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Origins of Children's Externalizing Behavior Problems in Low-Income Families: Toddlers' Willing Stance toward their Mothers as the Missing Link

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Abstract

Although children's active role in socialization has been long acknowledged, relevant research has typically focused on children's difficult temperament or negative behaviors that elicit coercive and adversarial processes, largely overlooking their capacity to act as positive, willing, even enthusiastic, active socialization agents. We studied the willing, receptive stance toward their mothers in 186 24-44-month-old children in a low-income sample. Confirmatory Factor Analysis supported a latent construct of willing stance, manifested as children's responsiveness to mothers in naturalistic interactions, responsive imitation in teaching contexts, and committed compliance with maternal prohibitions, all observed in the laboratory. Structural Equation Modeling analyses confirmed that ecological adversity undermined maternal responsiveness and responsiveness, in turn, was linked to children's willing stance. A compromised willing stance predicted externalizing behavior problems, assessed 10 months later, and fully mediated the links between maternal responsiveness and those outcomes. Ecological adversity had a direct, unmediated effect on internalizing behavior problems. Considering children's active role as willing, receptive agents capable of embracing parental influence can lead to a more complete understanding of detrimental mechanisms that link ecological adversity with antisocial developmental pathways. It can also inform research on the normative socialization process, consistent with the objectives of developmental psychopathology.

The early views of parents as the main agents of socialization have been subsequently revised due to the growing recognition that children may also play an active role in the socialization process. That active role was perceived mostly in terms of children's ability to elicit conflict, resist and challenge the parent, and thus "pull" for harsh parenting (Bell, 1968; Kuczynski & Kochanska, 1990; Lytton, 1990; Patterson, Reid, & Dishion, 1992; Putnam, Sanson, & Rothbart, 2002). Recently, approaches to the child's active role have become conceptually and methodologically sophisticated (for example, Pardini, 2008, and the following special section of *Journal of Abnormal Child Psychology*). Current studies often examine the evolving mutually adversarial and mutually coercive parent-child transactions as leading to maladaptive developmental outcomes, with varying degree of emphasis on the causal role of the parent versus the child (e.g., Lipscomb et al., 2011; Lorber & Egeland, 2011).

Most studies, however, continue to place the emphasis on the child's *negative characteristics* (e.g., difficult temperament, aversive behavior) and the resulting maladaptive, coercive cycles that evolve within the parent-child relationship. This approach does not acknowledge that children can also act as active agents in their own socialization in a *positive sense* and

that they can willingly, even enthusiastically, embrace parental influence, despite the growing interest in positive socialization mechanisms in general (Criss, Shaw, & Ingoldsby, 2003).

The recognition of children's capacity for active cooperation with parents has a long history, dating back to the neo-psychoanalytic model that described children's willing identification with warm, emotionally available parents (Emde, Biringen, Clyman, & Oppenheim, 1991). Those approaches have evolved further into the attachment perspective that has depicted secure children as eager to embrace parental rules (Bretherton, Golby, & Cho, 1997; Thompson, 2006; van Ijzendoorn, 1997). As well, Maccoby (1999; 2007) advocated a view of children as able to develop a uniquely receptive, willing orientation toward their parents. In all those approaches, such "willing stance" has been considered a powerful mechanism of successful socialization. Typically, in those models, the child's willing stance is seen as evolving within a mutually responsive parent-child relationship. Children of responsive and supportive parents develop an eager, receptive, cooperative orientation toward them (Kochanska, 2002; Kochanska, Forman, & Coy, 1999; Londerville & Main, 1981; Lytton, 1977; Martin, 1981; Matas, Arend, & Sroufe, 1978; Pappalardo & Maccoby, 1985). Despite the long-standing interest and potentially key implications for socialization, however, children's willing, receptive, eager, positive stance toward parents remains largely under-appreciated in developmental psychology and psychopathology.

We have proposed that the child's willing, receptive stance toward the parent may be reflected in multiple observable behaviors. They may include, among others, the child's responsiveness to the parent's cues (Kochanska, Barry, Aksan, & Boldt, 2008); committed, enthusiastic compliance with the parent's agenda (Kochanska, Aksan, & Carlson, 2005); and eager, responsive imitation in parent-child teaching contexts (Forman, Aksan, & Kochanska, 2004; Kochanska et al., 1999; 2010). Across several low-risk samples, all measures of willing stance have been robustly associated, concurrently and longitudinally, with a host of positive developmental outcomes. However, they have all been treated as separate observed variables, based on the theoretical assumption that they reflect a latent generalized receptive, cooperative, willing stance toward the parent. The first goal of this study was to test this assumption empirically, using Confirmatory Factor Analysis (CFA).

The child's willing stance plays a key role in socialization. Its significance is particularly paramount as a factor that prevents -- or, when compromised or weakened, as one that leads to --antisocial externalizing, disruptive trajectories. An eager, receptive, willing stance toward the parent is crucial for the child's genuine embrace, acceptance, and internalization of the parent's values and socialization messages. A compromised willing stance leads to defiance, anger, hostility toward the parent, rule breaking, aggression, disregard for standards of conduct, and other typical externalizing behavior problems. In our past work, we have indeed shown robust links between the child's compromised willing stance and externalizing problems or closely related conscience development (Forman et al., 2004; Kochanska et al., 2008).

In contrast to the key role child willing stance has in the origins of antisocial, disruptive problems, its role in the development of internalizing problems, such as anxiety and depression, is not obvious. In our past research, we have not yet studied empirically relations between willing stance or its components and children's internalizing developmental trajectories, and we are not aware of such investigations. To elucidate the links between the child's willing stance at toddler age and *both* externalizing and internalizing problems at preschool age was another goal of the current work. We used a well-established clinical diagnostic instrument that produced measures of externalizing problems (symptoms of opposition, defiance, conduct problems) and related measures of child social functioning and

aggression (peer conflicts), and internalizing problems (generally, symptoms of depression and anxiety). Those outcomes were all examined simultaneously and modeled as inter-correlated outcome variables. We expected willing stance to be significantly associated with externalizing problems and the related peer conflicts. We had no specific hypotheses about its links with internalizing problems.

As ecological models of development have ascended (Belsky, 1984), adversity and risks impinging on the family have been increasingly recognized as contributors to a broad range of children's poor developmental outcomes. Multiple such risks have been studied in relation to both externalizing and internalizing problems in young children and to the quality of early childrearing environment. Typically, those risks have included the mother's young age, low education level, low income, an unstable family structure (e.g., single, divorced), a high number of children, and a high number of stressful events impinging on the family.

Considerable research has supported negative implications of ecological adversity for young children. Maternal young age has been often found to serve as a broad risk factor (Berlin, Brady-Smith, & Brooks-Gunn, 2002; Bornstein, Putnick, Suwalsky, & Gini, 2006; Ragozin, Basham, Crnic, Greenberg, & Robinson, 1982; Wakschlag et al., 2000). As well, maternal low education and low income have been identified as negative predictors of multiple emotional, behavioral, and cognitive child outcomes (Baharudin & Luster, 1998; Lanza, Rhoades, Nix, Greenberg, & The Conduct Problems Prevention Research Group, 2010; McLoyd, 1998). The mother's family status that reflects the stability of her relationship with her partner, or the absence of a partner (married, cohabitating, single, divorced) has been found to have broad and pervasive effects on children, with children growing up in married households having advantages (Amato & Keith, 1991; Bachman, Coley, Carrano, 2011; Osborne & McLanahan, 2007). A high number of children has also been a risk factor (Keenan, Gunthorpe, Grace, 2007; Trentacosta et al., 2008). Finally, the number of stressful events that have impacted the family has been linked to preschool children's broadly ranging emotional and behavioral problems (Abidin, Jenkins, & McGaughey, 1992).

