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To cite this article: Nicholas J. Wagner, Noa Gueron-Sela, Rachael Bedford & Cathi Propper (2018): Maternal Attributions of Infant Behavior and Parenting in Toddlerhood Predict Teacher-Rated Internalizing Problems in Childhood, *Journal of Clinical Child & Adolescent Psychology*, DOI: 10.1080/15374416.2018.1477050

To link to this article: <https://doi.org/10.1080/15374416.2018.1477050>

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Maternal Attributions of Infant Behavior and Parenting in Toddlerhood Predict Teacher-Rated Internalizing Problems in Childhood

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Social-information-processing theories of parenting posit that parents' beliefs and attributions about their children's behaviors contribute to how parents interact with their children. The purpose of this study was to examine the associations between negative parenting attributions in infancy, harsh-intrusive parenting in toddlerhood, and children's internalizing problems (IPs) in early childhood. Using data from a diverse longitudinal study ($n = 206$), the current study used a structural equation modeling approach to test if mothers' negative attributions measured at 6 months predicted teacher ratings of children's IPs in 1st grade, as well as the extent to which observed harsh-intrusive parenting behaviors measured at ages 1, 2, and 3 years mediated this link. Maternal negative attributions in infancy predict more IPs in 1st grade, but this link becomes nonsignificant when observed harsh-intrusive parenting is included as a mediator. A significant indirect effect suggests that harsh-intrusive parenting mediates the association between early negative attributions and eventual IPs. Findings from this study identify harsh-intrusive parenting behaviors as one potential mechanism through which the effects of early attributions are carried forward to influence children's IPs. The developmental and clinical implications of these findings are discussed.

Children's internalizing problems (IPs) are associated with multiple aspects of maladaptive psychosocial functioning (Rubin & Mills, 1991), underscoring the need to better understand the factors that are associated with their development. Extant research shows that highly controlling, harsh, and intrusive parenting behaviors contribute to the

emergence and stability of IPs (Hastings, 2015; Rubin, Burgess, & Hastings, 2002; Wagner, Propper, Gueron-Sela, & Mills-Koonce, 2015) and increase the risk of clinical presentations such as social anxiety disorder later in development (Rapee, 2012). Thus, a better understanding of the influences that contribute to harsh-intrusive parenting behaviors would help to elucidate the processes that may lead to the development of IPs and potentially inform the development of critical intervention and prevention programs (Chronis-Tuscano et al., 2015).

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Social-information-processing theories of parenting posit that social-cognitive constructs, such as parents' beliefs and attributions about their children's behaviors, contribute to how parents interact with their children and influence the ways in which parents establish broader aspects of the childrearing environment (Azar, Okado, Stevenson, & Robinson, 2013; Bugental & Grusec, 2006; Dix, Ruble, Grusec, & Nixon, 1986; Leerkes et al., 2015; Rubin & Mills, 1992). Drawing from this perspective, in the current study we focus on one aspect of social information processing, namely, maternal attributions of child behaviors, that has important implications for both parenting behaviors and the emergence of children's behavior problems (Johnston, Hommersen, & Seipp, 2009; Park, Johnston, Colalillo, & Williamson, 2016; Wang, Deater-Deckard, & Bell, 2013). We specifically examine whether maternal negative attributions *during infancy* are related to children's later IPs and whether harsh-intrusive parenting behaviors in early childhood partially explain this link. Although the relations between maternal negative attributions of child behaviors and children's behavior problems during middle childhood have been established (Bornstein, Putnick, & Lansford, 2011; Johnston et al., 2009), this study is the first to examine this link in infancy. A better understanding of the relations between negative parental attribution styles in infancy and children's IPs is an important step toward preventing the maladaptive cascade of coercive interactions these attributions often initiate (Patterson, 2002).

