

Title: Temperament and family environment in the development of anxiety disorder: Two-year follow-up.

Running head: BI, family environment and anxiety

Jennifer L. Hudson, Ph.D., Helen F. Dodd, Ph.D., Heidi J. Lyneham, Ph.D., Nataly Bovopoulos.

All authors are affiliated with:

Centre for Emotional Health, Department of Psychology, Macquarie University, Sydney, Australia.

Corresponding author.

Jennifer L Hudson

Centre for Emotional Health

Macquarie University

NSW 2109 AUSTRALIA

jennie.hudson@mq.edu.au (email)

+61298508668 (ph)

+61298508062 (fax)

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Abstract

Objective

Behavioural inhibition (BI) in early childhood is associated with increased risk for anxiety. The present research examines BI alongside family environment factors, specifically maternal negativity and overinvolvement, maternal anxiety and mother-child attachment, with a view to providing a broader understanding of the development of child anxiety.

Method

Participants were 202 children classified at age 4 as either behaviourally inhibited (N=102) or uninhibited (N=100). Family environment, BI and child anxiety were assessed at baseline and child anxiety and BI were assessed again two-years later when participants were aged 6 years.

Results

After controlling for baseline anxiety, inhibited participants were significantly more likely to meet criteria for a diagnosis of social phobia and generalized anxiety disorder at follow-up. Path analysis suggested that maternal anxiety significantly affected child anxiety over time, even after controlling for the effects of BI and baseline anxiety. No significant paths from parenting or attachment to child anxiety were found. Maternal overinvolvement was significantly associated with BI at follow-up.

Conclusions

At age 4, BI, maternal anxiety and child anxiety represent risk factors for anxiety at age 6. Furthermore, overinvolved parenting increases risk for BI at age 6, which may then lead to the development of anxiety in later childhood.

Behavioural Inhibition (BI) is a temperament style characterised by wariness and avoidance in unfamiliar situations.¹ It is estimated that around 15% of infants in the general population exhibit this temperament style,² with 50% - 70% of the variance between individuals accounted for by genes.³ Several studies have shown that BI is associated with increased risk for anxiety, concurrently and over time.^{4,5} The association between BI and anxiety is so strong that there has been some debate regarding the independence of these constructs.⁶ As not all BI children develop clinical anxiety,⁷ the present research takes a “vulnerability” perspective, which assumes that BI increases risk for anxiety. Recent etiological models and reviews of the literature have emphasised the need for research that considers BI in conjunction with environmental risk factors to gain a more complete understanding of the development of anxiety.^{8,9} The family environment represents one factor that is likely to be important in young children’s lives. Indeed, extensive research has reported that family factors such as parenting, attachment and parental psychopathology, play a role in the etiology of child anxiety.^{10,11} The present research examines the role of BI and these family environment factors in the development of anxiety between four and six years of age.

Recent research has suggested that BI may be a specific risk factor for social phobia.^{5,12} For example, Chronis-Tuscano and colleagues compared participants classified as high BI and low BI on the basis of parent-report across childhood, and found a significant difference between groups on social phobia during adolescence.⁵ The results suggested that stable BI across childhood may be a better predictor of anxiety than BI assessed at a single time point.

In addition to BI, there is considerable research demonstrating a relationship between child anxiety and family environment factors such as parental control/overinvolvement, parental negativity, parental anxiety and parent-child attachment.^{13,14} To date, however, limited research has included measures of BI and family environment factors in the prediction of anxiety over time. It is not currently clear, therefore, whether family environment interacts with BI to exacerbate or diminish temperamental risk or whether family environment factors and BI confer additive risk for child anxiety. In one of the first studies to include family environment measures alongside BI, Shamir-Essakow et al.¹⁵ conducted a cross-sectional study examining attachment, maternal anxiety and BI in preschool children. Maternal anxiety, attachment security and BI were all significantly associated with child

anxiety but there were no significant interactions, suggesting that these factors may confer additive risk.

Muris and colleagues¹⁶ assessed the additive and interactive effects of BI, attachment security, maternal trait anxiety and maternal overprotection in a three-year longitudinal study. As anticipated, BI was a strong predictor of social phobia prospectively. In addition, parental anxiety, particularly maternal anxiety, was associated with child anxiety over time. There was little evidence, however, for a direct relationship between attachment or maternal overinvolvement and child anxiety, or for interactions between family environment and BI. Although maternal overinvolvement was significantly associated with BI prospectively. This is consistent with other research showing that overinvolved parenting during the preschool years is related to subsequent social wariness, perhaps by limiting the child's ability to develop coping mechanisms to overcome reactions to novelty and wariness of social situations.^{17,18}

In a similar study, Edwards and colleagues¹⁹ examined the role of life events, parenting and BI in the prediction of anxiety over a 12-month period using parent-report questionnaires. In this study, maternal overinvolvement was found to be a significant predictor of child anxiety at follow-up, as reported by parents, but not BI, thus contrasting with the above findings.¹⁶ In addition, anxiety at follow-up was significantly associated with life events, BI and maternal negative affect. Interactions between BI and family environment were not assessed.

