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Positive Socialization Mechanisms in Secure and Insecure Parent-Child Dyads: Two Longitudinal Studies

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Abstract

Background—Implications of early attachment have been extensively studied, but little is known about its long-term indirect sequelae, where early security organization moderates future parent-child relationships, serving as a catalyst for adaptive and maladaptive processes. Two longitudinal multi-trait multi-method studies examined whether early security amplified beneficial effects of children's willing, receptive stance toward the parent on socialization outcomes.

Methods—We examined parent-child early attachment organization, assessed in Strange Situation at 14–15 months, as moderating links between children's willing stance toward parents and socialization outcomes in Study 1 (108 mothers and children, followed to 73 months) and Study 2 (101 mothers, fathers, and children, followed to 80 months). Children's willing stance was observed as committed compliance at 14 and 22 months in Study 1, and as responsiveness to the parent in naturalistic interactions and teaching contexts at 25 and 67 months in Study 2. Socialization outcomes included children's internalization of maternal prohibition, observed at 33, 45, and 56 months, and maternal ratings of children's externalizing problems at 73 months in Study 1, and mothers' and fathers' ratings of children's Oppositional Defiant Disorder and Conduct Disorder symptoms at 80 months in Study 2.

Results—Indirect effects of attachment were replicated across both studies and diverse measures: Attachment security significantly amplified the links between children's willing stance to mothers and all outcomes. Secure children's willing, cooperative stance to mothers predicted future successful socialization outcomes. Insecure children's willing stance conferred no beneficial effects.

Conclusions—Implications of early attachment extend to long-term, indirect developmental sequelae. Security in the first year serves as a catalyst for future positive socialization processes.

Keywords

Attachment; disruptive behavior; longitudinal studies; parent-child relationships; moral development

It has now become generally accepted that children play an active role in their own socialization. At first, that active role was seen mostly in a negative light, as children's ability to elicit conflict and strife, and actively to resist parents (Bell, 1968; Kuczynski &

Kochanska, 1990; Lytton, 1990; Putnam, Sanson, & Rothbart, 2002). But more recently, children's ability to play a positive role in socialization has been increasingly acknowledged. Children can willingly, even enthusiastically embrace parents' goals, and they can eagerly participate in their own socialization (Kochanska, Aksan, & Carlson, 2005; Maccoby, 2007). This view is compatible with the neo-psychoanalytic model that emphasizes children's willing identification with warm, emotionally available parents (Emde, Biringen, Clyman, & Oppenheim, 1991), and with the attachment research that portrays securely attached children as eager to embrace parental rules (Bretherton, Golby, & Cho, 1997; Thompson, 2006; van IJzendoorn, 1997).

Research has increasingly focused on mutually positive socialization mechanisms in the parent-child dyad. Warm, responsive, synchronous parenting elicits an eager, willing stance in the child, and fosters parent-child mutually responsive, cooperative orientation (Criss, Shaw, & Ingoldsby, 2003; Deater-Deckard & Petrill, 2004; Kochanska, 2002; Kochanska, Barry, Aksan, & Boldt, 2008; Kochanska, Forman, Aksan, & Dunbar, 2005; Maccoby, 1983; Shaw, 2003).

Several forms of children's willing, receptive stance toward their parents, beginning with infancy, over time evolve into internalization of parental rules. Children's early committed compliance – eager, internally regulated compliance – predicts many aspects of future internalization (Kochanska, Aksan, & Koenig, 1995). As well, child responsive imitation of the parent in a teaching context predicts future conscience (Forman, Aksan, & Kochanska, 2004).

Early attachment organization has been long seen as having substantial implications for future development (Thompson, 2006, 2008; Weinfield, Sroufe, Egeland, & Carlson, 2008), but few studies have focused on indirect sequelae of early attachment. Only recently, research has shown that early security and insecurity may serve as *moderators* or catalysts of the future socialization process by altering its dynamics (Allen et al., 2002; Thompson, Laible, & Ontai, 2003). Early security can “boost” future positive socialization processes, whereas early insecurity can be a catalyst for maladaptive processes between the parent and the child.

We have begun to test such a model in two longitudinal studies, Study 1 and Study 2. In both, families of young children were followed from infancy to early school age. Attachment organization was assessed at the beginning of the second year.

In Study 1, for secure infants, mothers' positive parenting in the first 3 ½ years predicted children's honesty in games, a view of oneself as moral, and moral cognition at 56 months (Kochanska, Aksan, Knaack, & Rhines, 2004). But there were no such relations for insecure infants. We proposed that secure children were more willing and receptive with regards to maternal influence, and that receptiveness served to augment the effectiveness of maternal positive parenting. We did not, however, measure directly the child's willing stance.

In the present article, we return to the Study 1 data to examine the role of the child's willing stance. Specifically, we explore whether the links between children's willing stance toward their mothers and positive socialization outcomes were amplified for secure children. The willing stance construct was operationalized as children's eager, willing, committed compliance toward the mothers at 14 and 22 months. We then examined the links between? thus assessed willing stance and children's internalization of maternal prohibition from 33 to 56 months and mother-rated children's externalizing behavior problems at 73 months.

In Study 2, in an earlier report (Kochanska, Barry, Stellern, & O'Brien, 2009), we examined security as moderating a common maladaptive trajectory from parental power

assertion, to child resentful opposition, to child antisocial conduct, in both mother-child and father-child dyads. In insecure dyads, parental power assertion predicted children's resentful opposition, which then predicted antisocial conduct. This causal chain was absent in secure dyads. Thus, early insecurity acted as a catalyst for a dyad embarking on a mutually adversarial path toward antisocial outcomes. Again, we reasoned that the secure child's trusting, willing stance toward the parent disrupts the maladaptive trajectory, but we did not directly measure that stance. Moreover, those data elucidated maladaptive socialization dynamics in insecure parent-child dyads, but shed little light on adaptive processes in secure dyads, other than suggesting that children's willing stance in those dyads defuses the mutually adversarial process.