The most common approach to the study of the implications of adversity on mothers and young children is to treat inter-related multiple stressors present in the family's ecology as cumulative rather than to examine them separately (Ackerman, Izard, Schoff, Youngstrom, & Kogos, 1999; Deater-Deckard, Dodge, Bates, & Pettit, 1998; Lanza et al., 2010; Rutter, 1978; Sameroff, Seifer, Barocas, Zax & Greenspan, 1987; Shaw, Vondra, Hommerding, Keenan, & Dunn, 1994; Shaw, Winslow, Owens, & Hood, 1998). Typically, risk factors are scored as present or absent, and the tally of those present is seen as representing the risk variable (or sometimes cumulative variables for various domains, Deater-Deckard et al., 1998). More sensitive indices, however, based on means, have been advocated (Burchinal, Vernon-Feagans, Cox, & Key Family Life Project Investigators, 2008).

In this study, we followed our earlier work, conducted with a community sample (Kochanska, Aksan, Penney, & Boldt, 2007), although we further refined the earlier approach. We graded the amount of risk associated theoretically with each factor to produce a more fine-grained final index. We considered six ecological risk factors discussed above (the mother's education level, her age, marital status, the number of children, family income per member of the household, and the total amount of stress experienced in the last year). Each was graded on the same metric, from 0 (the lowest) to 3 (the highest) level of risk, based on the extant research. Those values were then added to reflect cumulative *ecological adversity*.

In most studies, disrupted parenting has been seen as a key mechanism that accounted for the link between ecological adversity and children's maladaptive outcomes (e.g., Burchinal

et al., 2008; Dumka, Roosa, & Jackson, 1997; Lengua, Honorado, & Bush, 2007; Masten, 2011; Seifer, Sameroff, Baldwin, & Baldwin, 1992; Trentacosta et al., 2008; Wyman, et al., 1999). Such approach, however, although certainly accurate, is incomplete. We believe that it does not acknowledge a key mediator linking parenting with child developmental outcomes: *the child's willing, receptive stance* toward parental socialization. In our view, *a disrupted or compromised willing stance is the proximal cause of behavior problems*, and particularly externalizing, antisocial outcomes. To test this hypothesis was the second goal of this study. We tested such a mediational model using Structural Equation Modeling (SEM), with the child's willing stance at toddler age modeled as a latent variable that mediates the impact of maternal responsiveness on children's adjustment outcomes (and responsiveness as mediating the impact of ecological adversity on willing stance). We examined both externalizing and internalizing behavior problems.

The conceptual model was tested in a large, low-income, relatively diverse sample. All of our previous research on children's willing stance has been conducted with community samples that were limited in diversity. To generalize the model to a higher-risk sample of low-income mothers and children has been a long-stated, important objective.

Method

Participants

Mothers of young children responded to flyers distributed broadly in several counties in Eastern Iowa. The study targeted low-income families, and the flyers specified low income as one of the eligibility criteria. The flyers were posted on community boards in libraries, stores, and day care centers, and in locations frequented by low-income families (e.g., Women, Infants, and Children nutritional program offices, local Department of Health and Human Services offices, thrift stores, free medical clinics, pediatric offices, Head Start locations, mobile homes parks, subsidized housing complexes, etc.). To be eligible, the mother had to receive or qualify for some form of aid from a federal, state, or faith-based agency, or for Earned Income Tax Credit. Additional criteria included the child's normal developmental and health history and the mother's ability to speak English while observed.

Based on a screening telephone interview, 186 mothers of children (90 girls) ranging in age from 24 to 44 months were accepted. The average annual family income was \$20,385, $SD = \$13,010$; 55% of mothers had no more than a high school education, and 45% had an associate, Bachelor's, or technical degree. Mothers' average age was 27.58 years, $SD = 4.88$. They came from multiple ethnic and racial groups (11% Hispanic, and 88% not Hispanic; 73% White, 15% African American, 2% Asian, 2% American Indian, and 8% more than one race or unreported). Fifty-four percent were married, 13% cohabitated with a partner, 6% were divorced, 25% were single, and 2% were in other arrangements.

Overview of Design

The study tested an early play-based intervention. The initial assessment was conducted when the mother-child dyads were recruited (child age, $M = 30.33$, $SD = 5.40$). The data on ecological adversity, children's willing stance, and maternal responsiveness were collected at that time. After that assessment, the dyads were randomized into two groups, and the intervention was implemented for approximately 10 weeks (child-oriented play versus play-as-usual). In the present article, however, data are reported for the entire sample. There were no differences between the two groups in any of the outcome measures, collected approximately 10 months later (child age, $M = 39.98$, $SD = 5.56$), reported in this article. The intervention status was nevertheless included as a covariate in the analyses as an added safeguard.

Upon entry to the study, mothers and children were seen in an approximately 3-hr session in the laboratory and mothers completed several questionnaires that provided data for the ecological adversity index. During the session, behavioral data on mother and child behavior were collected in naturalistic but standard contexts and paradigms. Those data served as components of the child's willing stance toward the mother. Approximately 10 months later, mothers ($N = 162$) completed a well-established instrument that assesses young children's mental health.

All measures comprising the child's willing stance toward the mother (responsiveness during naturalistic interactions, responsive imitation in the teaching context, and committed compliance with the maternal prohibition) and maternal responsiveness were coded from digital recordings of the mother-child laboratory session by independent teams of coders. The coders established reliability on approximately 20% of cases, and subsequently realigned frequently to prevent observer drift. Typically, kappas were used for categorical variables, and intra-class correlations (ICC) for continuous measures.

Measures

Ecological Adversity Index

The *ecological adversity index* was created by assigning 0, 1, 2, or 3 “risk points” for each of the following six criteria: the mother's education, her age, marital status, the number of children, family income per member of the household, and the total amount of stress experienced in the last 12 months, reported in Life Experiences Survey (LES; Sarason, Johnson, & Siegel, 1978). LES lists multiple life events (e.g., deaths, illnesses, relationship with partner, financial problems), with each rated from 1 (not stressful) to 4 (very stressful), $M = 25.87$, $SD = 18.84$. The risk points were assigned as follows (higher scores denote higher risk).

Mother education: Bachelor's degree or a technical degree = 0, associate degree = 1, high school or GED = 2, less than high school = 3.

Mother age: 26 and older = 0; 23-25 = 1, 20-22 = 2, and 19 and younger = 3.

Marital status: married = 0, cohabitating = 1, divorced = 2, single or in other arrangements = 3.

Number of children: 1-2 = 0, 3 = 1, 4 = 2, 5 or more = 3.

Income per member of household: more than \$7,500 = 0, \$5,000 – 7,500 = 1, \$2,500 - \$5,000 = 2, less than \$2,500 = 3.

Total stress in the last 12 months: lowest 25% of the LES scores = 0, between 25% and 50% = 1, between 50% and 75% = 2, and above 75% = 3.