Decades of research have shown that children's IPs and many of the concomitants and consequences are reinforced and exacerbated by children's interactions with their parents (Rubin et al., 2002; Rubin & Mills, 1992; Rubin et al., 1989). Specifically, parental behaviors such as intrusion, overinvolvement, low autonomy granting, and low warmth are associated with higher levels of children's IPs in both clinical and non-clinical samples during early and middle childhood (Burgess, Rubin, Cheah, & Nelson, 2005; Rubin & Coplan, 2004; Rubin, Nelson, Hastings, & Asendorpf, 1999; Wagner et al., 2015). Parents' hostility and negative affect likely contribute to the development of negative social cognitions such as a perception of social relationships as untrustworthy and dangerous and lead to a negative view of the self, thus increasing child anxiety and depression (Bayer, Sanson, & Hemphill, 2006). Further, parental overinvolvement and intrusive parenting behaviors may increase a child's threat perception, reduce children's perceived control over threat, and restrict the acquisition of adaptive coping skills with stressful events, which may evoke and increase anxiety among children (van der Bruggen, Stams, & Bögels, 2008).

Research shows that parents' beliefs and attributions about their children's behaviors influence how parents interact with their children (Dix et al., 1986; Mills & Rubin, 1990). Parental attributions reflect the interpretations and causal explanations that parents ascribe to their children's behaviors, and negative parental attributions are those in which parents see their child's problem behavior as intentional, pervasive, and stable

(Williamson & Johnston, 2015). Negative attributions are theorized to emerge, in part, due to parent's dysfunctional cognitions regarding children's behavior (Burgess et al., 2005; Hastings, Kahle, & Nuselovici, 2014). For example, if parental expectations of child behavior are not age appropriate, the parent may be more likely to ascribe negative intent to a child's behavior, particularly if it is challenging or difficult in nature. Negative parental attributions can evoke negative emotionality toward the child and restrict the consideration of alternative explanations and adaptive problem solving, thus contributing to negative parenting behaviors (Azar, McGuier, Miller, Hernandez-Mekonnen, & Johnson, 2017; Bugental & Grusec, 2006; Rubin et al., 1989).

Indeed, research has shown that maternal negative attributions of children's problem behaviors are related to several aspects of parenting behaviors, such as harsh discipline practices, high levels of coercion, less positive affect, and lower mother-child reciprocity during mother-child interaction (Bugental & Grusec, 2006; Park et al., 2016; Wang, Christ, Mills-Koonce, Garrett-Peters, & Cox, 2013). Parents of very young children may be particularly vulnerable to parental negative attributions, given the potential ambiguity of the causes of their behaviors (Azar et al., 2013). For example, negative processing of infant cry cues (i.e., more negative and minimizing causal attributions about infant crying) presented via video during the prenatal period negatively predicted observed maternal sensitivity with their own infants when they were 6 months old (Leerkes et al., 2015). Further, parents' prenatal hostile negative attributions regarding children's behavior were associated with more parent-child aggression and higher risk for maltreatment (as measured by county records of abuse and neglect) during infancy and toddlerhood (Berlin, Dodge, & Reznick, 2013; Rodriguez, Silvia, & Gaskin, 2017). Finally, a study by Slep and O'Leary (1998) that experimentally manipulated maternal attributions showed that mothers who were told that their toddlers would misbehave with negative intent were rated as angrier and more overreactive in a consecutive parent-child interaction than mothers who were told that their toddlers were not to blame for misbehaving. The preceding findings suggest that the link between negative attributions and parenting behavior is at least partially independent of children's behavior.