In this article, we return to the Study 2 data to examine the children's willing, receptive stance toward each parent, and to examine whether early security amplified the links between that stance and socialization outcomes. Compared to Study 1, the measures of the willing stance needed to cover a much longer time span, and to extend well past the second year (through age 5 ½). Because by approximately age three, children's committed compliance with a prohibition reaches 90%, we sought other measures of the willing, receptive stance, appropriate for older age. To that effect, we assessed the child's responsiveness to the parent in naturalistic interactions and his or her eager, responsive imitation in teaching contexts. Note that committed compliance (Study 1), responsiveness in interactions (Study 2), and responsive imitation (Study 2) can all be legitimately treated as indices of the child's latent willing, receptive, cooperative stance toward the parent (Forman & Kochanska, 2001; Kochanska et al., 2008).

The current analyses of two studies examine parallel but not identical socialization outcomes. In Study 1, we focus on children's internalization of maternal prohibition not to touch off-limit objects in the 2 ½ to 4 ½ age range, and on their externalizing problems at age 6, rated by mothers. In Study 2, we focus on socialization outcomes at 80 months. As children mature, variability in the measure of internalization of prohibition decreases, with most children approaching the ceiling (by 5 ½, violations occur in approximately 5% of coding segments). Consequently, in Study 2, we use an established, clinically diagnostic measure of manifestations of Oppositional Defiant Disorder and Conduct Disorder, and thus reflecting a failure of socialization -- the child's salient disregard for and violations of rules of conduct.

Parallel principles were followed in both studies to permit replication. All behavioral data were collected during lengthy, scripted laboratory sessions, conducted by female staff, and videotaped. All constructs were coded by multiple coding teams. At least 20% of cases were used for reliability, followed by "realignments" to prevent drift. Variables were substantially aggregated across coded segments, contexts, and occasions of measurements to yield robust final constructs (Rushton, Brainerd, & Pressley, 1983). Table 1 presents the overview of the assessments and constructs in both studies.

STUDY 1

Design and Method

Participants—Study 1 included mothers of normally developing infants who responded to ads in multiple community venues. Families were mostly White (97% of mothers, 92% of fathers). About half of the parents completed college or some graduate work and earned more than \$40,000 per year, but lower SES levels were also represented: About one third of the parents had no education beyond high school, and 20% earned less than \$30,000 per year.

Children and mothers participated in one laboratory session at 14, 56, and 73 months, and in two laboratory sessions at 22, 33, and 45 months. The sessions lasted 2–4 hours. In this article, we included children's attachment, observed in Strange Situation at 14 months ($N = 108$, 53 girls), their willing stance (committed compliance) to mothers, observed at 14 and 22 months in discipline contexts ($N = 106$, 53 girls), their internalization of the maternal rule, observed at 33 months ($N = 104$, 52 girls), 45 months ($N = 101$, 49 girls), and 56 months ($N = 74$, 41 girls), and externalizing behavior problems, rated by mothers at 73 months ($N = 57$, 31 girls).

The families had originally committed up to 45 months; after the study had been completed, additional funds became available. When we re-contacted the families, many had moved or became too busy, causing the attrition at 56 months and then 73 months. Children who did not return at 56 months did not differ from those who returned in their willing stance, but among 50 children who had been insecure, 22% did not return and 78% did return, and among 58 children who had been secure, 40% did not return and 60% returned, Chi square (1) = 3.88, $p < .05$. That difference, however, disappeared by the assessment at 73 months (among 50 insecure children, 40% did not return and 60% returned, and among 58 insecure children, 53% did not return and 47% returned, Chi square (1) = 1.95, ns).

Children's Attachment Security to Mothers, 14 Months

Observed paradigm: The standard Strange Situation (Ainsworth & Wittig, 1969) was conducted as the first paradigm upon the entry to the laboratory.

Coding: Professional coders coded the videotapes. *Reliability*, kappa, was .90 for the four main attachment categories (avoidant, A; secure, B; resistant, C; and disorganized/unclassifiable, D/U). All cases coded with low confidence by one coder and all D/U cases were double-coded and adjudicated. There were 58 secure (B) and 50 insecure children (22 A, 18 C, and 10 D/U). There were no significant differences in distributions of security among boys and girls, Pearson Chi-square (1) < 1. In the current analyses, we used the dichotomous scores, secure vs. insecure.

Children's Willing Stance (Committed Compliance) toward Mothers, 14 and 22 Months

Observed contexts: Children's willing stance (committed compliance with maternal prohibition) was observed in discipline contexts that encompassed interactive mother-child situations in the laboratory, with an easy access to a shelf with very attractive toys designated as off-limits for the child. The mother issued the prohibition upon the entry to the room, and enforced it throughout the session. The contexts included naturalistic, scripted situations, such as snack preparation and snack, play, or free time (cumulatively 25 min at 14 months in one session, and 65 min at 22 months, across both sessions).

Coding and data reduction: The coders identified every instance when the child directed attention to the toys. This marked the onset of an episode, which was then coded for every 30-s segment until the child reoriented for the predominant child behavior; here, we focus only on committed compliance, coded when the child's behavior indicated a willing stance, or wholehearted acceptance of the rule (e.g., child looked at but did not touch the toys, solemnly said “no-no”, “we don't touch”, or turned away spontaneously having looked at the toys). Kappas were: at 14 months, .71, and at 22 months, .65 – .82.

The instances of willing stance (committed compliance) were tallied and divided by the number of coded segments. At 22 months, the scores correlated across both sessions, $r(106) = .63$, $p < .001$, and were averaged. The 14-month score, $M = .40$, $SD = .31$, and the 22-

month score, $M = .78$, $SD = .23$, correlated positively, albeit weekly, $r(106) = .15$; they were aggregated across the two assessments to represent the child's willing stance over the second year, $M = .59$, $SD = .20$.