Thus created ecological adversity index ranged from 0 to 13. There were 44 mothers in the 0 – 3 range, 54 mothers in the 4 – 6 range, 62 mothers in the 7 – 10 range, and 25 mothers in the 11 – 13 range (one mother did not provide sufficient information). Families of girls and boys did not differ, girls, $M = 6.20$, $SD = 3.14$, boys, $M = 6.36$, $SD = 3.49$, $t(183) < 1$.

The Child's Willing Stance toward the Mother

The Child's Responsiveness to the Mother in Naturalistic Interactions

Observed contexts—The child's responsiveness to the mother was coded during naturalistic interactions (42 min total) that encompassed five scripted contexts: the

introduction to the laboratory room (5 min), mother busy with questionnaires (10 min), a snack (12 min), play (10 min), and gift (5 min).

Coding and data aggregation—For each context, the coders rated the child's responsiveness from 1 (highly unresponsive) to 7 (highly responsive). The code integrated the child's positive attention and orientation toward the mother, sensitivity to her cues, promptness of response, enjoyment of interaction, and cooperation with the mother's bids. Reliability among the coders, (ICCs), ranged from .90 to .92.

The scores cohered across the observed contexts, Cronbach's alpha = .83. Thus, the scores were averaged across all contexts into the child's *overall responsiveness score toward the mother*. Girls had higher scores than boys; girls, $M = 4.89$, $SD = .82$, boys, $M = 4.48$, $SD = 1.14$, $t(184) = 2.81$, $p < .01$.

The Child's Responsive Imitation in a Teaching Context

Observed contexts—The child's responsiveness to the mother's teaching influence was coded in elicited imitation contexts, based on our previous work (Forman et al., 2004). The mother (who had been given a detailed script beforehand) demonstrated two scripted play sequences, using standard props: “Feed the bear” (put the bear in the toy chair, put the bib on the bear, give the bear a “sip” from the cup, wipe bear's mouth) and “Clean the table” (spray the table, wipe with one piece of paper, wipe with another piece of paper, throw both pieces of paper in the trash). After demonstrating each sequence, the mother asked the child to imitate. Up to 7 min were allowed for the paradigm.

Coding and data aggregation—The child's eager, responsive imitation of the mother's actions was coded for each play sequence, from 1 (unresponsive, adversarial), to 2 (fairly or minimally responsive), to 3 (reasonably responsive), to 4 (very responsive). The judgment integrated three criteria: postural orientation toward the mother (turned away or toward the mother, eye contact), quality of attention and promptness of response, and affective engagement. Inter-coder ICC was .79.

The scores for the two play sequences correlated, $r(185) = .50$, $p < .001$. Thus, they were averaged into one score of *responsive imitation*. Girls had higher scores than boys; girls, $M = 3.21$, $SD = .59$, boys, $M = 3.00$, $SD = .69$, $t(184) = 2.24$, $p < .05$.

The Child's Committed Compliance with the Mother's Prohibition

Observed contexts—Mothers were asked to keep children from touching very attractive toys displayed on a low shelf in the laboratory. The prohibition was introduced as soon as the mother and child entered the laboratory room. All mother-child control encounters that involved the prohibited toys were recorded during approximately 45 min in the laboratory, in the contexts when the child had an easy access to the shelf.

Coding and data aggregation—The first team of coders coded all instances when the child oriented toward the prohibited toys (looked at, touched, approached, talked about, etc.) or when the mother commented on the toys. This marked the onset of an episode; the episode continued until its offset was marked (when the child reoriented away from the toys for at least 30 sec). Reliabilities for the onset-offset coding (ICC) ranged from .85 to .99.

A second team of coders then coded the child's behavior for each 30-sec segment within the marked episodes. On the average, there were 46.63 ($SD = 12.71$) segments. Reliability for the coding of child behavior (kappa) was .88. In this article, we focus on committed, willing compliance with the mother's prohibition: self-regulated, “wholehearted”, internalized

adherence with the maternal rule, without the need for maternal sustained control, often accompanied by indications that the child has endorsed the prohibition (e.g., pointing to the toys, shaking head, and saying “no no”, “We don't touch these”, Kochanska & Aksan, 1995). To create the score of *committed compliance*, all of its instances were tallied and divided by the number of the 30-sec segments. Girls had higher scores than boys; girls, $M = .72$, $SD = .18$, boys, $M = .60$, $SD = .22$, $t(184) = 3.99$, $p < .001$.

The Mother's Responsiveness to the Child

Observed contexts—Maternal responsiveness was coded in two contexts, non-overlapping with the child's responsiveness (20 min total): free play (10 min) and toy cleanup (10 min).

Coding and data aggregation—For each context, the coders rated the mother's responsiveness from 1 (highly unresponsive) to 7 (highly responsive). The code integrated the classic dimensions (Ainsworth, Bell, & Stayton, 1971): sensitivity-insensitivity to the child's cues and signals, cooperation-interference, or support for the child's autonomy, and acceptance-rejection, or affection and enjoyment of the interaction. Reliability among the coders (ICCs), ranged from .81 to .93. The scores cohered across the observed contexts, $r(186) = .49$, and were averaged into the mother's *overall responsiveness score toward the child*. There were no differences in mothers' responsiveness to girls or boys, girls, $M = 4.89$, $SD = .96$, boys, $M = 4.64$, $SD = 1.21$, $t(184) = 1.61$, ns.

The Child's Developmental Outcomes: Behavior Problems

Approximately 10 months later, the mothers completed the Early Childhood Inventory (ECI-4, Gadow & Sprafkin, 2000). ECI-4 is a well-established clinical instrument for children aged 3-5 that produces scores for multiple disorders, compatible with DSM-IV. We used the Symptom Severity scoring approach, where most items are rated as 0 = never, 1 = sometimes, 2 = often, or 3 = very often, according to the guidelines. We then created *externalizing behavior problems* and *internalizing behavior problems* scores. The former was the sum of items targeting Oppositional Defiant Disorder and Conduct Disorder, and the latter was the sum of items targeting Separation Anxiety, Specific Phobia, Obsessive-Compulsive Disorder, Tics Disorder, General Anxiety Disorder, Depression, Adjustment Disorder, Social Phobia, and Posttraumatic Stress Disorder (several items that are counted toward more than one disorder were only counted once). Furthermore, we used the *Peer Conflict Scale* that targets peer aggression. Girls had lower externalizing behavior problems scores; girls, $M = 5.38$, $SD = 5.15$, boys, $M = 7.35$, $SD = 6.28$, $t(160) = -2.18$, $p < .05$ and marginally lower Peer Conflict scores; girls, $M = 2.42$, $SD = 2.73$, boys, $M = 3.36$, $SD = 3.42$, $t(160) = -1.94$, $p < .10$. There were no gender differences in the internalizing scores, girls, $M = 11.26$, $SD = 9.81$, boys, $M = 10.72$, $SD = 7.20$, $t(160) < 1$. The descriptive statistics for all measures are in Table 1.

Results

Overview of the Analyses

First, we computed the inter-correlations among the study's measures. Second, we addressed the first goal of the study: the analysis of the latent structure of children's willing stance (CFA). Third, we addressed the second goal, and tested the model that posed the child's willing stance as a key mediator of the impact of maternal responsiveness on the three developmental outcomes, and maternal responsiveness as a mediator of the impact of ecological adversity on child willing stance, using SEM (Bollen, 1989).

