

# Anxiogenic Patterns in Mother-Child Interactions

Kyle W. Harvison  
L. Kevin Chapman  
Natalie G. Ballash  
Janet Woodruff-Borden

**ABSTRACT.** The current study examined psychosocial variables associated with the development of anxiety in children. While previous literature has established parental affectionless control as an important contributor to the development of anxiety in children, few have examined this construct within the dynamic context of parent-child interaction. In the current study, the affect and behavior of anxious mothers and their children (ages 6 to 12 years) were examined during two mildly stressful tasks, with a total of 64 mother-child dyads participating in the study. Analyses supported the hypothesis that maternal affectionless control mediates the relationship between child anxiety and child disengagement/withdrawal from difficult tasks. Results are discussed in terms of implications for psychosocial mechanisms of the familial transmission of anxiety.

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Kyle W. Harvison, PhD, is affiliated with the Department of Psychiatry, Indiana University School of Medicine, Indianapolis, IN

L. Kevin Chapman, PhD, and Janet Woodruff-Borden, PhD, are affiliated with the Department of Psychological and Brain Sciences, University of Louisville, KY

Natalie B. Ballash, PhD, is affiliated with the Vanderbilt Community Mental Health Center, Nashville, TN

Address correspondence to: Janet Woodruff-Borden, PhD, Department of Psychological and Brain Sciences, University of Louisville, Louisville, KY 40292 (E-mail: [j.woodruff-borden@louisville.edu](mailto:j.woodruff-borden@louisville.edu)).

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The development of anxiety disorders clearly has a strong familial component, with children of anxious parents being up to seven times more likely to be diagnosed with an anxiety disorder than children of non-anxious parents (Turner, Beidel, & Costello, 1987). Genetics account for less than half of the variance in familial transmission (Fyer, Mannuzza, Chapman, Martin, & Klein, 1995), and having an anxious parent is not a definitive predictor of clinically anxious outcomes in children. Therefore, the identification of psychosocial factors that contribute to the development and manifestation of anxiety disorders is of critical importance. The current study aimed to further current understandings of one set of particularly relevant psychosocial variables within the context of the mother-child interaction. Specifically, it was of interest to examine the degree to which maternal displays of negative and controlling behavior may mediate the relationship between child displays of anxious affect and child disengagement/withdrawal during two mildly stressful tasks.

The construct of control has consistently been associated with the expression of anxiety (Chorpita & Barlow, 1998; Dumas, Serketich, & LaFreniere, 1995; Siqueland, Kendall, & Steinberg, 1996; Whaley, Pinto, & Sigman, 1999; Woodruff-Borden, Morrow, Bourland, & Cambron, 2002), and parents who are anxious or who have anxious children have been found to display affectionless control. This authoritarian parenting style is characterized by low displays of warmth and affection, accompanied by high displays of parental control toward a child (Leon & Leon, 1990). Anxious adults often recall their parents as being overcontrolling and lacking in warmth (Laraia, Stuart, Frye, Lydiard, & Ballenger, 1994; Leon & Leon, 1990; Parker, 1993); and many anxious children characterize their families as conflictual, controlling, unsupportive, and not granting of autonomy (Ginsburg et al., 1995; Messer & Beidel, 1994; Stark, Humphrey, Crook, & Lewis, 1990). Behavioral studies examining the interaction styles of anxious parents and parents of anxious children have consistently demonstrated that they display affectionless control toward their children. In a study conducted by Whaley, Pinto, and Sigman (1999), for example, anxious mothers displayed less warmth, were less granting of autonomy, and exhibited fewer positive comments than control mothers.

However, such parental contributions cannot be considered alone, as they take place within a reciprocal pattern of parent-child interaction. For example, during moderately anxiety-provoking tasks, anxious parents have been found to display withdrawn and disengaged behaviors when child negative affect was absent, but controlling behaviors when child negative affect was present (Woodruff-Borden, Morrow, Bourland, & Cambron, 2002). Based on this finding, the authors hypothesized that anxious parents may engage in controlling behaviors in an attempt to manage displays of negative or anxious affect on the part of their children. There are also suggestions in the literature that such patterns may ultimately lead to the development of anxiety by contributing to a child's decreased sense of control, and subsequently avoidance or withdrawal and failure to experience mastery over anxiety-provoking stimuli (e.g., Rapee, 1997). Following from such theoretical perspectives then, observational studies should be able to demonstrate the emergence of avoidance or disengagement on the part of children in response to parental affectionless control.