Children's Internalization of Maternal Prohibition, 33, 45, and 56 Months

Observed contexts: Internalization of maternal rule was assessed at the end of the second laboratory session (or the only session at 56 months), in parallel assessments at all three times. The child was left alone for 8 min, after the mother had reminded him or her about the rule (not touching the prohibited toys), asked to do a dull sorting task instead, and left the room.

Coding and data reduction: The child's behavior was coded for each of 96 5-s segments, using six mutually exclusive codes: looking at toys without touching, engaged in other activity, engaged in sorting, touching toys gently, self-correcting (terminating touching spontaneously), and deviating (playing with the toys). Latency to deviate was also coded. Rare segments when the child was attempting to get into the mother's lap, not moving freely around the room containing the shelf with toys were recorded but not included.

Reliability, kappas, were: at 33 months, .96, at 45 months, .92, and at 56 months, .91. We first created relative scores for each of the coded behaviors by dividing the respective tally by the number of coded segments; those relative scores and latency to deviate were submitted to Principal Components Analysis. The first factors produced by the PCA were very similar at all three ages, and consistently reflected internalization (negative loading on deviation, and positive loadings on looking without touching and latency to deviate). Those factor scores were used as the measures of internalization of maternal rule. They correlated across 33, 45, and 56 months (average $r = .40$), and were aggregated into a composite score, $M = -.02$, $SD = .79$.

Mothers' Ratings of Externalizing Behavior Problems, 73 Months—Mothers rated their children using the 30-item Preschool Behavior Questionnaire (PBQ, Behar, 1977), with each item rated from 0 (does not apply) to 2 (certainly applies). We used the original scale of hostility-aggression (averaging 7 items, e.g., destroys belongings, fights, bullies others, kicks, or hits others, $\alpha = .71$, $M = .46$, $SD = .30$, range 0 – 1.14), and created an additional scale of inattention and dysregulation (9 items, e.g., restless, poor attention, $\alpha = .72$, $M = .37$, $SD = .26$, range 0 – 1.56). Those two scores correlated, $r(57) = .51$, $p < .001$, and were averaged into a broad *externalizing behavior problems composite*, $M = .42$, $SD = .24$.

Results and Discussion

Preliminary Analysis—A preliminary ANOVA examined potential effects of child gender and security on children's willing stance (committed compliance) toward the mothers during the second year. Gender had a significant main effect, $F(1,104) = 17.42$, $p < .001$; girls had higher scores, $M = .67$, $SD = .19$, than boys, $M = .51$, $SD = .19$. Neither child security nor its interaction with gender had significant effects on the child's willing stance.

The Testing of the Moderation Hypothesis—We then examined child attachment security as a moderator of the effect of his or her willing stance toward the mother on future socialization outcomes in two hierarchical multiple regressions: one predicting children's internalization of the maternal rule across 33, 45, and 56 months and one predicting mothers' ratings of children's externalizing problems at 73 months (this analysis is exploratory, given the reduced N).

In each regression, child gender was entered at Step 1, child attachment security and the willing stance score were entered at Step 2, and the interaction security x willing stance – at Step 3. Both equations are in Table 2.

Predicting children's internalization of the maternal rule across 33, 45, and 56 months:

Girls had higher internalization scores than boys: girls, $M = .24$, $SD = .68$, boys, $M = -.28$, $SD = .81$. There were no differences due to attachment security at 14 months. Children's willing stance (committed compliance) predicted more internalization, but that effect dropped to non-significant when security x willing stance interaction was added. This interaction effect was significant, as predicted. This interaction was probed using a simple slopes test (Aiken & West, 1991). High willing stance was represented by scores 1 SD above the mean, medium willing stance by scores within 1 SD around the mean, and low willing stance by scores 1 SD below the mean. The simple slope for the secure children was significant, $b = .37$, $SE = .09$, $p < .001$, but for insecure children it was not, $b = -.03$, $SE = .11$, ns . Figure 1 illustrates the results.

Predicting mothers' ratings of children's externalizing problems at 73 months: Again, there were gender effects: Boys had more behavior problems, girls, $M = .35$, $SD = .22$, boys, $M = .50$, $SD = .26$. There were no differences due to attachment security at 14 months or to children's willing stance in the second year. As predicted, security x willing stance interaction was significant.

This interaction was probed using a simple slopes test (Aiken & West, 1991). High willing stance was represented by scores 1 SD above the mean, medium willing stance by scores within 1 SD around the mean, and low willing stance by scores 1 SD below the mean. The simple slope for the secure children was significant, $b = -.09$, $SE = .04$, $p < .05$, but for insecure children it was not, $b = .03$, $SE = .04$, ns . Figure 2 illustrates the results.

Discussion—The findings of Study 1 are consistent with our model and straightforward. Children's secure relationship with their mothers in the first year did not per se predict children's willing, cooperative stance toward the mother in the second year, or long-term socialization outcomes, assessed from toddler to early school age. Nevertheless, early security acted as a booster, or a catalyst, for long-term beneficial effects of such a willing stance.

Children's observed eager, committed compliance in discipline interactions with their mothers across the second year was considered a reflection and an indicator of the child's underlying willing, cooperative stance toward the mother. In secure mother-child dyads, such willing stance predicted future successful socialization outcomes: the child's genuine internalization of maternal prohibition, observed in the absence of surveillance, and low levels of externalizing, under-controlled behavior problems, as rated by the mother. In insecure dyads, however, children's willing stance in the second year was unrelated to future outcomes.

These results complement the earlier findings from the same sample showing that early security amplifies links between mothers' positive parenting and children's future honesty, moral cognition, and a view of self as moral (Kochanska et al., 2004). We hypothesized at the time that security promotes the child's willing stance, and it, in turn, renders the child receptive to maternal influence. However, the current analyses failed to show a significant *direct* effect of security on children's willing stance (or on socialization outcomes, thus precluding the testing of mediational paths). But we did again find an indirect, moderating effect of early attachment organization: Security amplified the links between the child's willing stance and future successful socialization outcomes.