Preliminary Inter-Correlations

The inter-correlations are in Table 2. Ecological adversity, as predicted, correlated negatively with aspects of the child's willing stance and maternal responsiveness, and positively with all measures of behavior problems in ECI-4: externalizing (marginally), internalizing, and peer conflicts. All three measures of the child's willing stance were positively inter-related, and most were negatively correlated with measures of externalizing behavior problems and peer conflicts. Inter-relations among the ECI-4 scores showed a typical pattern, with externalizing, internalizing, and peer conflicts positively correlated with each other.

The Testing of the Latent Structure of Children's Willing Stance Toward the Mothers

In the CFA model, the four observed indicators, or the child's behaviors toward the mother (responsiveness in naturalistic interactions, committed compliance with her prohibition, and responsive imitations in each of two teaching contexts) were proposed to measure a single latent factor, the child's willing stance. Note that because at least four indicators are needed to test model fit, we treated child each responsive imitation scores in the two contexts ("Feed the bear" and "Clean the table") as two separate observed indicators for the CFA model. Given their measurement similarity, we allowed a correlation of error terms between those two indicators.

In the test of normality assumption, none of the four indicators exceeded West, Finch, and Curran's (1995) recommended standards in their univariate statistics: In all indicators, skewness was less than 2, and kurtosis was less than 7. However, the omnibus test of multivariate normality provided by DeCarlo's (1997) macro did not indicate that the normality assumption was satisfied. Therefore, as a more conservative approach, we used the robust maximum likelihood (MLR) estimation based on the scaled chi-square and robust standard errors (Yuan and Bentler 1998; 2000). Missing values were handled by the listwise deletion method because only 1 out of 186 cases had incomplete data.

The CFA model produced good model fit indices. Chi-square test indicated that the model was acceptable at .05 alpha level ($\chi^2 = 1.453$, $df = 1$, $p = .228$). Comparative fit index (CFI = .997) and Tucker-Lewis index (TLI = .985) were greater than .95, and root mean square error of approximation (RMSEA = .049) and standardized root mean square residual (SRMR = .010) were less than .05, satisfying conventional standards of good model fits (Bentler, 1990; Hu & Bentler, 1999; Steiger & Lind, 1980). The standardized factor loadings for the single latent factor, children's willing stance, ranged from .37 to .81 ($ps < .001$). Consequently, we can conclude that our four measured child behaviors all reflected an underlying latent construct of willing stance.

Ecological Adversity, Maternal Responsiveness, Children's Willing Stance, and Developmental Outcomes: Externalizing Behavior Problems, Internalizing Behavior Problems, and Peer Conflicts

Figure 1 represents the SEM analysis for the three different developmental outcome variables (children's externalizing behavior problems, internalizing behavior problems, and peer conflict). The child's willing stance was modeled as the mediator of the effect of the maternal responsiveness on the three outcome variables. Maternal responsiveness was modeled as the mediator of the effect of ecological adversity on the child's willing stance. In addition, the ecological adversity and the maternal responsiveness were modeled to have direct influences on the three outcomes. Although not depicted, the child's sex, age, and the intervention status were considered covariates.

As in the CFA model, we used the robust maximum likelihood (MLR) estimation. Because fewer than 20% of data were missing, we opted for listwise deletion of missing data (Arbuckle, 1996). To check any possible influence of the missing data on the results, we also ran the same SEM analysis with the full information maximum likelihood (FIML) method. The overall patterns of the structural coefficients did not change.

The SEM model had good overall fit in all indices ($\chi^2 = 27.370$, $df = 26$, $p = .390$; CFI = .996; TLI = .992; RMSEA = .018; SRMR = .031). Higher ecological adversity significantly predicted lower maternal responsiveness, and higher maternal responsiveness significantly predicted higher willing stance.

The child's willing stance toward the mother significantly predicted his or her *externalizing problems* and *peer conflicts*, such that children with higher scores had fewer externalizing problems and fewer peer conflicts. Maternal responsiveness, however, did not have any significant direct effect on the three outcomes. The indirect effects of maternal responsiveness on the child's externalizing problems and peer conflicts, mediated by his or her willing stance, were both significant, respectively, $b = -.10$ $SE = .05$, $p < .05$, and $b = -.08$, $SE = .04$, $p < .05$.

Higher ecological adversity significantly and directly predicted the child's higher *internalizing problems* scores. However, the child's willing stance and maternal responsiveness did not have significant effects on this outcome. The indirect effect of the ecological adversity on the child's willing stance, mediated by maternal responsiveness, was significant, $b = -.14$, $SE = .05$, $p < .01$.

Discussion

Despite the long-held consensus that young children have an active role in the process of socialization, the portrayal of that role in development has been relatively one-sided and far from complete. When children are depicted as active contributors, it is mostly in the context of coercive, adversarial, mutually negative transactional cycles unfolding in parent-child relationships due to their aversive behavior, such as angry defiance, negative emotionality, or difficult temperament (e.g., Lipscomb et al., 2011; Lorber & Egeland, 2011; Shaw et al., 1998). Even when a possibility of long-term mutually positive parent-child trajectories is explicitly acknowledged and studied, the measures of children's early characteristics typically focus on difficult temperament (e.g., Trentacosta et al., 2011). Consequently, very few studies have focused on young children's actively positive role in the socialization process, although such a role has long been postulated as critical in several theories, including the neo-psychoanalytic, attachment-based, and reciprocity-based conceptualizations of development.

Given this long theoretical history, the lack of attention to children's role as positive, eager agents of socialization is unfortunate and ought to be remedied. Furthermore, as this study and our earlier work indicate, the child's eager, willing stance toward the parent is a key factor responsible for the child's accepting, embracing, and internalizing the parent's rules and values. Conversely, a compromised or diminished willing stance is associated with the child's rejection of the parent's socialization messages, disregard for rules, defiance, aggression, and other symptoms typical for an externalizing, disruptive trajectory. Thus, understanding determinants and consequences of children's willing stance has significant implications for developmental psychopathology.

Our earlier work has shown that young children's positive, active, willing stance toward their mothers and fathers can be measured behaviorally. However, the assumption that the

child's willing stance is indeed a latent, generalized quality, manifested in various observable behaviors has not been rigorously tested beyond demonstrating their inter-correlations. To our knowledge, the results of the present study, based on CFA, are the first clearly to support a notion that a toddler's diverse behaviors postulated to be part of a positive, eager, receptive orientation toward the mother (responsiveness in naturalistic interactions, responsive imitation in teaching contexts, and committed compliance with maternal prohibition) indeed all reflect an underlying latent construct.

In this context, it is important to draw a distinction between the construct of the child's willing stance and that of "compulsive compliance", a rigid, maladaptive compliant style, sometimes found in maltreated toddlers (Crittenden & DiLalla, 1988). The coding guidelines for the latter describe, for example, constrained affective expression, lack of pleasure or interest, and avoidance of eye contact (Crittenden & DiLalla, 1988, pp. 589-590). In contrast, children who score highly on the measures of willing stance typically clearly show positive and open affective expression, appear genuinely pleasurable when following the parent's direction or imitating the parent, and engage in shared positive emotion and eye contact with the parent. Skillful coders would not be likely to confuse those constructs.

