hypothesized cascade, negative maternal attitude was not significantly associated with overreactivity (criterion 1), and none of the putative mediators were significantly associated with overreactivity or laxness (criterion 4). Moreover, negative maternal attitude was not significantly associated with two of the mediators: anticipatory negative emotion and HR reactivity (criterion 2). Negative expectancies were also not significantly associated with any physiological variable (criterion 3). In sum, only parts of the hypothesized cascade were supported by the data. Therefore, the test of the full indirect effect was unnecessary.

The model suggested by the significant correlations (i.e., post hoc) was examined in the context of a single path model (Figure 1, bottom panel). Covariances among endogenous variables' residual terms were also allowed but not pictured. The model's fit was necessarily strong, given that it only included paths that corresponded to significant correlations in Table 1, $\chi^2(1) = 0.42$, RMSEA = 0.00, CFI = 1.00, TLI = 1.23.

We next reestimated the path model controlling for the confounding influence of mothers' depressive symptoms, which were significantly associated with negative maternal attitude, negative expectancies, and anticipatory negative experienced emotion reactivity. Accordingly, we added mothers' BDI-II scores as control variables for each of the paths in Figure 1: expectancies, anticipatory negative emotion and EDA reactivity, and laxness were regressed on depressive symptoms (not depicted). The model (Figure 1, bottom panel) fit the data well, $\chi^2(1) = 0.96$, RMSEA = 0.00, CFI = 1.00, TLI = 1.02. Each of the significant paths from the path model that did not control for depressive symptoms remained significant when depression was controlled for (depression adjusted paths shown in parentheses). Thus, depressive symptoms did not significantly confound the associations we reported above.

Discussion

We hypothesized that mothers' negative attitudes toward their children would set in motion an anticipatory social cognitive-affective cascade that influenced their parenting during immediately subsequent discipline encounters. Although parts of the hypothesized cascade were confirmed, mothers' expectancies of upcoming child behavior and their anticipatory affective responses were not associated with their observed overreactivity or laxness. Thus in a fundamental way, the hypothesized model was not supported by the data.

Negative maternal attitude was positively associated with lax discipline as hypothesized, but not with overreactivity. The mechanism of this association did not involve mothers' expectancies or anticipatory changes in their experienced emotion, heart rate, or electrodermal activity – none of which were associated with laxness. These results may indicate that a mother's negative attitude toward her child and parent-child relationship directly leads her to "give-up" in the face of challenging child behavior, thus failing to enforce rules and prohibitions, without an intermediate anticipatory perturbation of social cognitive or affective factors. Importantly, the attitude-laxness association finding was not confounded by mothers' depressive symptoms. Thus, if negative attitudes caused mothers to capitulate, it was not a function of depression.

The significant maternal attitude-laxness association we found is in contrast to that of Sturge-Apple, Rogge, Skibo, Peltz, and Suor (2015), who failed to find a similar association. In contrast to the present maternal interview/observational approach, Sturge-Apple et al. used questionnaire and implicit measures of mothers' attitudes. A gold standard questionnaire measure of parent's attitudes toward their children has yet to be developed and implicit measures of parental attitudes are a very recent development. Additional research is necessary to determine the extent to which such methodological differences impact attitude-parenting associations.

Overreactive discipline was not associated with maternal attitudes, expectancies, or anticipatory emotion-experiential and physiological responses. In contrast to the present findings, two investigative teams have found links between negative parenting behaviors and negative maternal child-related attitudes measured via comments made during speech samples similar to the one used in the present investigation (Bullock & Dishion, 2007; McCarty et al., 2004). Our findings are similar to those of Pasalich et al. (2011) who also failed to find a relation of negative parental attitude with observed parental criticism or hostility. Taken together, these studies suggest that the attitude-negative parenting behavior link is variable.

We note that the children in the present investigation, at 2 to 3 years old, were younger than the 7- to 17-year-olds of McCarty et al. and the 17-year-olds of Bullock and Dishion. The children of Pasalich et al. were 4- to 11-year-olds. Thus, of the four relevant studies, the two studies of parents with younger children (present and Pasalich et al.) failed to find negative attitude-negative parenting behavior associations. Impression management may be a factor in the present results. Given societal norms that mothers are to have very positive feelings about their young children, some mothers may have been reluctant to reveal negative views of their toddlers when describing them during interviews or on paper (Daley et al., 2003). Due to its effect of impairing the validity of self-report attitude measures, such impression management would attenuate the association between parental attitudes and behavior. Implicit measures, such as that of Sturge-Apple et al. (2015) and Johnston et al. (2017), hold promise for overcoming this potential limitation. Sturge-Apple et al. studied parents of 2- to 3-year-old children and reported an association of implicitly measured maternal attitudes and parent-reported corporal punishment.