A series of studies—beginning with Barrett, Rapee, Dadds, and Ryan (1996)—provides some initial support in this area. Although affectionless control was not directly measured, the authors reported that anxious children were more likely to choose avoidance as a coping mechanism in the face of hypothetical threatening scenarios, and that this bias increased following family discussion. Later analysis of these interactions (Dadds, Barrett, Rapee, & Ryan, 1996) revealed that parents of anxious children were more likely to reinforce their child's choice of avoidance as a solution, agreeing with and listening to their child less when he or she proposed a more prosocial plan of action. Although initial follow-up work (Cobham, Dadds, & Spence, 1999) failed to replicate this finding when the child was actually confronted with a threatening task (giving a speech in front of a camera), later examination (Dadds & Roth, 2001) revealed that anxious parents were more controlling, directive, and domineering in their attempts to help their children prepare for the task.

In summary, a number of studies have established a relationship between parental affectionless control and anxious outcomes in children. However, the contributions of the child within this dynamic process have often not been considered. It has been suggested that anxious parents may display affectionless control in an attempt to manage displays of negative or anxious affect on the part of their

children. Such overcontrolling parenting may, in turn, contribute to negative affectivity in children by fostering a tendency toward withdrawal or avoidance, preventing important learning experiences. This scenario may also foster in children the perception that events are outside of their control, representing a psychological vulnerability toward the development of anxiety disorders (Chorpita & Barlow, 1998; Rapee, 1997). Following from this rationale, the current study tested a model in which maternal affectionless control was a hypothesized mediator of the relationship between child displays of anxious affect and child disengagement/withdrawal during two mildly stressful tasks. To address issues related to the directionality hypothesized in the model, a competing model was examined in which child disengagement/withdrawal was hypothesized to mediate the relationship between child anxious affect and maternal affectionless control.

## METHOD

### *Participants*

The current study is part of a larger investigation of the familial transmission of anxiety (Woodruff-Borden et al., 2002). Eighty-three parent-child dyads completed the overall study. These dyads were recruited through referrals to mental health agencies, community self-help groups, and flyers and letters offering workshops on parenting distributed to schools and after-school care programs. The children ranged in age from 6 to 12 years, and the parents were biological parents living in the same household as the participating child. Only one parent and one child per family participated.

Dyads in which either member met criteria for a disorder other than anxiety disorder were excluded. Specifically, six dyads were excluded because the child had a primary diagnosis other than anxiety disorder (attention deficit hyperactivity disorder,  $n = 5$ ; conduct disorder,  $n = 1$ ), one dyad was excluded because the child had a secondary diagnosis of dysthymic disorder, and five dyads were excluded because the parent had a diagnosis of major depression or adjustment disorder. Finally, because only seven parents participating were fathers, they were excluded, leaving a final sample of 64 mother-child dyads. All 64 of these dyads were included in the analyses below.

TABLE 1. Concordance of Mother and Child Diagnostic Classification Across Sample

	Mother Anxious	Mother Non-Anxious
Child Anxious	19 (29.7%)	9 (14.1%)
Child Non-Anxious	9 (14.1%)	27 (42.2%)

Of the 64 mothers, 28 were assigned a primary diagnosis of an anxiety disorder with no comorbid psychopathology, other than additional anxiety disorders. Primary diagnoses for these parents were panic disorder ( $n = 3$ ), panic disorder with agoraphobia ( $n = 3$ ), social phobia ( $n = 4$ ), generalized anxiety disorder ( $n = 9$ ), specific phobia ( $n = 6$ ), posttraumatic stress disorder ( $n = 1$ ), and agoraphobia without history of panic disorder ( $n = 2$ ). The remaining parents ( $n = 36$ ) did not meet criteria for any current psychopathology as assessed by the instruments discussed below. There were 29 male and 35 female children. Twenty-eight children had a primary diagnosis of an anxiety disorder, while 36 did not meet criteria for current psychopathology. Primary diagnoses for the anxious children were separation anxiety ( $n = 3$ ), social phobia ( $n = 5$ ), generalized anxiety disorder ( $n = 9$ ), specific phobia ( $n = 10$ ), and posttraumatic stress disorder ( $n = 1$ ). Concordance of mother and child diagnostic status is presented in Table 1. Demographic information for parents and children by diagnostic group is presented in Tables 2 and 3, respectively.