Furthermore, the results of the SEM analyses indicated that the child's willing stance, modeled as a latent construct, is an important, and heretofore ignored, factor in the development of behavior problems under the conditions of ecological adversity. Typically, adversity is assumed to exert its negative effects on children's adjustment by eroding the quality of parenting. Our study suggests that this account may be only partially true and, without considering the child's active, positive role in socialization, incomplete. The child's receptive, eager, willing stance toward the mother is quite literally "the missing link" between sub-optimal parenting and children's future externalizing behavior problems.

Mechanisms linking adversity with diminished maternal responsiveness have been well studied: Limited resources, instability, and multiple forms of stress present in mothers' lives undermine warm, accepting, supportive, and child-focused parenting. In our data, adversity impinging on the family indeed undermined maternal responsiveness toward the child. That diminished responsiveness, however, had no *direct links* with children's externalizing outcomes. Rather, poor responsiveness undermined toddlers' willing, receptive stance toward their mothers, and that compromised willing stance was the proximal, direct cause of a high level of externalizing behavior problems.

The mechanisms linking the child's willing stance with future externalizing problems are clearly articulated in our model. As expected, the child's willing stance was a significant predictor of externalizing problems (symptoms of oppositional defiant disorder and conduct disorder) and of aggression in peer relations. Conceptually, this pattern of findings fits well with modern views of children's internalization of values, where the child's willing acceptance of parental values is seen as key (Grusec & Goodnow, 1994; Kochanska et al., 2008). The child's rejection of parental socialization messages, defiance and resistance toward authority, disregard for rules, and other deficits of an internalized system of standards of conduct are essential components of externalizing behavior problems.

We did not have specific predictions regarding children's willing stance and their internalizing problems, as, by and large, those problems do not centrally involve the rejection of and disregard for rules of conduct. Indeed, there were no significant paths from willing stance to children's internalizing problems. In our data, those problems were directly related to ecological adversity impinging on the family. Adversity had a direct, unmediated detrimental effect of children's internalizing problems.

This finding is consistent with the extant evidence showing that ecological risks predict internalizing problems (Shaw, Keenan, Vondra, Delliquadri, Giovanelli, 1997). Perhaps the link is due to the disrupted physiological stress regulation (Evans & Kim, 2007) and impaired emotion regulation, both related to depression and anxiety in children (Cole, Luby, & Sullivan, 2008; Keenan, 2000; Keenan et al., 2007).

In this context, we should note that although disrupted emotion regulation has been linked to both externalizing and internalizing problems (Cole & Deater-Deckard, 2009; Keenan, 2000), in the current data, ecological adversity did not have a direct effect on externalizing outcomes. Perhaps the absence of such relation was due to the fact that disrupted emotion regulation is most closely linked to externalizing problems associated with ADHD problems (Barkley, 1997), and we purposely did not include ADHD symptoms, in our externalizing problems measure.

The lack of associations between maternal responsiveness and children's internalizing problem was surprising. Typically, such links are found, although note that some studies have failed to do so (e.g., Mullineaux, Deater-Deckard, Petrill, & Thompson, 2009). It is often assumed that parents' reports of young children's internalizing problems are less reliable than their reports of externalizing problems. Both types of children's outcomes in this study were assessed through parental reports. Perhaps this fact accounts, in part, for the presence of the links between children's willing stance and externalizing problems (with children less receptive to mothers being judged as more oppositional), and for the absence of the links with internalizing problems that may be harder for mothers to perceive. Future research would benefit from the use of behavioral outcome measures.

This study has several limitations. Although children in low-income families are generally considered to be at risk for adjustment problems, the children in our sample appeared quite comparable to the normative sample described in the ECI-4 Norms Manual (Gadow & Sprafkin, 1997, pp. 151-160). For example, both boys' and girls' severity scores on Oppositional Defiant Disorder and Conduct Disorder were very similar to the normative sample, and their T scores were around 50. The Peer Conflict severity scores were somewhat elevated, but still in the normative range (T score range for boys, 51-54, for girls, 52-55). In future research, it would be important to examine the role of willing stance in children who present with significantly elevated externalizing symptoms.

Although all mothers in our sample had low incomes, and they came from multiple ethnic backgrounds (with 11% Latino and 27% minority mothers, the sample was considerably more diverse than the population of Iowa), the majority of mothers were nevertheless White and married. Including a higher proportion of single parents might further increase the range of ecological adversity scores.

Long-term longitudinal research will be best suited to elucidate parent-child socialization processes. In longitudinal research, both the parent's and the child's behavior is best modeled as causally influencing each other over time (e.g., Lorber & Egeland, 2011). For example, it is possible that the child's anger proneness and negativity may underpin both willing stance and externalizing problems over time. To reduce this possibility, we conducted all analyses including the child's anger proneness, assessed in two standardized observational paradigms at 30 months, as a covariate, and the findings were unchanged. In future work, examining this process over time would be useful. A longitudinal approach is also best suited for understanding mediational processes (Hoyle & Robinson, 2003).

It should be mentioned that genetic factors, not measured in this study, may underlie in complex ways several constructs examined here, including child-rearing environment, maternal and child traits, and families' ecological niches (Caspi, Roberts, & Shiner, 2005;

Maccoby, 2000; Wade & Kendler, 2000). Incorporating genetic measures in future research would be informative.

In summary, in future research on the origins of externalizing problems, more focus will be needed on *positive transactional cycles*, with both the parent and the child contributing to a mutually receptive, willing orientation, in contrast to the currently predominant emphasis on mutually adversarial and coercive cycles. Furthermore, a focus on the child's eager, receptive role is consistent with the tenets of the attachment theory that emphasizes the importance of the early parent-child relationship as a factor that sets in motion future positive socialization processes. In fact, we have demonstrated; in two separate longitudinal community samples, that early security indirectly amplifies the future positive implications of the child's willing stance (Kochanska et al., 2010). Such focus is consistent with an innovative agenda proposed for research on antisocial developmental trajectories (Shaw, 2003).

Both negative and positive processes occur in parent-child relationships; consequently, models that incorporate both are likely to be the most complete and most fruitful for the understanding of both adaptive and maladaptive development, and to have the most useful translational implications. Consequently, treatment programs that aim to reduce or prevent children's oppositional behaviors should incorporate measures of children's willing, receptive stance toward the parent and interventions that target such stance. Clinical prevention research and conceptual and empirical research on young children's willing, receptive stance, mutually informing each other, can lead to significant progress in our understanding of adaptive and maladaptive development, consistent with the objectives of developmental psychopathology.

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References

- Abidin RR, Jenkins CL, McGaughey MC. The relationship of early family variables to children's subsequent behavioral adjustment. *Journal of Clinical Child Psychology*. 1992; 21:60–69.
- Ackerman BP, Izard C, E. Schoff K, Youngstrom EA, Kogos J. Contextual risk, caregiver emotionality, and the problem behaviors of six- and seven-year-old children from economically disadvantaged families. *Child Development*. 1999; 70:1415–1427. [PubMed: 10621964]
- Ainsworth, MDS.; Bell, S. M. V.t; Stayton, DJ. Individual differences in strange-situation behavior in one-year-olds.. In: Schaffer, HR., editor. *The origins of human social relations*. Academic Press; London: 1971. p. 17-57.
- Amato PR, Keith B. Parental divorce and the well-being of children: A meta-analysis. *Psychological Bulletin*. 1991; 110:26–46. [PubMed: 1832495]
- Arbuckle, JL. Full information estimation in the presence of incomplete data.. In: Marcoulides, GA.; Schumacker, RE., editors. *Advanced structural equation modeling*. Lawrence Erlbaum Associates, Inc.; Mahwah, NJ: 1996. p. 243-277.
- Bachman HJ, Coley RL, Carrano J. Maternal relationship instability influences on children's emotional and behavioral functioning in low-income families. *Journal of Abnormal Child Psychology*. 2011; 39:1149–1161. [PubMed: 21728032]
- Baharudin R, Luster T. Factors related to the quality of the home environment and children's achievement. *Journal of Family Issues*. 1998; 19:375–403.