Other than negative maternal attitude, no factor in the hypothesized social cognitive-affective cascade predicted discipline. Nonetheless, some cascade-supportive evidence emerged. Mothers with more negative attitudes toward their children expected more difficult behavior from their children in the discipline encounter and also exhibited greater anticipatory increases in electrodermal activity. Additionally, those mothers who expected more

difficult behavior from their children experienced greater increases in anticipatory negative emotion. Yet maternal attitude did not predict anticipatory increases in experienced emotion. Nonattitudinal variability in expectancies is what accounted for anticipatory experienced emotion reactivity. This nonattitudinal variability in expectancies may be driven by occasion specific factors (e.g., the child's behavior on the day of the laboratory assessment), rather than the putatively stable variability in the parent's attitude toward the child and parent-child relationship that would be expected based on the results of Daley et al. (2003). Child effects in particular are pervasive in the parenting literature and have been demonstrated for social cognitive and affective factors (e.g., Arnold & O'Leary, 1995; Lorber & O'Leary, 2005; MacKinnon-Lewis et al., 2001). Given the association of parental attitudes with maladaptive disciplinary practices in the present and previous studies, understanding the causes of attitudes themselves (e.g., child effects) is worthy of future study.

In contrast to the experienced emotion findings, the association of negative maternal attitudes with greater anticipatory electrodermal activity suggests that there is an affective consequence of negative attitudes. This finding is reminiscent of prior findings linking increased peripheral physiological reactivity with negative attitudes toward objects such as insects (e.g., Van Bockstaele et al., 2011). Yet the heightened anticipatory electrodermal responses exhibited by mothers with more negative attitudes toward their children may reflect a process of which many of the present mothers were unaware. Interoceptive accuracy is highly variable and women tend to be worse at it than are men (Cameron, 2001).

Ultimately, although some of our findings were consistent with the theoretical models presented in the Introduction of this article (e.g., the links between anticipatory experienced emotion, attitudes, and expectancies were largely consistent with Baldwin's [1992] relational schema model), the hypothesized model largely failed to predict discipline. Our findings do not suggest the importance of mothers' predictions of their children's behavior or of anticipatory increases in the experience of negative emotion, heart rate, and electrodermal activity in relation to their discipline practices. Mothers' thoughts, feelings, and physiological responses that occur "in the moment," perhaps in response to child behavior, may be more relevant for discipline than those that occur before a discipline interaction has begun. Such findings have been previously demonstrated in the present sample (e.g., Lorber & O'Leary, 2005). This interpretation must be regarded as preliminary, however, pending the results of replication studies.

Limitations

Three primary limitations are important to consider. First, although the present design maintained a temporal ordering of constructs' assessment that matched their hypothesized causal ordering, the study's nonexperimental nature prevents strong causal interpretations. To illustrate, per the theory we presented in the Introduction, maternal attitudes may affect discipline practices. However, it is also possible that mothers' discipline practices influence mothers' attitudes toward their children. Social psychologists long ago demonstrated that one's behavior can influence one's attitudes (e.g., Festinger, 1957). Given the longitudinal stability of discipline practices (e.g., O'Leary, Slep, & Reid, 1999), mothers who were highly lax in the present investigation may also have been highly lax in the past, with the attitudes measured at the beginning of the present lab visits a function of their prior laxness. Other causal alternatives are possible as well. For example, although we measured anticipatory emotion-experiential and physiological responses after mothers' expectancies of difficult child behavior, these anticipatory responses may have been carryovers of affective changes that preceded mothers' expectancies. Additionally, it is possible that negative maternal attitudes and negative expectancies of difficult child behavior were co-occurring negative schemas, rather than causally related to one another. Moreover, unmeasured "third variable" explanations cannot be ruled out (e.g., the associations of mothers' expectancies of difficult child behavior with negative attitudes and anticipatory increases in negative emotion being driven by a child effect on all three factors). Future research with experimental designs, in addition to successful replications, will be necessary to confirm the causality suggested by the present results.

Second, we note that the valid measurement of parents' attitudes toward their children is still a work in progress. Measurement strategies have varied across and even within studies. Observations of parents' extemporaneous speech samples appear to be the most common measures of their attitudes to date (e.g., Bullock & Dishion, 2007; Daley et al., 2003; the present study). However, there is no gold standard questionnaire measure. Implicit measures of parental attitudes provide yet another method of assessment (e.g., Sturge-Apple et al., 2015; Johnston et al., 2017). It is uncertain whether the various measures are different ways of measuring a single attitude construct or measures of different mental representations (Greenwald & Banaji, 1995). The contribution of the present and prior studies of parental attitudes toward their children ultimately rests on the field's collective clarification of these issues.