The associations between negative parental attributions and children's behavior problems in middle childhood have been well established in both cross-sectional and longitudinal studies. However, most of this research has focused on externalizing behavior problems (see Nix et al., 1999), and less is known about the links between parental attributions and IPs. One study found that parents' negative intent attributions were positively related to children's IPs during middle childhood (Colalillo, Miller, & Johnston, 2015). Similarly, in two other studies, negative parent attributions were linked to children's elevated depressive symptomology during adolescence (Chen, Johnston, Sheeber, & Leve, 2009; Sheeber

et al., 2009). Although this research provides an important first step toward understanding the links between parental attributions and IPs, the cross-sectional nature of this study limited the ability to draw conclusion regarding the temporal and causal relations across time. When taken together, existing research suggests that one mechanism through which maternal attributions may contribute children's IPs are through their influence on harsh and intrusive parenting behaviors. Maternal negative attributions are related to harsh-intrusive parenting behaviors (Bugental & Grusec, 2006; Park et al., 2016; Wang, Deater-Deckard et al., 2013) which in turn are consistently associated with children's IPs (Muhtadie, Zhou, Eisenberg, & Wang, 2013; Valiente et al., 2006; Wagner et al., 2015).

The Current Study

The current study aimed to expand the literature in three main ways. First, the current study examines the links between maternal attributions during infancy (age 6 months) and children's later IPs via their influence on harsh-intrusive parenting behaviors in toddlerhood. Second, we extend previous research by including observed measures of harsh-intrusive parenting behaviors across toddlerhood and early childhood (ages 12, 24, and 36 months). Finally, the current study is one of the first to longitudinally examine the links between maternal attributions in infancy and later IPs. Children's IPs were assessed using teacher reports at age 6 years for two reasons. First, the use of teacher report can mitigate potential biases associated with having mothers report on both predictors and outcomes. For example, mothers who report negative attributions regarding their children's behaviors are also most likely to report more child behavior problems. Second, the social and academic challenges that are associated with the start of formal schooling make the classroom context a particularly vulnerable setting for the emergence of IPs (Arbeau, Coplan, & Weeks, 2010). We hypothesize that mothers' negative attributions of infants' behavior at age 6 months predict increased harsh-intrusive parenting behaviors in toddlerhood, which in turn will predict elevated teacher-reported IPs at age 6 years.

METHODS

Participants

The current study used participants from the Durham Child Health and Development Study, a prospective longitudinal study of 206 full-term infants and their families who were recruited in 2002 and 2003 when their children were 3 months old. The study included only infants who were healthy, full-term, and born without significant complications. Families were recruited from a largely urban community with fliers and postings at birth and parenting classes,

as well as through phone contact via birth records. Participants were recruited in accordance with a stratified sampling plan to ensure that there was approximately equal representation across racial categories and income distribution. Mothers reported on their child's race, and the sample was 57% African American and 43% European American, and approximately 53% of families were low income (below 200% of the poverty level). Participants were compensated for their participation at each time point, and transportation was provided for families as needed.

Procedures and Measures

The current study used data collected from the 6-month and 1-, 2-, 3-, and 6-year time points. All ratings and observations occurred in a laboratory setting except for the observation of parent-child interactions during free play, which were conducted at the participants' homes. At each visit, infants and their mothers participated in several joint and individual activities, and mothers completed a standardized interview and demographic questionnaires. Transportation was provided to families who required assistance getting to and from the laboratory.

Internalizing problems

Teacher reports of children's internalizing behaviors were assessed with the Child Behavior Checklist Teacher's Report Form (CBCL-TRF; Achenbach & Rescorla, 2001) that was obtained by mail at age 6. The CBCL-TRF is a list of 112 items that includes a broad range of children's behavioral/emotional problems. For each item, the teacher is asked to determine how well that item describes the target child currently or within the past 2 months on a 3-point Likert scale ranging from *not true* to *very/often true*. The CBCL-TRF has been widely used in community studies, has been validated in samples of low-income African American children, and was published in the sample used in the current study (Gueron-Sela, Bedford, Wagner, & Propper, 2017). The Internalizing scale ($\alpha = 0.78$) included the items from the Withdrawn, Somatic Complaints, and Anxious/Depressed scales.