- Barkley RA. Behavioral inhibition, sustained attention, and executive functions: Constructing a unifying theory of ADHD. *Psychological Bulletin*. 1997; 121:65–94. [PubMed: 9000892]
- Bell RQ. A reinterpretation of the direction of effects in studies of socialization. *Psychological Review*. 1968; 75:81–85. [PubMed: 4870552]
- Bentler PM. Comparative fit indices in structural models. *Psychological Bulletin*. 1990; 107:238–246. [PubMed: 2320703]
- Belsky J. The determinants of parenting: A process model. *Child Development*. 1984; 55:83–96. [PubMed: 6705636]
- Berlin LJ, Brady-Smith C, Brooks-Gunn J. Links between childbearing age and observed maternal behaviors with 14-month-olds in the Early Head Start Research and Evaluation Project. *Infant Mental Health Journal*. 2002; 23:104–129.
- Bollen, KA. *Structural equations with latent variables*. Wiley; New York: 1989.
- Bornstein MH, Putnick DL, Suwalsky JTD, Gini M. Maternal chronological age, prenatal and perinatal history, social support, and parenting of infants. *Child Development*. 2006; 77:875–892. [PubMed: 16942495]
- Bretherton, I.; Golby, B.; Cho, E. Attachment and the transmission of values.. In: Grusec, JE.; Kuczynski, L., editors. *Parenting and children's internalization of values: A handbook of contemporary theory*. Wiley; New York: 1997. p. 103-134.
- Burchinal M, Vernon-Feagans L, Cox M, Key Family Life Project Investigators. Cumulative social risk, parenting, and infant development in rural low-income communities. *Parenting: Science and Practice*. 2008; 8:41–69.
- Caspi A, Roberts BW, Shiner RL. Personality development: Stability and change. *Annual Review of Psychology*. 2005; 56:453–484.
- Cole PM, Deater-Deckard K. Emotion regulation, risk, and psychopathology. *Journal of Child Psychology and Psychiatry*. 2009; 50:1327–1330. [PubMed: 19843190]
- Cole PM, Luby J, Sullivan MW. Emotions and the development of childhood depression: Bridging the gap. *Child Development Perspectives*. 2008; 2:141–148. [PubMed: 19956783]
- Crittenden PM, DiLalla DL. Compulsive compliance: The development of an inhibitory coping strategy in infancy. *Journal of Abnormal Child Psychology*. 1988; 16:585–599. [PubMed: 3235749]
- Criss MM, Shaw DS, Ingoldsby EM. Mother–son positive synchrony in middle childhood: Relation to antisocial behavior. *Social Development*. 2003; 12:379–400.
- Deater-Deckard K, Dodge KA, Bates JE, Pettit GS. Multiple risk factors in the development of externalizing behavior problems: Group and individual differences. *Development and Psychopathology*. 1998; 10:469–493. [PubMed: 9741678]
- DeCarlo LT. On the meaning and use of kurtosis. *Psychological Methods*. 1997; 2:292–307.
- Dumka LE, Roosa MW, Jackson KM. Risk, conflict, mothers' parenting, and children's adjustment in low-income, Mexican immigrant, and Mexican American families. *Journal of Marriage and the Family*. 1997; 59:309–323.
- Emde RN, Biringen Z, Clyman RB, Oppenheim D. The moral self of infancy: Affective core and procedural knowledge. *Developmental Review*. 1991; 11:251–270.
- Evans GW, Kim P. Childhood poverty and health: Cumulative risk exposure and stress dysregulation. *Psychological Science*. 2007; 18:953–957. [PubMed: 17958708]
- Forman DR, Aksan N, Kochanska G. Toddlers' responsive imitation predicts preschool conscience. *Psychological Science*. 2004; 15:699–704. [PubMed: 15447642]
- Gadow, KD.; Sprafkin, J. *Early Childhood Inventory-4: Norms manual*. Checkmate Plus; Stony Brook, NY: 1997.
- Gadow, KD.; Sprafkin, J. *Early Childhood Inventory-4: Screening manual*. Checkmate Plus; Stony Brook, NY: 2000.
- Grusec JE, Goodnow JJ. Impact of parental discipline methods on the child's internalization of values: A reconceptualization of current points of view. *Developmental Psychology*. 1994; 30:4–19.

- Hoyle, RH.; Robinson, JI. Mediated and moderated effects in social psychological research: Measurement, design, and analysis issues.. In: Sansone, C.; Morf, CC.; Panter, AT., editors. *Handbook of methods in social psychology*. Sage; Thousand Oaks, CA: 2003. p. 213-233.
- Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*. 1999; 6:1–55.
- Keenan K. Emotion dysregulation as a risk factor for child psychopathology. *Clinical Psychology-Science and Practice*. 2000; 7:418–434.
- Keenan K, Gunthorpe D, Grace D. Parsing the relations between SES and stress reactivity: Examining individual differences in neonatal stress response. *Infant Behavior and Development*. 2007; 30:134–145. [PubMed: 17292786]
- Kochanska G. Mutually responsive orientation between mothers and their young children: A context for the early development of conscience. *Current Directions in Psychological Science*. 2002; 11:191–195.
- Kochanska G, Aksan N. Mother-child mutually positive affect, the quality of child compliance to requests and prohibitions, and maternal control as correlates of early internalization. *Child Development*. 1995; 66:236–254.
- Kochanska G, Aksan N, Carlson JJ. Temperament, relationships, and young children's receptive cooperation with their parents. *Developmental Psychology*. 2005; 41:648–660. [PubMed: 16060811]
- Kochanska G, Barry RA, Aksan N, Boldt LJ. A developmental model of maternal and child contributions to disruptive conduct: The first six years. *Journal of Child Psychology and Psychiatry*. 2008; 49:1220–1227. [PubMed: 18684154]
- Kochanska G, Forman DR, Coy KC. Implications of the mother-child relationship in infancy for socialization in the second year of life. *Infant Behavior and Development*. 1999; 22:249–265.
- Kochanska G, Woodard J, Kim S, Koenig JL, Yoon JE, Barry RA. Positive socialization mechanisms in secure and insecure parent-child dyads: Two longitudinal studies. *Journal of Child Psychology and Psychiatry*. 2010; 51:998–1009. [PubMed: 20406336]
- Kuczynski L, Kochanska G. Development of children's noncompliance strategies from toddlerhood to age 5. *Developmental Psychology*. 1990; 26:398–408.
- Lanza ST, Rhoades BL, Nix RL, Greenberg MT, The Conduct Problems Prevention Research Group. Modeling the interplay of multilevel risk factors for future academic and behavior problems: A person-centered approach. *Development and Psychopathology*. 2010; 22:313–335. [PubMed: 20423544]
- Lengua LJ, Honorado E, Bush NR. Contextual risk and parenting as predictors of effortful control and social competence in preschool children. *Journal of Applied Developmental Psychology*. 2007; 28:40–55. [PubMed: 21687825]
- Lipscomb ST, Leve LD, Harold GT, Neiderhiser JM, Shaw DS, Ge X, Reiss D. Trajectories of parenting and child negative emotionality during infancy and toddlerhood: A longitudinal analysis. *Child Development*. 2011; 82:1661–1675. [PubMed: 21883160]
- Londerville S, Main M. Security of attachment, compliance, and maternal training methods in the second year of life. *Developmental Psychology*. 1981; 17:289–299.
- Lorber MF, Egeland B. Parenting and infant difficulty: Testing a mutual exacerbation hypothesis to predict early onset conduct problems. *Child Development*. 2011; 82:2006–2020. [PubMed: 22026438]
- Lytton H. Correlates of compliance and the rudiments of conscience in two-year-old boys. *Canadian Journal of Behavioral Science*. 1977; 9:242–251.
- Lytton H. Child and parent effects in boys' conduct disorder: A reinterpretation. *Developmental Psychology*. 1990; 26:683–697.
- Maccoby, EE. The uniqueness of the parent-child relationship.. In: Collins, WA.; Laursen, B., editors. *Relationships as developmental contexts*. Minnesota Symposium on Child Psychology. Vol. 30. Erlbaum; Mahwah, NJ: 1999. p. 157-175.
- Maccoby, EE. Historical overview of socialization research and theory.. In: Grusec, J.; Hastings, P., editors. *Handbook of socialization*. Guilford Press; New York: 2007. p. 13-41.