Third, the present participants were a convenience sample predominantly composed of White and middle to upper-middle class mothers. Generalization to the broader population of parents and to other sociodemographic groups (e.g., racial/ethnic minority and less affluent parents; fathers) cannot be assumed.

Compliance with Ethical Standards

Conflicts of Interest. Both authors declare that they have no conflicts of interest.

Ethical Approval. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research board of Stony Brook University and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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

Author Contributions. MFL designed and executed the study, conducted the data analyses, and wrote the paper. JS collaborated in the writing and editing of the final manuscript.

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Table 1
Correlations Among and Descriptive Statistics for Study Variables

	1	2	3	4	5	6	7	8
1. Negative maternal attitude	-	.28**	.08	.28**	.03	.08	.25*	.31**
2. Negative expectancies	.30**	-	.28**	.17	.13	.18	.02	.30**
3. Anticipatory neg. exp. emotion reactivity	.11	.22*	-	-.06	-.03	.12	-.08	.16
4. Anticipatory EDA reactivity	.29**	.10	-.05	-	.32**	-.01	-.04	.03
5. Anticipatory HR reactivity	.02	.10	-.07	.37***	-	-.05	-.15	.02
6. Overreactivity	.05	.08	.04	.05	-.04	-	.22*	.27**
7. Laxness	.29**	-.01	-.09	-.05	-.17	.20*	-	.10
8. Depressive symptoms	.33**	.29**	.22*	.09	-.02	.09	.08	-
Minimum	-1.50	1.67	-1.43	-3.00	-4.58	1.00	1.00	0.00
Maximum	3.57	6.44	2.44	17.55	13.24	7.00	7.00	1.62
<i>M</i>	0.00	3.69	0.39	2.22	2.65	1.81	4.05	0.34
<i>SD</i>	0.84	1.02	0.65	2.49	3.96	1.16	1.63	0.32

Note. Pearson correlations are above and Spearman correlations below diagonal; neg. is negative; exp. is experienced; EDA is electrodermal activity; HR is heart rate.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 1. Conceptual and empirical models. Coefficients are standardized estimates. Estimates in parentheses are controlling for depressive symptoms. Covariances among endogenous variables' residual terms were also allowed but not pictured. * $p < .05$. ** $p < .01$. *** $p < .001$.

Validation of the Maternal Attitude Measure

The observational maternal attitude measure was designed specifically for this study. To briefly probe its validity, we examined the association of the attitude composite score with three mother-report variables: parenting dissatisfaction, child externalizing behavior, and child responsible causal attributions for misbehavior. Each of these factors is in the nomological network of negative maternal attitude.

Parenting dissatisfaction was assessed via mothers' average response to 18 items (e.g., "I can't wait until my child grows up and moves out") drawn from the Parenting Satisfaction Scale (PSATS; Guidubaldi & Cleminshaw, 1985) and rated on 4-point scales ($\alpha = .82$). Child externalizing behavior was assessed via the 24-item (e.g., "physically attacks people") Externalizing factor *T*-score of the Child Behavior Checklist for 1.5- to 5-year-olds (CBCL/1.5-5; Achenbach & Rescorla, 2000); CBCL items are rated on 3-point response scales. Child responsibility attributions, reflecting the degree to which the mother viewed her child as responsible for his or her own misbehaviors and misbehaved with negative intent, were assessed with the 10-item Child Responsibility subscale of the Parent Cognition Scale (PCS; Snarr, Slep, & Grande, 2009). PCS items (e.g., "My child likes to see how far he/she can push me.") are rated on 6-point scales ($\alpha = .90$). The PCS was only administered to 67 of the 97 mothers.

The association of the maternal attitude composite with parenting dissatisfaction on the PSATS ($r = .40$, $p < .001$) can be viewed as a test of convergent validity in that parenting satisfaction may be an alternative indicator of maternal attitude (Sturge-Apple et al., 2015). The associations of the maternal attitude composite with child externalizing behavior on the CBCL ($r = .44$, $p < .001$) and child responsible attributions on the PCS ($r = .31$, $p = .010$) are tests of concurrent validity. Attitudes toward one's child may sour if the child is more behaviorally challenging (i.e., greater externalizing behavior) and/or if a parent believes her child is intentionally misbehaving (i.e., greater child responsible attributions). Moreover, negative attitudes and child responsible causal attributions may each be part of an overarching negative relational schema (Baldwin, 1992) some mothers have about their children. The associations of the maternal attitude composite with expectancies and anticipatory EDA reactivity reported in the main article further support its concurrent validity.

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