Harsh-intrusive parenting

Mothers and their children were observed during a free play task as part of the home visit completed when the children were 6 months and 1, 2, and 3 years of age. At the 1-year visit, a set of standard toys were arranged on a blanket, and the mothers were asked to play with their children for 10 min as they normally would on a typical day. The mothers and their children were observed in a puzzle completion task at ages 2 and 3 years. All interactions were videotaped and later viewed by trained and reliable coders, who rated the interactions using 5-point subscales to measure several parental behaviors including

maternal intrusiveness and negative regard. The rating scales used in the current study were adapted from those used by the National Institute of Child Health and Human Development Study of Early Child Care (National Institute of Child Health and Human Development Early Child Care Research Network, 1999). Coders underwent training until acceptable reliability was achieved and maintained. Reliabilities across each pair of coders were determined by maintaining intraclass correlation coefficients of 0.80 or greater on all subscales and composite measures (intraclass correlation range = 0.80–0.96). To assess reliability, both coders coded a random selection of 33% of interactions. Coders met biweekly to reconcile scoring discrepancies, and the final scores arrived at by consensus were used included in the final data set. Previous factor analysis with this sample has confirmed the creation of a harsh-intrusive parenting composite using the Intrusiveness and Negative Regard subscales (e.g., Wagner et al., 2015). The current study uses a saturated latent factor of maternal harsh-intrusion at 1, 2, and 3 years, with standardized factor loadings ranging from $\lambda = .645-.891$.

Maternal attributions

Maternal attributions were assessed at the 6-month lab visit using the Infant Intentionality Questionnaire (Reznick, 1999), which is a 23-item measure that assesses parents' attributions of infants' intentionality on a 1 (*never/not at all*) to 5 (*often/definitely*) scale. Guided by other research studies using this measure (e.g., Feldman & Reznick, 1996; Reznick & Schwartz, 2001), a composite of mothers' negative attributions ($\alpha = .81$) was used in the current study (e.g., is annoying on purpose, refuses to eat to be difficult, tries to get "even," ignores you to be annoying, soils fresh diaper to be difficult, throws things on floor, misbehaves to be spiteful, does things to be mean).

Additional covariates

Additional covariates were selected a priori based on their theoretical relations with the primary predictors and outcome to account for confounding contributions to the processes of interest. Demographic and income variables were included to control for the documented associations between these characteristics, parenting behaviors, and children's behavior problems (e.g., Barnett & Scaramella, 2015; Clincy & Mills-Koonce, 2013). Information on children's sex and race was collected upon entry into the study. Family income-to-needs ratio was calculated as a ratio of total family income and the federal poverty threshold for the appropriate family size using income data provided by parents at the 6-year visit (U.S. Bureau of the Census, 2009). Infant difficult temperament at age 6 months was included as a covariate for the following reasons. First, the covariance between maternal-rated difficult temperament and maternal-rated negative attributions partially accounts

for the variance in the attributions measure that might be attributed to the extent to which mothers simply have negative feelings or views toward their infants in general. Thus, including temperament as a covariate supports the examination of the unique relations between mothers' attribution of intentionality and their parenting behaviors. Second, the inclusion of a measure of difficult temperament also helps account for the possibility that the child's difficult behaviors (as viewed by the mother) elicit harsh-intrusive parenting behaviors, something for which there is much support in the literature (e.g., Lengua & Kovacs, 2005; Patterson, 1982). Difficult temperament was assessed using the Infant Behavior Questionnaire–Revised (Goldsmith & Rothbart, 1991) which mothers completed at the 6-month lab visit. The items on the questionnaire ask caregivers to rate the frequency of specific temperament-related behaviors that may have occurred in a variety of everyday situations and that were observed over the past 1–2 weeks. Items were rated on a 7-point Likert scale from 1 (*never*) to 4 (*half of the time*) to 7 (*always*). The current study includes a measure of difficult temperament ($\alpha = .81$) at 6 months as a covariate to account for the influences of children's difficult temperament on parenting behaviors, as well as potential responder bias (16 items; e.g., baby seems angry when you left her/him in the crib, fussy or cry when washed, protests when placed in confining place like car seat).