STUDY 2

Design and Method

Participants—Two-parent families of normally developing infants responded to ads in the same community as that in Study 1. They represented a broad SES range. Ninety percent of mothers were White, 3% Hispanic, 2% African American, 1% Asian, 1% Pacific Islander, and 3% “other” non-White. Among fathers, 84% were White, 8% Hispanic, 3% African American, 3% Asian, and 2% “other”. In 20% of families, one or both parents were non-White. Sixty percent of mothers and 53% of fathers completed college or some graduate work, and approximately 25% of mothers and 27% of fathers had no education beyond high school. Approximately 60% of families earned more than \$50,000 per year, and approximately 25% earned less than \$40,000 per year.

This article utilizes data from the assessments at 15 months ($N = 101$, 51 girls), 25 months ($N = 100$, 50 girls), 67 months ($N = 92$, 45 girls), and 80 months ($N = 90$, 43 girls). At each time, there were two 2–3-hour laboratory sessions, one with each parent.

Children's attachment security with mothers and fathers was assessed at 15 months. Children's willing stance to both parents was observed at 25 months and 67 months. Socialization outcomes -- externalizing behavior problems -- were rated by both parents at 80 months, using an established, DSM-compatible (APA, 2000), clinical instrument. There were no significant differences on any of the study's variables between the participants who returned at 80 months and those who did not.

Children's Attachment Security, 15 Months—The Strange Situation was conducted with each parent and coded by the same coders as in Study 1. *Reliability*, kappa, was .78 for the A, B, C, and D/U categories. All low-confidence cases and D/U cases were adjudicated. With respect to mother-child attachment, there were 56 secure (B) and 45 insecure children (12 A, 19 C, and 14 D/U). With respect to father-child attachment, there were 66 secure (B) and 34 insecure children (15 A, 6 C, and 13 D/U; one father did not wish to participate). There were no significant differences in the distribution of security vs. insecurity in girls and boys with mothers, Pearson Chi-square (1) = 2.22, ns, or fathers, Pearson Chi-square (1) < 1. The child's attachment with the mother was unrelated to that with the father, whether considered as secure vs. insecure, Pearson Chi-square (1) = 1.67, ns, or using all four categories, Pearson Chi-square (9) = 10.37, ns.

Children's Willing Stance (Responsiveness in Naturalistic Interactions and in Teaching Contexts) toward Mothers and Fathers, 25 and 67 Months

Children's Responsiveness to Mothers and Fathers in Naturalistic Interactions

Observed contexts: Responsiveness of children to parents was coded during naturalistic interactions (approximately 45 min at 25 months and 60 min at 67 months, with each parent; total 90 min at 25 months and 120 min at 67 months for each child). The contexts included situations such as preparing and having a snack, parent busy, free time, or playing with craft materials and cleaning up after play.

Coding and data reduction: For each context, the child's responsiveness was coded from 1 (highly unresponsive) to 7 (highly responsive). The code integrated the child's positive attention and orientation toward the parent, sensitivity to parental cues, promptness of response, enjoyment of interaction, and cooperation with the parent's bids. Kappas were .70 at 25 months, and .78 at 67 months.

The scores cohered across the observed contexts (Cronbach's alphas: at 25 months, .84 and .86 for children with mothers and fathers, respectively, at 67 months, .74 and .66). Thus, the scores were aggregated across all contexts into the child's *overall responsiveness score during interactions* at each age, with the mother and with the father (at 25 months, for children with mothers, $M = 4.94$, $SD = .94$, range 1.67–6.17, and with fathers, $M = 4.94$, $SD = .99$, range 1.83–6.50, and at 67 months, for children with mothers, $M = 5.32$, $SD = .61$, range 2.83–6.50, and with fathers, $M = 5.28$, $SD = .53$, range 3.50–6.17).

Children's Responsiveness to Mothers and Fathers in Teaching Contexts

Observed contexts: We coded children's responsiveness to parents' teaching influence in elicited imitation contexts, where the parent (instructed beforehand) demonstrated an activity and asked the child to imitate (Forman & Kochanska, 2001). At 25 months, each parent demonstrated three play sequences, "Clean the table", "Pour and drink tea", and "Feed the bear" (Bauer & Mandler, 1992). At 67 months, we adapted the paradigm to children's older age: The parent assembled a snowman (mother) or gingerbread man (father) out of craft materials, and then asked the child to build one. Up to 15 min were allowed for the project.

Coding and data reduction: We coded children's eager, responsive imitation of the parent's actions. The code integrated the child's postural orientation toward or away from the parent, attentiveness and being attuned to the parent, and the quality of affective engagement. At 25 months, the code was given for each sequence, and ranged from 1= unresponsive, to 4= very responsive. Kappas were .69–.90. The codes were then averaged across all three sequences into an overall responsive imitation score to each parent; to mothers, $M = 2.84$, $SD = .55$, range 1.00–4.00, and to fathers, $M = 2.81$, $SD = .58$, range 1.00–4.00.

At 67 months, the same code of child responsiveness, 1–4 (with the conventions reflecting the child's greater maturity), was given for each 1-min segment. Kappa was .72. The final composite was created by aggregating across weighted codes, with "very responsive" weighted positively and "unresponsive" weighted negatively. That composite was then divided by the number of coded segments for each dyad; for children with mothers, $M = .76$, $SD = .59$, range -1.27 – 1.7 , and with fathers, $M = .64$, $SD = .55$, range -1.00 – 1.62 .

Children's Overall Willing Stance to Mothers and Fathers—At each age and for the child with each parent, we created a score of the willing stance that encompassed the standardized scores of responsiveness in naturalistic interactions and in teaching contexts. Those scores correlated, indicating that they indeed captured a similar latent quality of a willing stance to the parent: at 25 months, for children with mothers, $r(100) = .53$, $p < .001$, and with fathers, $r(100) = .29$, $p < .005$; at 67 months, for children with mothers, $r(89) = .41$, $p < .001$, and with fathers, $r(87) = .39$, $p < .001$.