### Measures

*The Anxiety Disorders Interview Schedule: Fourth Edition (ADIS-IV; Brown, DiNardo, & Barlow, 1994).* The ADIS-IV is a structured clinical interview that assesses anxiety and related disorders as defined by the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (American Psychiatric Association, 1994). Studies utilizing previous editions of the instrument have demonstrated fair to high agreement for anxiety disorders (kappa range from .43 to .82; DiNardo, Moras, Barlow, Rapee, & Brown, 1993). For the present study, doctoral students blind to child diagnosis conducted all ADIS-IV interviews. Their training required four consecutive matches with an already reliable interviewer, followed by a match

TABLE 2. Demographics of Maternal Groups

	Anxious	Non-Anxious	t/ $\chi^2$
<i>Age</i>			
<i>M</i>	35.54	38.64	2.361*
<i>SD</i>	4.98	5.39	
<i>Marital Status</i>			6.993
Married	17	26	
Divorced, single	6	10	
Divorced, remarried	1	0	
Separated	2	0	
Never Married	2	0	
<i>Education</i>			8.211
$\leq$ 8th grade	1	0	
HS graduate/GED	3	4	
Some college	9	3	
College graduate	10	16	
Graduate school	5	13	
<i>Family Income</i>			4.653
$\leq$ \$30,000	7	7	
\$30–70,000	8	13	
$\geq$ \$70,000	12	14	

\*p &lt; .05

with the primary investigator on diagnoses and severity, prior to conducting interviews. In addition, all interviews were videotaped, and one-third were randomly selected for interrater reliability of primary diagnosis (overall kappa = .89).

*The Anxiety Disorder Interview Schedule for DSM-IV: Child Version and Parent Version (ADIS-C/P; Silverman & Albano, 1996).* The ADIS-C/P assesses anxiety and related disorders in children ranging

TABLE 3. Demographics of Child Groups

	Anxious	Non-Anxious	t/ $\chi^2$
<i>Age</i>			
<i>M</i>	8.21	8.97	1.51
<i>SD</i>	1.73	2.18	
<i>Sex</i>			1.37
Female	13	22	
Male	15	14	

from 6 to 17-years-old. This structured interview is designed to combine the child report (ADIS-C) and the parent report (ADIS-P) to formulate a diagnosis (Silverman & Nelles, 1988). Reliability coefficients for separation anxiety disorder, social phobia, specific phobia, and generalized anxiety disorder are excellent (kappa range from .80–.92), and the measure shows excellent test-retest reliability (Silverman, Saavedra, & Pina, 2001). As with the ADIS-IV, ADIS-C/P administration for the present study was conducted by doctoral students, following the same training process described above. All interviews were videotaped, and one-third were randomly selected for interrater reliability of primary diagnosis (overall kappa = .85). Families were provided with diagnostic feedback and any necessary treatment referrals after participation in the study.

### ***Procedure***

Following completion of the measures discussed above, dyads were videotaped during two 10-minute interaction tasks: working on unsolvable anagrams and preparation of an autobiographical speech for the child to deliver to the camera. Specific task instructions were directed toward the children, including a statement that parents could help in whatever ways they chose. The tasks were administered in counterbalanced order. The interactions were coded with a modified version of Kerig, Cowan, and Cowan's (1993) coding scheme that allows the separation of each participant's contributions to the interaction in regards to behavior and affect. Mother and child behaviors were coded into nine behavioral and four affective composites, based on frequency counts as reported in detail by Woodruff-Borden et al. (2002).