Analytic Strategy

The proposed hypotheses were addressed using structural equation modeling (SEM) methods. First, a preliminary model was estimated to examine the extent to which mothers' negative attributions at 6 months directly predicted children's IPs at age 6 years above and beyond model covariates. Second, an SEM model was used to test whether the link between maternal attributions at 6 months and children's later IPs was mediated by harsh-intrusive parenting behaviors in early childhood. The SEM approach allowed a harsh-intrusion latent parenting factor to be included in the model, as well as the simultaneous estimate of direct and indirect effects. All models were fit using Mplus 7.11 (Muthén & Muthén, 2004). Model covariates included child's sex, child's ethnicity, maternal harsh-intrusion at 6 months, family income-to-needs ratio, and maternal report of child's difficult temperament at 6 months. All exogenous variables covaried and model covariates were included in the final structural model. Overall model fit was determined using root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), and comparative fit index (CFI). Good fit was defined as CFI values ≥ 0.95 , RMSEA values ≤ 0.06 , and SRMR values ≤ 0.08 (Hu & Bentler, 1999). Missing data were considered missing at random and were handled using the full information maximum likelihood (FIML) methods (Enders & Bandalos, 2001). FIML is recognized as an effective method for analyzing longitudinal data with missing data

and has been demonstrated to provide less biased parameter estimates than other techniques, such as listwise deletion (Enders, 2013; Widaman, 2006). The standard errors of specific indirect effects were estimated using the delta method in Mplus 7.11.

RESULTS

Table 1 presents the bivariate correlations, means, and standard deviations for the model covariates and variable of interests. Income-to-needs was negatively correlated with IP problems at 6 years. Harsh-intrusion at 2 and 3 years, and maternal negative attributions at 6 months, were positively correlated with internalizing behavior problems at 6 years. Each measure of harsh-intrusion was significantly positively correlated, and infant difficult temperament was positively correlated with maternal negative attributions at 6 months. A preliminary regression model showed that maternal negative attributions at 6 months positively predicted children’s IPs at 6 years of age ($\beta = 0.21, p = .04$).

A structural equation model was estimated to test if negative maternal attributions at 6 months predicted IPs at 6 years, as well as to examine the extent to which harsh-intrusive parenting behaviors mediated these associations. All standardized and unstandardized parameter estimates and confidence intervals, including parameter estimates between the model covariates and variables of interest, are shown in Table 2. The final model demonstrated good fit to the data, $\chi^2(14) = 13.93, p = .45$; RMSEA = 0.001, CFI = 1.0, SRMR = 0.023. In this model, maternal attributions at 6 months did not directly predict IPs at 6 years of age ($\beta = 0.021, ns$). However, maternal negative attributions at 6 months predicted increased maternal harsh-intrusion in toddlerhood ($\beta = 0.23, p = .001$), and indirect effects suggest that the relationship between negative maternal attributions at 6 months and IPs at age 6 years is fully mediated by the effects of mothers’

negative attributions on their harsh-intrusive parenting behaviors in toddlerhood ($\beta = 0.19, p = .009$).¹ Figure 1 presents the standardized path coefficients for the associations between maternal attributions, harsh-intrusive parenting behaviors, and children’s internalizing behavior problems.

DISCUSSION

Negative maternal attributions, characterized by child-oriented beliefs that behavior is intentionally provocative and under a high level of control by the child, have important implications for harsh-intrusive parenting behaviors (Sturge-Apple, Suor, & Skibo, 2014), and harsh-intrusive parenting is a known contributor to the emergence and stability of children’s IPs (Rubin & Burgess, 2002). Although researchers have focused on explicating the determinants of harsh and intrusive parenting practices for decades, including work showing that parents’ beliefs about their infant’s behaviors, including crying, are associated with observed parenting behaviors (Haltigan et al., 2012; Leerkes et al., 2015), no research has examined the extent to which negative maternal attributions in infancy constitute risk for eventual IPs and if harsh-intrusive behaviors play a role in carrying forward the negative influences of early negative attributions. To address this gap in the literature, this study tested the extent to which negative maternal attributions in infancy predict teacher-reported IPs in early childhood. Furthermore, this study further advances our understanding of the associations between maternal attributions and IPs by examining the extent to which observed maternal harsh-intrusion across toddlerhood mediates these links.