Next, we aggregated the overall scores of child willing stance across the two assessments, given that they were longitudinally stable, with mothers, $r(90) = .46$, $p < .001$, and with fathers, $r(88) = .39$, $p < .001$. Those final scores of children's overall willing stance toward each parent were considered in the analyses.

Parents' Ratings of Externalizing Behavior Problems, 80 Months—Parents rated the child using *Child Symptom Inventory-4 (CSI-4)* (Gadow & Sprafkin, 2002; Sprafkin, Gadow, Salisbury, Schneider, & Loney, 2002). We used Symptom Severity scoring, with each item rated from 0 (never) to 3 (very often), to obtain the scores for Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD). For each parent, we summed both

scores into an antisocial, externalizing behavior problems score, mothers, $M = 8.00$, $SD = 4.48$, range 1–24, fathers, $M = 7.23$, $SD = 4.42$, range 0–23.

Results and Discussion

Preliminary Analyses—Preliminary ANOVAs examined effects of child gender and security on children's willing stance (the composite of responsiveness to the parent in naturalistic interaction and teaching contexts) toward both parents. For children's willing stance to *mothers*, gender had a significant main effect, $F(1,96) = 6.79$, $p < .05$; girls had higher scores, $M = .20$, $SD = .66$, than boys, $M = -.20$, $SD = .76$. Security with the mother or its interaction with gender had no significant effects.

For children's willing stance to *fathers*, gender again had a significant main effect, $F(1,95) = 5.09$, $p < .05$; girls had higher scores, $M = .17$, $SD = .58$, than boys, $M = -.15$, $SD = .73$. Security with the father or its interaction with gender were not significant.

The Testing of the Moderation Hypothesis—We then examined child attachment security with the given parent as a moderator of the effect of the child's willing stance toward that parent on the child's future antisocial, externalizing problems at 80 months, as rated by that parent. In a hierarchical multiple regression, child gender was entered at Step 1, child attachment security and the willing stance score (both with the same parent) were entered at Step 2, and security $\times$ willing stance interaction was entered at Step 3.

Mothers and children: At Step 1, there was a significant gender difference, with boys rated as having more antisocial problems, but that effect dropped to marginal once additional predictors were added. There were no differences due to children's attachment security at 15 months. Children's willing stance marginally predicted fewer behavior problems, but that effect dropped to non-significant when the interaction of security and willing stance was added. This predicted interaction effect was significant. The findings are in Table 3.

This interaction was probed using a simple slopes test (Aiken & West, 1991). High willing stance was represented by scores 1 SD above the mean, medium willing stance by scores within 1 SD around the mean, and low willing stance by scores 1 SD below the mean. The simple slope for the children who had been secure with their mothers was significant, $b = -.57$, $SE = .20$, $p < .01$, but for children who had been insecure, it was not, $b = .01$, $SE = .21$, ns . Figure 3 illustrates the results.

Fathers and children: Neither child gender nor attachment security at 15 months produced a main effect. Children's willing stance predicted fewer behavior problems. The interaction effect of security and willing stance was not significant. The findings are in Table 4.

Discussion—For mothers and children, the results were straightforward, and consistent with the expectations and with the findings in Study 1 (recall that Study 1 included only mothers). Early security significantly amplified the link between the child's eager, wholehearted stance toward the mother, assessed in two different contexts (naturalistic interactions and teaching) and children's future socialization outcomes. In this study, socialization outcomes were conceptualized as symptoms of ODD and CD, reflecting the child's salient disregard for rules, values, and the welfare of others, deliberate violations of standards of behavior, and defying and arguing with authority figures. Consequently, the findings indicate that, for children who had been secure with their mothers, the child's willing stance toward the mother had a substantial beneficial effect, protecting children's from embarking on an antisocial, disruptive path. Although children who had been insecure with their mothers did not differ from their secure peers in terms of their willing stance or

socialization outcomes, for them, willing stance at age 2 and 5 ½ did not confer such protective benefits. In father-child dyads, regardless of their attachment status, children who had been more willing and receptive to their fathers had fewer antisocial behavior problems.

GENERAL DISCUSSION AND CONCLUSION

Together, the two studies complement and expand past research that showed that security and insecurity can indirectly influence future socialization processes in the parent-child dyad. Early secure attachment amplifies future beneficial effects of the child's willing, cooperative stance toward the parent. The convergence of the findings using diverse measures across the two studies bolsters our confidence in the robustness of the conceptual model. The effects are replicated across several observed measures of the willing stance, from committed compliance in Study 1, to responsiveness in naturalistic interaction and responsive imitation in teaching contexts from age two to 5 ½ in Study 2, and across several measures of socialization outcomes, from internalization of maternal prohibition during preschool age and mothers' ratings of externalizing problems at age 6 in Study 1, to both parents' ratings of ODD and CD in a standardized clinical instrument at 7 ½ in Study 2.

The findings inform the debate on the role of early attachment in socialization. Advocates of a narrow definition of attachment (Goldberg, Grusec, & Jenkins, 1999) have argued for a view of the attachment system as a biobehavioral safety-regulating system, focused on protection. Others, however, particularly neo-psychoanalytic scholars (Emde, 1990; Emde et al., 1991) focus more broadly on positive affective forces operating within a secure attachment between the child and the caregiver that create a conducive context for processes of early moral internalization. In our view (Kochanska, 1995), both models may be true. Early security may serve two developmental functions: It may provide the child with "confidence in protection" (Goldberg et al., 1999) or "felt security" (Sroufe & Waters, 1977), but it may also create an early foundation for future positive, mutual, reciprocal orientation that will serve to enhance the effectiveness of future socialization processes between the parent and the child, including, for example, the child's willing stance, or parental discipline and modeling.

Alternative processes should also be explored. For example, early attachment security might indicate a stable, positive, and harmonious ecological context of the family. Those features of the socialization context, rather than security per se, may underlie the particular effectiveness of future socialization processes.