- Maccoby EE. Parenting and its effects on children: On reading and misreading behavior genetics. *Annual Review of Psychology*. 2000; 51:1–27.
- Martin JA. A longitudinal study of the consequences of early mother–infant interaction: A microanalytic approach. *Monographs of the Society for Research in Child Development*. 1981; 46(3) Serial No. 190.
- Matas L, Arend RA, Sroufe LA. Continuity of adaptation in the second year: The relationship between quality of attachment and later competence. *Child Development*. 1978; 49:547–556.
- Masten AS. Resilience in children threatened by extreme adversity: Frameworks for research, practice, and translational synergy. *Development and Psychopathology*. 2011; 23:493–506. [PubMed: 23786691]
- McLoyd VC. Socioeconomic disadvantage and child development. *American Psychologist*. 1998; 53:185–204. [PubMed: 9491747]
- Mullineaux PY, Deater-Deckard K, Petrill SA, Thompson LA. Parenting and child behaviour problems: A longitudinal analysis of non-shared environment. *Infant and Child Development*. 2009; 18:133–148. [PubMed: 19436771]
- Osborne C, McLanahan S. Partnership instability and child well-being. *Journal of Marriage and Family*. 2007; 69:1065–1083.
- Pardini DA. Novel insights into longstanding theories of bidirectional parent–child influences: Introduction to the special section. *Journal of Abnormal Child Psychology*. 2008; 36:627–631. [PubMed: 18437550]
- Parpal M, Maccoby EE. Maternal responsiveness and subsequent child compliance. *Child Development*. 1985; 56:1326–1334.
- Patterson, GR.; Reid, JB.; Dishion, TJ. *Antisocial boys*. Castalia; Eugene, OR: 1992.
- Putnam, SP.; Sanson, AV.; Rothbart, MK. Child temperament and parenting.. In: Bornstein, MH., editor. *Handbook of parenting: Vol. 1. Children and parenting*. 2nd ed.. Erlbaum; Mahwah, NJ: 2002. p. 255-277.
- Ragozin AS, Basham RB, Crnic KA, Greenberg MT, Robinson NM. Effects of maternal age on parenting role. *Developmental Psychology*. 1982; 18:627–634.
- Rutter, M. Family, area, and school influences in the genesis of conduct disorders.. In: Hersov, LA.; Schaffer, D., editors. *Aggression and anti-social behavior in childhood and adolescence*. Pergamon Press; Oxford: 1978. p. 95-114.
- Sameroff AJ, Seifer R, Barocas R, Zax M, Greenspan S. Intelligence quotient scores of 4-year-old children: social-environmental risk factors. *Pediatrics*. 1987; 79:343–350. [PubMed: 3822634]
- Sarason IG, Johnson JH, Siegel JM. Assessing the impact of life changes: Development of the Life Experiences Survey. *Journal of Consulting and Clinical Psychology*. 1978; 46:932–946. [PubMed: 701572]
- Seifer R, Sameroff AJ, Baldwin CP, Baldwin AL. Child and family factors that ameliorate risk between 4 and 13 years of age. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1992; 31:893–903. [PubMed: 1400123]
- Shaw DS, Winslow EB, Owens EB, Vondra JI, Cohn JE, Bell RQ. The development of early externalizing problems among children from low-income families: A transformational perspective. *Journal of Abnormal Child Psychology*. 1998; 26:95–107. [PubMed: 9634132]
- Shaw DS, Vondra JI, Hommerding KD, Keenan K, Dunn M. Chronic family adversity and early child behavior problems: A longitudinal study of low income families. *Journal of Child Psychology and Psychiatry*. 1994; 35:1109–1122. [PubMed: 7995846]
- Shaw DS, Keenan K, Vondra JI, Delliquadri E, Giovanelli J. Antecedents of preschool children's internalizing problems: a longitudinal study of low-income families. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1997; 36:1760–1767. [PubMed: 9401338]
- Shaw DS, Winslow EB, Owens EB, Hood N. Young children's adjustment to chronic family adversity: A longitudinal study of low-income families. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1998; 37:545–553. [PubMed: 9585657]
- Steiger, JH.; Lind, JC. Statistically-based tests for the number of common factors.. Paper presented at the annual Spring meeting of the Psychometric Society; Iowa City, IA. May. 1980

- Thompson, RA. The development of the person: Social understanding, relationships, conscience, self.. In: Damon, W.; Lerner, RM., editors. *Handbook of Child Psychology*, N. Eisenberg (Volume Ed.), Social, emotional, and personality development. Wiley; New York: 2006. p. 24-98.
- Trentacosta CJ, Hyde LW, Shaw DS, Dishion TJ, Gardner F, Wilson M. The relations among cumulative risk, parenting, and behavior problems during early childhood. *Journal of Child Psychology and Psychiatry*. 2008; 49:1211–1219. [PubMed: 18665880]
- Trentacosta CJ, Criss MM, Shaw DS, Lacourse E, Hyde LW, Dishion TJ. Antecedents and outcomes of joint trajectories of mother–son conflict and warmth during middle childhood and adolescence. *Child Development*. 2011; 82:1676–1690. [PubMed: 21883153]
- van Ijzendoorn MH. Attachment, emergent morality, and aggression: Toward a developmental socioemotional model of antisocial behavior. *International Journal of Behavioral Development*. 1997; 21:703–727.
- Wade TD, Kendler KS. The genetic epidemiology of parental discipline. *Psychological Medicine*. 2000; 30:1303–1313. [PubMed: 11097071]
- Wakschlag LS, Gordon RA, Lahey BB, Loeber R, Green SM, Leventhal BL. Maternal age at first birth and boys' risk for conduct disorder. *Journal of Research on Adolescence*. 2000; 10:417–441.
- West, SG.; Finch, JF.; Curran, PJ. Structural equation models with non-normal variables: Problems and remedies.. In: Hoyle, R., editor. *Structural Equation Modeling: Concepts, Issues and Applications*. Sage; Newbury Park, CA: 1995. p. 56-75.
- Wyman PA, Cowen EL, Work WC, Hoyt-Meyers L, Magnus KB, Fagan DB. Caregiving and developmental factors differentiating young at-risk urban children showing resilient vs. stress-affected outcomes: A replication and extension. *Child Development*. 1999; 70:645–659. [PubMed: 10368913]
- Yuan K-H, Bentler PM. Structural equation modeling with robust covariances. *Sociological Methods*. 1998; 28:363–396.
- Yuan K-H, Bentler PM. Three likelihood-based methods for mean and covariance structure analysis with nonnormal missing data. *Sociological Methods*. 2000; 30:165–200.