As expected, observed harsh-intrusive parenting across toddlerhood predicted greater teacher-reported IPs in early childhood. This is consistent with research suggesting that negative and intrusive parenting may be particularly detrimental for children’s IPs (van der Bruggen et al., 2008)

TABLE 1
Zero-Order Bivariate Correlations between Model Outcomes

	1	2	3	4	5	6	7	8	9	10
1. Sex (1 = Female)	—									
2. Race (1 = African American)	.082	—								
3. Income-to-Needs (6 Years)	.007	-.345**	—							
4. Difficult Temperament (6 Months)	.155*	.114	-.200*	—						
5. Harsh-Intrusion (6 Months)	.055	.317**	-.353**	.048	—					
6. Harsh-Intrusion (1 Year)	-.044	.463**	-.346**	.024	.383**	—				
7. Harsh-Intrusion (2 Year)	-.079	.405**	-.393**	.066	.379**	.571**	—			
8. Harsh-Intrusion (3 Year)	-.140	.406**	-.451**	.034	.424**	.418**	.590**	—		
9. Negative Attributions (6 Months)	-.018	.287**	-.215*	.153*	.110	.290**	.271**	.315**	—	
10. Internalizing Problems (6 Years)	-.103	.115	-.244*	.111	.021	.266*	.432**	.385**	.298**	—
No.	206	206	141	181	175	154	164	163	171	86
M	.49	.57	4.83	-1.02	2.58	2.55	2.88	2.65	1.32	3.09
SD	.50	.49	3.69	.83	.91	.85	1.43	1.35	.50	3.60

* $p \leq .05$. ** $p \leq .01$.

TABLE 2.
Parameter Estimates and Unstandardized Confidence Intervals for the Full Structural Equation Model

	B (β)	CI
Sex \rightarrow Harsh-Intrusion (η)	-0.16 (-0.13)*	[-0.32, -0.09]
Race \rightarrow Harsh-Intrusion (η)	0.38 (0.32)**	[0.19, 0.57]
Income-to-Needs (6 Years) \rightarrow Harsh-Intrusion (η)	-0.04 (-0.25)**	[-0.06, -0.01]
Harsh-Intrusion (6 Months) \rightarrow Harsh-Intrusion (η)	0.23 (0.34)**	[0.12, 0.33]
Difficult Temperament (6 Months) \rightarrow Harsh-Intrusion (η)	-0.03 (-0.05)	[-0.13, 0.05]
Negative Attributions (6 Months) \rightarrow Harsh-Intrusion (η)	0.27 (0.23)**	[0.11, 0.44]
Sex \rightarrow Internalizing Problems (6 Years)	0.52 (0.07)	[-0.97, 2.01]
Race \rightarrow Internalizing Problems (6 Years)	-1.83 (-0.25)	[-3.68, 0.06]
Income-to-Needs (6 Years) \rightarrow Internalizing Problems (6 Years)	-0.02 (-0.03)	[-0.25, 0.19]
Harsh-Intrusion (6 Months) \rightarrow Internalizing Problems (6 Years)	-1.49 (-0.38)**	[-2.53, -0.46]
Difficult Temperament (6 Months) \rightarrow Internalizing Problems (6 Years)	-0.03 (-0.01)	[-1.08, 1.00]
Negative Attributions (6 Months) \rightarrow Internalizing Problems (6 Years)	0.13 (0.02)	[-1.37, 1.65]
Harsh-Intrusion (η) \rightarrow Internalizing Problems (6 Years)	4.81 (0.81)**	[2.25, 7.36]
Negative Attributions \rightarrow Harsh-Intrusion \rightarrow Internalizing Problems		
Total	1.47 (0.21)*	[0.12, 2.81]
Direct	0.14 (0.02)	[-1.37, 1.65]
Indirect	1.33 (0.19)**	[0.28, 2.38]

Note: CI = confidence interval.