Surprisingly, in both studies, early attachment did not produce main effects. Secure and insecure children did not differ in their willing stance toward the parent, or in socialization outcomes, either internalization or behavior problems (as well, there were no differences when four groups, A, B, C, and D/U were compared in exploratory analyses not reported here). But in both studies -- for secure children only -- the early willing stance predicted successful socialization outcomes throughout the first seven years of life. In mother-child relationships, all respective interaction effects involving security were significant. How can those findings be explained?

One possible interpretation is that the willing stance that emerges in secure and insecure dyads may differ in subtle ways that were not discerned by our coding systems. The willing stance of a secure child may be qualitatively different than that of an insecure child, but we were unable to capture that difference. All our coding systems of eager, wholehearted, parent-focused stance are behaviorally based. Perhaps more refined coding of children's willing stance is needed that would capture also internal states, such as the child's perception of trust in the parent, commitment to parental agenda, and other aspects of their internal working models of the relationship that elude behavioral coding. Such a refined assessment

might reveal main effects of the early attachment organization on the child's eager, willing stance toward the parent.

It is unclear why all the effects were for mothers and children, but not for fathers and children. Perhaps in the first year, the mother's uniquely close affectionate bond with the infant is especially critical in laying the foundation for the infant's sense of security and trust. Consequently, when that relationship is secure, the child's willing, responsive stance acquires particularly beneficial qualities. The sense of security thus serves as a rudiment for future receptivity to socialization. Fathers' style of care, often more stimulating and playful, may come to have an increasingly important role later in life (Parke & Buriel, 2006). As well, growing research has suggested that the Strange Situation may not be equally valid for mothers and fathers, and that quality of father-infant play may be a source of better information about the security of that relationship and a better predictor of future development (Grossmann, Grossmann, Kindler, & Zimmerman, 2008; Grossmann, et al., 2002; Youngblade & Belsky, 1992). Overall, the findings support Thompson's (2006) view that both antecedents and sequelae of the infant's attachment security may differ in the mother-child and father-child relationships, and that more research is needed to understand those differences.

The study of socialization processes has increasingly focused on moderators and mediators (Eisenberg, 2006), reflecting both the recognition of complexities involved in those processes and dissatisfaction with main effects that tend to be modest. In that vein, researchers now typically examine how a specific link between a parent or child measure and a future outcome operates in subgroups differing in the level of a third variable, be it an ecological variable (contextual risk or cultural context, Belsky & Fearon, 2002; Deater-Deckard, Dodge, Bates, & Pettit, 1996) or an individual, biologically based-variable (Belsky & Pluess, 2009 a, b; Kochanska, 1995). Although attachment has been examined as a moderator of the impact of stress on development (e.g., Bergman, Sarkar, Glover, & O'Connor, 2008), relatively few studies have considered attachment security as a potential moderator in the socialization process. Such investigations promise to enrich our understanding of adaptive and maladaptive processes in child development.

Key Points

- Substantial body of research indicates that children's early attachment has important consequences for future development. Few studies, however, have examined indirect developmental sequelae of early attachment for socialization.
- Two multi-method, multi-trait longitudinal studies produced converging evidence that early attachment, assessed at the end of the first year, served as moderator, or indirect catalyst, of future socialization processes in mother-child dyads up to 80 months. Early security served to amplify positive effects of children's willing, cooperative stance toward mothers on future successful socialization outcomes. Secure children's willing stance predicted strong internalization of rules and protected from externalizing, disruptive behavior problems. For insecure children, willing stance had no such beneficial effects.
- The studies elucidate little-known role of early security as a catalyst of future socialization dynamics leading to adaptive and maladaptive developmental outcomes.

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REFERENCES

- Aiken, L.S.; West, S.G. Multiple regression: Testing and interpreting interactions. Sage; Newbury Park, CA: 1991.
- Ainsworth, MDS.; Wittig, B. Attachment and exploratory behavior of one-year-olds in a strange situation. In: Foss, B., editor. Determinants of infant behaviour. Vol. 4. Methuen; London: 1969. p. 111-136.
- Allen JP, Marsh P, McFarland C, McElhaney KB, Land DJ, Jodl KM, Peck S. Attachment and autonomy as predictors of the development of social skills and delinquency during midadolescence. *Journal of Consulting and Clinical Psychology*. 2002; 70:56–66. [PubMed: 11860056]
- American Psychiatric Association. (DSM-IV-TR) Diagnostic and Statistical Manual of Mental Disorders, 4th edition, text revision. American Psychiatric Press, Inc.; Washington, DC: 2000.
- Bauer PJ, Mandler JM. Putting the horse before the cart: The use of temporal order in recall of events by one-year-old children. *Developmental Psychology*. 1992; 28:446–452.
- Bell RQ. A reinterpretation of the direction of effects in studies of socialization. *Psychological Review*. 1968; 75:81–85. [PubMed: 4870552]
- Belsky J, Fearon RMP. Infant-mother attachment security, contextual risk, and early development: A moderational analysis. *Development and Psychopathology*. 2002; 14:293–310. [PubMed: 12030693]
- Belsky J, Pluess M. The nature (and nurture?) of plasticity in early human development. *Perspectives on Psychological Science*. 2009a; 4:345–351.
- Belsky J, Pluess M. Beyond diathesis stress: Differential susceptibility to environmental influences. *Psychological Bulletin*. 2009b; 135:885–908. [PubMed: 19883141]
- Behar LB. The Preschool Behavior Questionnaire. *Journal of Abnormal Psychology*. 1977; 5:265–275.
- Bergman K, Sarkar P, Glover V, O'Connor TG. Quality of child-parent attachment moderates the impact of antenatal stress on child fearfulness. *Journal of Child Psychology and Psychiatry*. 2008; 49:1089–1098. [PubMed: 19017025]
- 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.
- 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. Physical discipline among African American mothers and European American mothers: Links for children's externalizing behaviors. *Developmental Psychology*. 1996; 32:1065–1072.
- Deater-Deckard K, Petrill SA. Parent-child dyadic mutuality and child behavior problems: an investigation of gene-environment processes. *Journal of Child Psychology and Psychiatry*. 2004; 45:1171–1179. [PubMed: 15257673]
- Gadow, KD.; Sprafkin, J. Child Symptom Inventory 4: Screening and norms manual. Checkmate Plus; Stony Brook: 2002.
- Goldberg S, Grusec JE, Jenkins JM. Confidence in protection: Arguments for a narrow definition of attachment. *Journal of Family Psychology*. 1999; 13:475–483. 1999.
- Eisenberg, N. Introduction. In: Damon, W.; Lerner, RM.; Eisenberg, N., editors. Handbook of child psychology: Social, emotional, and personality development. Wiley; New York: 2006. p. 1-23.
- Emde RN. Presidential Address: Lessons from infancy: New beginnings in a changing world and a morality for health. *Infant Mental Health Journal*. 1990; 11:196–212.