For the present study, instances of displays of overcontrol and negative affect on the part of mothers were summed to create an affectionless control composite. These behaviors were selected to reflect the absence of affection (negativity) and the presence of controlling behaviors by the mother. This is consistent with previous conceptualizations of the construct (e.g., Whaley et al., 1999) that emphasize lack of warmth, which we operationalized for the current study as the presence of negativity. To test the hypothesized model, we also examined child disengagement/withdrawal and anxious affect. Doctoral students blind to diagnosis of parent and child coded all identifiable units across the two tasks. Training consisted of 15–20 hours to reach a .80 agreement criterion. Kappas for

TABLE 4. Parent-Child Interaction Coding System with Interrater Reliabilities and Examples

Category	Cohen's Kappa	Example
<b>Child Anxious Affect</b>	.90	Trembling voice Appears tearful "But I don't know how" (In an anxious tone of voice)
<b>Parent Affectionless Control</b>		
Overcontrol		
<i>Behavior Regulation</i>	.95	"Stop that!" "Get away from the camera!"
<i>Explicit directive/command</i>	.78	"Do it this way" "Give that to me"
<i>Implicit directive//suggestion</i>	.84	"Maybe we should try it this way"
<i>Choice making/taking over</i>	.75	"You do this, and I'll do this" "First we will do this one and then we will try the next one"
<i>Attention Devices</i>	.71	"Look here" "Look at this one"
Negative Affect	.77	Appears angry, contentious "I hate this task!"
<b>Child Disengagement/Withdrawal</b>		
<i>Ignore/Topic Switch</i>	.73	Parent: How should we do this?" Child: "What's for dinner tonight?"
<i>Silence</i>	1.00	Parent and child are silent
<i>Minimal response</i>	.75	Parent: "Which piece goes here?" Child: "Mmm"

interrater reliabilities for content, interactional function, and affective tone codes were calculated. Composites and their respective kappas are presented in Table 4, along with specific examples to illustrate their appearance within the interactions. Means and standard

TABLE 5. Descriptive Statistics for Behavioral and Affective Variables for Full Sample (n = 64) Across Tasks

	M	SD
Child Anxious Affect	6.53	7.06
Maternal Negative Affect	7.91	10.91
Maternal Overcontrol	30.84	17.78
Child Disengagement/Withdrawal	4.41	4.20



deviations for the relevant behavioral and affective composites across the sample are presented in Table 5.

## RESULTS

### *Demographic Comparisons*

As seen in Table 2, maternal diagnostic groups did not differ in regard to marital status, education, or family income; with three participants declining to provide information for the latter of these variables. The groups did significantly differ on age, as non-anxious mothers were three years older on average. Therefore, a series of correlations was conducted between maternal age and the variables in the mediational model presented below. These results are displayed in Table 6. Maternal age was significantly correlated with maternal diagnosis ( $r = -.29$ ,  $p < .05$ ) and child displays of anxious affect ( $r = -.25$ ,  $p < .05$ ). As seen in Table 3, child diagnostic groups did not differ on age or sex.

### *Mediational Models*

A mediational model was posed in which maternal affectionless control mediated the relationship between child displays of anxious affect and child disengagement/withdrawal from the tasks. In order to support mediation using regression analyses, the following conditions must be satisfied: (a) the regression of the proposed mediator (maternal affectionless control) on the independent variable (child

TABLE 6. Correlations Among All Variables in Model

	Child primary diagnosis	Child anxious affect	Maternal affectionless control	Child disengagement/ withdrawal	Maternal age
Maternal primary diagnosis	.43**	.26*	.24	.24	-.29*
Child primary diagnosis		.23	.32**	.31*	-.01
Child anxious affect			.55**	.42**	-.25*
Maternal affectionless control				.49**	-.19
Child disengagement/withdrawal					-.12