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

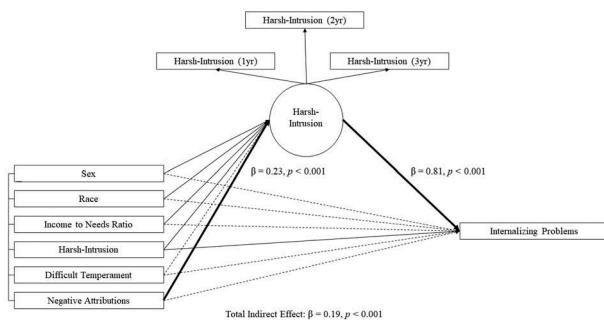


FIGURE 1. Standardized Path Coefficients for the Associations between Maternal Attributions, Harsh-Intrusive Parenting Behaviors, and Children's Internalizing Behavior Problems

given the likelihood that they increase the perceptions of threat and reducing perceived control over threat (Chorpita & Barlow, 2016). Harsh and intrusive parenting behaviors may also contribute to the exacerbation and maintenance of children's IPs and anxiety problems by denying opportunities for exploration, stifling the growth of autonomy, and restricting the acquisition of skills to cope with stressful events (Barlow, 1988). The current findings contribute to this large literature base by demonstrating links between harsh-intrusion and children's IPs using observational methods and without relying on maternal reports of child IPs.

Maternal negative attributions in infancy predicted more teacher-rated IPs in early childhood, but this direct link became nonsignificant when observed maternal harsh-intrusion was included as a mediator. A significant indirect effect in the mediation analysis indicated that maternal negative

attributions in infancy contribute to more IPs in early childhood through their influence on harsh-intrusive parenting behaviors in toddlerhood. This is controlling for infants' difficult temperament and harsh-intrusive parenting behaviors in infancy. Research shows that parents who hold dysfunctional child-oriented attributions are more likely to engage in punitive and overreactive parenting behaviors (Dix et al., 1986; Sturge-Apple et al., 2014), and the current study contributes to this literature by demonstrating the influences of maternal attributions in infancy on harsh-intrusive parenting behaviors using observational methods. Moreover, we provide evidence that harsh-intrusive parenting behaviors are one mechanism through which mothers' early negative attributions exert influence on children's later IPs.

This research contributes to our understanding of the early determinants of harsh and intrusive parenting behaviors, an important endeavor given research highlighting the extent to which parenting contributes to the emergence and maintenance of anxiety problems and IPs. For example, research shows that early behavioral inhibition, a risk factor for eventual anxiety IPs, predicts adolescent anxiety disorder but only in the presence of observed maternal overcontrol in early childhood (Lewis-Morrarty et al., 2014). Also, behavioral inhibition increases over time when mothers are less autonomy granting and more restrictive (Booth-LaForce et al., 2012). The consequences of maternal attributions in infancy are understudied, and the current findings start to address this gap by showing that what mothers think regarding the intentionality and control of their infants' behaviors has cascading influences across toddlerhood and early childhood.