- Emde RN, Biringen Z, Clyman RB, Oppenheim D. The moral self of infancy: Affective core and procedural knowledge. *Developmental Review*. 1991; 11:251–270.
- Forman DR, Kochanska G. Viewing imitation as child responsiveness: A link between teaching and discipline domains of socialization. *Developmental Psychology*. 2001; 37:198–206. [PubMed: 11269388]
- Forman DR, Aksan N, Kochanska G. Toddlers' responsive imitation predicts preschool-age conscience. *Psychological Science*. 2004; 15:699–704. [PubMed: 15447642]
- Grossmann, K.; Grossmann, KE.; Kindler, H.; Zimmerman, P. A wider view of attachment and exploration: The influence of mothers and fathers on the development of psychological security from infancy to young adulthood. In: Cassidy, J.; Shaver, PR., editors. *Handbook of attachment: Theory, research, and clinical applications*. Second Ed.. The Guilford Press; New York: 2008. p. 857-879.
- Grossmann K, Grossmann KE, Fremmer-Bombik E, Kindler H, Scheuerer-Engelisch H, Zimmermann P. The uniqueness of the child-father attachment relationship: Fathers' sensitive and challenging play as the pivotal variable in a 16-year longitudinal study. *Social Development*. 2002; 11:307–331.
- Kochanska G. Children's temperament, mothers' discipline, and security of attachment: Multiple pathways to emerging internalization. *Child Development*. 1995; 66:597–615.
- 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, Knaack A, Rhines HM. Maternal parenting and children's conscience: Early security as moderator. *Child Development*. 2004; 75:1229–1242. [PubMed: 15260874]
- Kochanska G, Aksan N, Koenig AL. A longitudinal study of the roots of preschoolers' conscience: Committed compliance and emerging internalization. *Child Development*. 1995; 66:1752–1769. [PubMed: 8556897]
- 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, Barry RA, Stellern SA, O'Brien JJ. Early attachment organization moderates the parent-child mutually coercive pathway to children's antisocial conduct. *Child Development*. 2009; 80:1288–1300. [PubMed: 19630909]
- Kochanska G, Forman DR, Aksan N, Dunbar SB. Pathways to conscience: Early mother-child mutually responsive orientation and children's moral emotion, conduct, and cognition. *Journal of Child Psychology and Psychiatry*. 2005; 46:19–34. [PubMed: 15660641]
- Kuczynski L, Kochanska G. Development of children's noncompliance strategies from toddlerhood to age 5. *Developmental Psychology*. 1990; 26:398–408.
- Lytton H. Child and parent effects in boys' conduct disorder: A reinterpretation. *Developmental Psychology*. 1990; 26:683–697.
- Maccoby, EE. Let's not overattribute to the attribution process: Comments on social cognition and behavior. In: Higgins, ET.; Ruble, DN.; Hartup, WW., editors. *Social cognition and social development*. Cambridge University Press; New York: 1983. p. 356-370.
- 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.
- Parke, RD.; Buriel, R. Socialization in the family: Ethnic and ecological perspectives. In: Damon, W.; Lerner, RM.; Eisenberg, N., editors. *Handbook of Child Psychology*. Wiley; New York: 2006. p. 429-504. Social, emotional, and personality development
- 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.

- Shaw DS. Innovative approaches and methods to the study of children's conduct problems. *Social Development*. 2003; 12:309–313.
- Sprafkin J, Gadow KD, Salisbury H, Schneider J, Loney J. Further evidence of reliability and validity of the Child Symptom Inventory-4: Parent checklist in clinically referred boys. *Journal of Clinical Child & Adolescent Psychology*. 2002; 31:513–524. [PubMed: 12402570]
- Rushton JP, Brainerd CJ, Pressley M. Behavioral development and construct validity: The principle of aggregation. *Psychological Bulletin*. 1983; 94:18–38.
- Thompson, RA. The development of the person: Social understanding, relationships, conscience, self. In: Damon, W.; Lerner, RM.; Eisenberg, N., editors. *Handbook of Child Psychology*. Wiley; New York: 2006. p. 24-98. Social, emotional, and personality development
- Thompson, RA. Early attachment and later development: Familiar questions, new answers. In: Cassidy, J.; Shaver, PR., editors. *Handbook of attachment: Theory, research, and clinical applications*. 2nd Ed. Guilford Press; New York: 2008. p. 348-365.
- Thompson RA, Laible DJ, Ontai LL. Early understandings of emotion, morality, and self: Developing a working model. *Advances in Child Development and Behavior*. 2003; 31:137–171. [PubMed: 14528661]
- 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.
- Weinfield, NS.; Sroufe, LA.; Egeland, B.; Carlson, E. Individual differences in infant-caregiver attachment: Conceptual and empirical aspects of security. In: Cassidy, J.; Shaver, PR., editors. *Handbook of attachment: Theory, research, and clinical applications*. 2nd Ed. Guilford Press; New York: 2008. p. 78-101.
- Youngblade LM, Belsky J. Parent-Child Antecedents of 5-Year-Olds' Close Friendships: A Longitudinal Analysis. *Developmental Psychology*. 1992; 28:700–713.