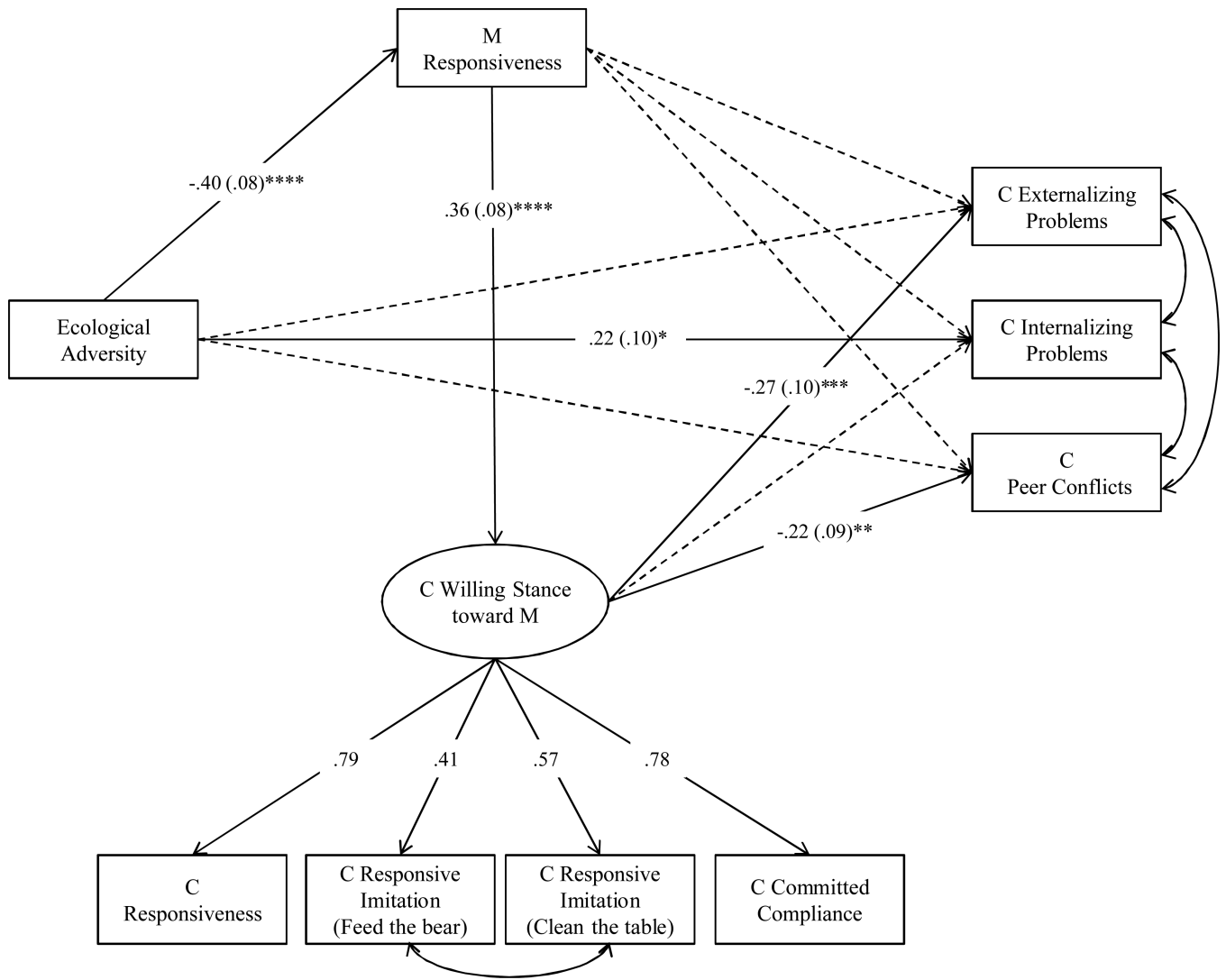


Figure 1. A structural equation model estimating the effects of the family's ecological adversity, maternal responsiveness, and the child's willing stance on developmental outcomes (externalizing behavior problems, internalizing behavior problems, and peer conflicts). Factor loadings and structural coefficients are standardized scores (SE in parentheses). Solid lines represent significant effects ($* p < .055$, $** p < .025$, $*** p < .01$, $**** p < .001$), and dashed lines represent non-significant effects. M = Mother, C = Child.

Table 1

Descriptive Data for All Measures

Measure	<i>N</i>	<i>M</i>	<i>SD</i>	Range
Ecological Adversity Index	185	6.29	3.32	0 -- 13
Child Willing Stance toward Mother				
Responsiveness, Naturalistic Interactions	186	4.67	1.02	1.20 -- 6.40
Responsive Imitation, Teaching Context	186	3.10	.65	1.50 -- 4.00
Committed Compliance, Prohibition Context	186	.66	.21	.15 -- 1.00
Mother Responsiveness to Child	186	4.76	1.10	1.50 -- 6.50
Child Outcomes, ECI-4				
Externalizing Problems, Total Severity	162	6.39	5.82	0.00 -- 34.00
Internalizing Problems, Total Severity ^a	162	10.98	8.55	2.50 -- 59.50
Peer Conflicts Scale	162	2.90	3.13	0.00 -- 17.00

ECI-4 = Early Childhood Inventory-4.

^aThe ECI conventions specify assigning ½ points to certain internalizing items, rather than 0-3 rating.

Table 2

Intercorrelations Among the Measures

	1.	2.	3.	4.	5.	6.	7.	8.
1. Ecological Adversity	---	*** -.23	*** -.11	*** -.31	*** -.47	*** .14 ⁺	*** .24	*** .19
2. C Responsiveness, Naturalistic Interactions		---	*** .40	*** .65	*** .38	*** -.24	*** .01	*** -.22
3. C Responsive Imitation			---	*** .41	.10	* -.17	-.02	-.15 ⁺
4. C Committed Compliance				---	*** .33	*** -.23	-.03	*** -.25
5. M Responsiveness					---	* -.16	-.14 ⁺	*** -.20
6. C EXT						---	*** .36	*** .76
7. C INT							---	*** .43
8. C Peer Conflicts								---

Note. M = Mother. C = Child. EXT = Externalizing Behavior Problems, ECI-4. INT = Internalizing Behavior Problems, ECI-4. Peer Conflicts = Peer Conflicts Scale, ECI-4.

⁺ $p < .10$.

* $p < .05$.

** $p < .025$.

*** $p < .01$.

**** $p < .001$.