\* $p < .05$

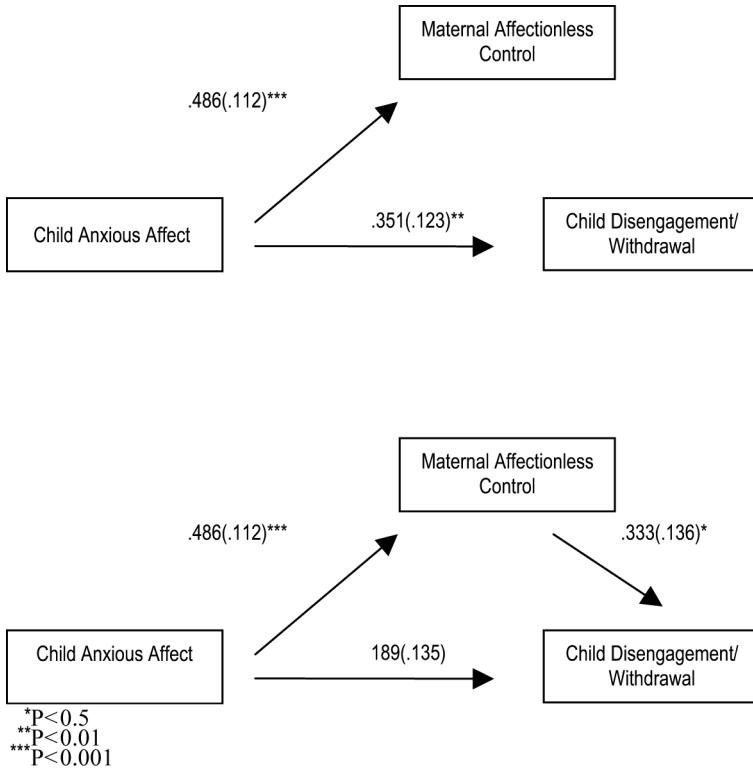
\*\* $p < .01$

anxious affect) must be significant, (b) the regression of the dependent variable (child disengagement/withdrawal) on the independent variable must be significant, and (c) the regression of the dependent variable on both the independent variable and the mediator must be significant with the association between the independent and dependent variables being reduced to nonsignificance (Baron & Kenny, 1986). Three regressions were conducted to test these criteria with maternal diagnostic status, parent age, and child diagnostic status being controlled for in each by entering them into the first step.

For the first, child anxious affect was entered in step two as a predictor of affectionless control and the regression was significant,  $F(4, 59) = 7.853, p < .001; R^2 = .347$ . Anxious affect was the only significant individual predictor ( $\beta = .486, SE = .112, p < .001, R^2$  change = .206). With the same independent variables entered as predictors of child disengagement/withdrawal, the regression was again significant,  $F(4, 59) = 4.263, p = .004, R^2 = .224$ . Child display of anxious affect was again the only significant individual predictor ( $\beta = .351, SE = .123, p = .006, R^2$  change = .108). Finally, when both child anxious affect and maternal affectionless control were entered as predictors in the second step, the regression accounted for a significant amount of variance,  $F(5, 58) = 4.891, p = .001, R^2 = .297$ . Further, the influence of child anxious affect was reduced to nonsignificance ( $\beta = .189, SE = .135, p = .166$ ), and affectionless control remained a significant individual predictor ( $\beta = .333, SE = .136, p = .018$ ), suggesting that maternal affectionless control mediated the relationship between child anxious affect and child disengagement/withdrawal. This was also tested using the Sobel test (Preacher & Leonardelli, 2001) and the finding was supported ( $z = 2.13, p = .03$ ). This model is presented in Figure 1.

While the directionality of this model was drawn from previous literature and was supported by these analyses, arguments could be made that the relationship is more accurately characterized by bi-directional influences. For example, it could be argued that child disengagement/withdrawal leads to maternal affectionless control. Therefore, we posed a competing model in which child disengagement/withdrawal was hypothesized to be a mediator between child anxious affect and maternal affectionless control. With the aforementioned covariates entered in the first step and child anxious affect entered in the second step as predictors of disengagement/withdrawal, the regression accounted for a significant proportion of