Figure 1.

Study 1: Children's attachment security at 14 months moderates the effect of their willingness to mothers at 14 and 22 months on internalization of mothers' rules at 33, 45, and 56 months. Child gender was a covariate (not depicted). Solid lines represent significant simple slope; dashed lines represent non-significant simple slope.

Figure 2.

Study 1: Children's attachment security at 14 months moderates the effect of their willingness to mothers at 14 and 22 months on externalizing behavior problems at 73 months. Child gender was a covariate (not depicted). Solid lines represent significant simple slope; dashed lines represent non-significant simple slope.

Figure 3.

Study 2: Children's attachment security at 15 months moderates the effect of their willingness to mothers at 25 and 67 months on antisocial, externalizing behavior problems at 80 months. Child gender was a covariate (not depicted). Solid lines represent significant simple slope; dashed lines represent non-significant simple slope.

Table 1

Overview of Measures, Study 1 and Study 2

Age of Child in Months, (N)	Study 1					Study 2				
	14 (108)	22(106)	33 (104)	45(101)	56(74)	73(57)	15(102)	25(100)	67(92)	80(90)
<i>Moderator</i>										
Attachment Security, M-C	X						X			
Attachment Security, F-C							X			
<i>Predictor: Child Willing Stance toward Parent</i>										
Committed Compliance, M-C	X	X								
Responsiveness, Interactions, M-C								X	X	
Responsiveness, Interactions, F-C								X	X	
Responsiveness, Teaching, M-C								X	X	
Responsiveness, Teaching, F-C								X	X	
<i>Child Socialization Outcomes</i>										
Internalization of Rule, M-C			X	X	X					
Externalizing Behavior						X				X

Note. M-C = Mother-child relationship. F-C = Father-child relationship

Table 2

Study 1: Child Attachment Security at 14 Months, Willing Stance to Mothers (14 and 22 Months), and Socialization Outcomes: Internalization of Mothers' Rules (33, 45, and 56 Months) and Externalizing Behavior Problems (73Months)

Outcome: Internalization of Rule, 33, 45, 56 Months						Outcome: Externalizing Behavior Problems, 73 Months							
Predictor(s)	Step 1			Step 2			Step 3			F	Beta	F	Beta
	F	Beta	F	Beta	F	Beta	F	Beta					
Child Gender ^a	12.60***	-.33	5.51*	-.23	7.74**	-.27	6.08*	.32	4.13*	.27	5.07*	.29	
At Step 1:	R ² = .11, <i>F</i> (1,102)=12.60***						R ² = .10, <i>F</i> (1.55) = 6.08*						
Attachment Security ^b , 14 Months			< 1	-.04	< 1	-.05			< 1	.06	< 1	-.03	
Willing Stance, 14-22 Months			6.85**	.26	< 1	-.04			1.30	-.15	< 1	.13	
At Step 2:	R ² = .17, <i>F</i> (3,100) = 6.80***						R ² = .12, <i>F</i> (3.53)=2.44+						
Attachment Security ^b , 14 Months													
x Willing Stance, 14-22 Months					7.77**	.38					3.98*	-.38	
At Step 3:				R ² = .23, <i>F</i> (4,99) = 7.39***						R ² = .18, <i>F</i> (4,52)=2.93*			

 $a_{0=\text{Girls}, 1=\text{Boys}}$

b 0=Insecure, 1=Secure.

 $^+p < .10.$ $p < .05.$ $p < .01.$
**

 $p < .001$.

Table 3

Study 2: Child Attachment Security at 15 Months, Willing Stance to Mothers (25 and 67 Months), and Mother-Rated Antisocial, Externalizing Behavior Problems (ODD, CD, 80 Months)

Predictor(s)	Externalizing Behavior Problems, 80 Months					
	Step 1		Step 2		Step 3	
	F	Beta	F	Beta	F	Beta
Child Gender ^a	5.77*	.25	3.39+	.20	3.12+	.19
At Step 1:	$R^2 = .06, F(1,86) = 5.77^*$					
Attachment Security ^b , 15 Months			< 1	.10	< 1	.10
Willing Stance to Mother, 25– 67 Months			3.51+	-.20	< 1	.01
At Step 2:	$R^2 = .11, F(3,84) = 3.42^*$					
Attachment Security ^b , 15 Months						
x Willing Stance to Mother, 25–67 Months					4.16*	-.30
At Step 3:	$R^2 = .15, F(4,83) = 3.70^{**}$					

^a 0=Girls, 1=Boys.

^b 0=Insecure with mother, 1=Secure with mother.

+ $p < .10$.

* $p < .05$.

** $p < .01$.

Table 4

Study 2: Child Attachment Security at 15 Months, Willing Stance to Fathers (25 and 67 months), and Father-Rated Antisocial, Externalizing Behavior Problems (ODD, CD, 80 Months)

Predictor(s)	Externalizing Behavior Problems, 80 Months					
	Step 1		Step 2		Step 3	
	F	Beta	F	Beta	F	Beta
Child Gender ^a	< 1	.07	< 1	-.02	< 1	-.02
At Step 1:	$R^2 = .00, F(1,83) < 1$					
Attachment Security ^b , 15 Months			< 1	-.08	< 1	-.08
Willing Stance to Father, 25– 67 Months			5.67*	-.27	4.20*	-.33
At Step 2:	$R^2 = .07, F(3,81) = 2.13$					
Attachment Security ^b , 15 Months						
x Willing Stance to Father, 25– 67 Months					< 1	.08
At Step 3:	$R^2 = .07, F(4,80) = 1.65$					

^a 0=Girls, 1=Boys.

^b 0=Insecure with father, 1=Secure with father.

* $p < .05$.