Although the current study provides initial longitudinal evidence for the processes through which maternal

negative attributions influence child IPs, future research should work to elucidate the factors that contribute to the formation of dysfunctional attributions and beliefs. Research with preschool-age children provides strong evidence that children's own behaviors also contribute to parents' beliefs and attributions. For example, expressions of social fearfulness in the peer group may evoke parental feelings of worry, guilt, or embarrassment, and perhaps, with increasing child age, a growing sense of frustration (Mills & Rubin, 1990; Rubin & Mills, 1992). Parents' perceptions of their children' as being vulnerable may motivate intrusive and controlling behaviors in an attempt protect them from interactions or situations deemed risky (Burgess et al., 2005). The current study controls for infants' temperament, but future studies should examine the extent to which infant behaviors are bidirectionally associated with parents' attributions across time and contexts. Furthermore, examining the extent to which parents' negative attributions influence trajectories of harsh and intrusive parenting across infancy and toddlerhood would be an important next step. In addition, parental emotional awareness, beliefs about emotions, and emotion socialization have all been shown to play an important role in the emergence of psychopathology (Gottman, Katz, & Hooven, 1996; Havighurst, Wilson, Harley, Prior, & Kehoe, 2010; Wagner, Mills-Koonce, Willoughby, & Cox, 2017), including anxiety problems and IPs (Hurrell, Houwing, & Hudson, 2017; Suveg, Shaffer, & Davis, 2015). Future research should incorporate measures of parents' beliefs about emotions and emotion socialization practices when investigating the longitudinal links between parents' attributions, behaviors, and children's IPs.

The current study has many strengths, including a longitudinal design, observational measurement of parenting behaviors across toddlerhood, teacher-rated IPs, and the use of a diverse sample. However, limitations in measurement allow us to provide only a snapshot of maternal negative attributions in infancy despite research showing their influence across development, and even prenatally. We are unable to speak to the various factors that are likely to contribute to mothers' negative attributions, something that will be necessary in future research if these processes are to be fully understood. Relatedly, although the use of teacher-rated IPs is considered a strength, the current study does not inform our understanding of children's IPs in contexts outside of the classroom. An additional limitation of note is the presence of a considerable amount of missing data, particularly in the teachers' report of children's IPs. Although we employed appropriate statistical approaches for accounting for the missing data, including the use of FIML estimation and the inclusion of demographic covariates, it is possible that other characteristics may have precluded teachers from completing questionnaires such as burnout or fatigue. Finally, although the use of a community sample contributes to the generalizability of findings, it restricts the extent to which IPs are predicted at clinically

relevant levels. It also limits our ability to directly compare and integrate these findings with studies using clinical samples of older children. Although maternal attributions significantly predicted children's IPs when observed parenting was not included as a mediator, this link accounted for less than 10% of the total variance; this is compared to observed harsh-intrusion, which accounted for about half of the variance in children's IPs. A better understanding of how maternal attributions predict the emergence of children's IPs apart from their influence on parenting behaviors may require a multi-informant approach to measuring internalizing behaviors, the use of a clinical sample, or both. Despite these limitations, the current study contributes to the literature by identifying observed harsh-intrusive parenting behaviors in toddlerhood as one potential mechanism linking maternal negative attributions in infancy and children's teacher-rated IPs. These findings have clinical implications insofar as they suggest that interventions addressing mothers' negative attributions as early as infancy may be beneficial for protecting against eventual IPs. Pilot data from an attachment-based parenting intervention showed that helping mothers of toddlers (ages 12–36 months) to have a more balanced representation of their children and a recognition of the intentional nature of children's behaviors contributed to improvements in maternal behavior with toddlers, including increased sensitivity and responsiveness (Suchman, DeCoste, Castiglioni, Legow, & Mayes, 2008; also see Suchman et al., 2017). Taken together with the findings of the current study, interventions focused on addressing parents' negative attributions in infancy may help to protect against the emergence of internalizing behavior problems in early childhood.

FUNDING

This work was supported by the National Science Foundation (BCS-0126475).

NOTES

1. Substantive findings remained unchanged when infant difficult temperament was excluded from the analyses. Parameter estimates for externalizing and maternal-rated internalizing outcomes can be found in supplemental Tables 1 and 2, respectively.

SUPPLEMENTARY MATERIAL

Supplemental data for this article can be accessed on the [publisher's website](#).

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