FIGURE 1. Mediation Model with Unstandardized Regression Coefficients and Standard Errors Before and After Inclusion of the Mediator



variance in the dependent variable ( $F(4, 59) = 4.263, p = .004, R^2 = .224$ ). Anxious affect, entered last, was the only significant individual predictor ( $\beta = .351, SE = .123, p = .006, R^2 \text{ change} = .108$ ). Next, with the same independent variables entered as predictors of parent affectionless control, the regression was again significant,  $F(4, 59) = 7.853, p < .001, R^2 = .347$ . Child display of anxious affect was again the only significant individual predictor ( $\beta = .486, SE = .112, p < .001, R^2 \text{ change} = .206$ ). Finally, when both child anxious affect and child disengagement/withdrawal were entered as predictors in the second step, the regression accounted for a significant proportion of variance in the dependent variable,  $F(5, 58) = 8.005, p < .001, R^2 = .408$ . However, mediation was not supported

as both child anxious affect ( $\beta = .387, SE = .115, p = .001$ ) and child disengagement/withdrawal ( $\beta = .280, SE = .115, p = .018$ ) were significant individual predictors, suggesting that child disengagement/withdrawal did not mediate the relationship between child anxious affect and maternal affectionless control. This was also supported by the Sobel test, which was not significant ( $z = 1.85, p = .06$ ).

## DISCUSSION

The hypothesis of this study was supported, illustrating dynamic aspects of family interaction in which maternal affectionless control may foster an anxious child's tendency to disengage or withdraw in the face of anxiety-provoking demands. Specifically, maternal displays of affectionless control were found to mediate the relationship between child anxious affect and child disengagement/withdrawal during mildly stressful tasks. This supports previous conceptualizations that when a child displays anxiety, a parent may attempt to manage this display by exerting affectionless control, leading the child to disengage from the task. An alternative relationship between these variables was also explored. The model revealed that child disengagement did not mediate the relationship between child anxious affect and maternal affectionless control. Therefore, rather than maternal affectionless control being a response to child disengagement/withdrawal, it appears more plausible that disengagement/withdrawal is largely a response to the mother's overcontrolling behavior.

Previous literature (Rapee, 1997) has suggested that parental overcontrolling behavior may teach children that events are outside of their control, preventing them from having opportunities to learn, explore, and cope with anxiety. The current study supports this conceptualization by demonstrating a behavioral marker of the child's failure to remain engaged in a difficult task. This removal of the child from such tasks could represent a specific pathway to pathological anxiety by fostering perceptions of lack of control (Chorpita & Barlow, 1998). Future investigators may wish to directly measure the variable of perceived control in order to further elucidate its contribution. In addition to demonstrating behavioral consequences of maternal affectionless control, the current study also highlights the role of specific child behaviors (displays of anxious affect) that may elicit such

overcontrol, highlighting the importance of further considering such child contributions to negative parent-child interactions styles.

Despite the relationship between anxiety and both control and withdrawal in previous literature, neither parent nor child diagnostic had predictive value in the current study. Maternal diagnostic status was significantly correlated with child anxious affect, consistent with previous research. Future work could further examine this relationship by adding continuous measures of maternal anxiety that may more accurately capture the dimension relevant to this anxiogenic cycle. Interestingly, child diagnosis was not significantly correlated with displays of anxious affect during the interactions. There are several possible explanations for this observation, including the possibility that due to their young age, many had not yet developed anxiety disorders. Another possibility is that due to maternal overcontrol, child negative affectivity may have been attenuated with withdrawal from the task.

These findings are tentative and should be interpreted with caution. Social interactions are complex and bidirectional in nature, and directionality cannot be definitively established with this model. The use of sequential analyses will be important in future work in order to further address such issues. Furthermore, the situation was contrived, so observer effects should be considered. For example, while knowing that one is being observed should enhance parenting skills, such knowledge likely increases anxiety in many parents. This may lead them to focus on reducing their own anxiety, limiting their ability to consider their child's needs. This illustration underscores the impact of maternal anxiety in the dynamics of the interaction.

In summary, this study presents a micro-level analysis of parent-child interactions that has relevance to extending current understandings of the developmental psychopathology of anxiety. Findings suggest that children who display anxious affect in stressful situations may elicit behaviors from their mothers that are characterized by high control and low warmth. Such parenting may, in turn, foster the child's tendency toward avoidance, a cycle that has been implicated in the development of anxiety disorders. This finding was present across a group that included both anxious and control parents and children, suggesting that relevant anxiogenic processes are more aptly conceptualized on a continuum, rather than being associated only with categorical diagnostic constructs. Building upon these findings, future research in this domain should continue to consider these

constructs in a continuous fashion, and should continue to consider the dynamic exchanges between parent and child associated with the familial transmission of anxiety.

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