The purpose of the current study was to examine whether BI and family environment (maternal overinvolvement, maternal negativity, maternal anxiety, mother-child attachment) are related to child anxiety disorders and symptoms over a two-year period. This is the first study to have examined BI and family environment using observational measures and clinical diagnostic interviews. Based on previous research and theoretical models, it was hypothesised that: (1) BI children would have a higher rate of anxiety diagnoses over time, in particular social phobia; (2) each family environment factor would be associated with child anxiety over time. The extent to which BI and family environment factors represented interactive or additive risk factors for child anxiety was also examined.

Method

Participants

102 behaviourally Inhibited (BI) and 100 behaviourally uninhibited (BUI) children and their parents completed baseline assessments.²⁰ Of these participants, 87 BI (85%) and 91 BUI (91%) children took part in the two-year follow-up. Mean time between baseline assessment and follow-up was 2 years (sd = 2 months). Participants were initially recruited through local preschools and via an advertisement in a free parenting magazine. BI classification was made at baseline on the basis of mothers report using the Short Temperament Scale for Children (STSC – see below)²¹; children scoring one standard deviation above or below the normative mean on the Approach Scale were classified as BI or BUI respectively. Demographic characteristics including age and sex, are shown in Table 1. There were no significant differences between BI groups at baseline on any of these demographic variables except for ethnicity, $\chi^2(5) = 11.871, p = .037$.

Measures

Parent-report of BI. To assess BI at baseline and follow-up, the Approach scale of the STSC²¹ was used. The STSC is a parent-report measure containing 30 items, which load onto 4 scales: Approach (tendency to approach versus withdraw from novel situations and people), Inflexibility, Persistence, and Rhythmicity. There are seven items in total that make up the approach scale. Example items are 'My child is shy when first meeting new children' and 'When my family goes on a trip, my child immediately makes him/herself at home in the new surroundings'. Parents are asked to rate on a six-point scale (1 = almost never, 6 = almost always) the extent to which each statement is reflective of their child's recent behaviour. The STSC has adequate validity, good internal consistency and reliability.²¹ The internal consistency for the approach scale in the present sample was: baseline Cronbach's alpha = .92, follow-up Cronbach's alpha = .93.

Observed BI. BI was also assessed at baseline using observed laboratory tasks similar to those used by Kagan and colleagues.¹ Children's responses to a new room, novel toy, masked experimenter dressed in a strange suit and a same-sex unfamiliar peer were observed. Behaviours used to determine inhibition status included: i) time spent proximal to the mother; ii) amount of time starting at the peer; iii) time spent talking; iv) number of approaches to the stranger; and v) number of approaches to the peer. A participant was defined as behaviourally inhibited based on observation if

they scored above a pre-determined cut-off on three or more these five behaviours.²² Inter-rater reliability for observed BI was determined by having a second trained coder independently score the videotapes for 25% of the sample. The inter-rater reliability for number of cutoffs exceeded was ICC = .906, and for overall BI classification was kappa = .789.

Child anxiety disorders. Child anxiety diagnoses were assessed at baseline and follow-up using the Anxiety Disorders Interview Schedule for DSM-IV, Parent Version (ADIS-P-IV).²³ Diagnoses and Clinical Severity Ratings (CSR) were assigned by graduate students in psychology or clinical psychologists unaware of the child's group membership. Diagnoses were only considered 'clinical' if the CSR was 4 or greater.

To assess reliability, 44 of the baseline assessments (22%) and 42 of the follow-up assessments (24%) were coded by a second clinician from videotape. Interrater agreement was as follows: presence of clinical anxiety diagnosis (baseline kappa = .858, follow-up kappa = .797), number of anxiety diagnoses (baseline ICC = .899, follow-up ICC = .965).

Child anxiety symptoms. At baseline and follow-up, mothers completed the Preschool Anxiety Scale (PAS), adapted from the Spence Children's Anxiety Scale.²⁴ The PAS contains 28 items that provide an overall measure of child anxiety. The measure has good construct validity, satisfactory internal consistency and good cross-informant and test-retest reliability.²⁴ Internal consistency in this sample was as follows: baseline Cronbach's alpha = .93, follow-up Cronbach's alpha = .93.

Maternal anxiety disorders. At baseline, mothers were interviewed with the Anxiety Disorders Interview Schedule for DSM-IV²⁵ to assess current and lifetime Axis 1 diagnoses. Diagnoses were assigned by graduate students in psychology or clinical psychologists unaware of the child's group and anxiety status. As a measure of anxiety severity, number of clinical anxiety diagnoses was used. A total of 20 cases (10%) were coded by a second clinician from videotape. Interrater agreement was as follows: number of current anxiety diagnoses (ICC = .854), number of lifetime anxiety diagnoses (ICC = .913).

Overinvolvement and Negativity.

Maternal overinvolvement and negativity were assessed at baseline using a speech preparation task and the Five Minute Speech Sample (FMSS). Additionally, overinvolvement was assessed using the Parent Protection Scale (PPS). Each of these measures is described briefly below. Further details are provided in our earlier paper.²⁰ After converting the data from these measures to z-scores, means were calculated to construct a single overinvolvement variable and a single negativity variable.

Parent Protection Scale. The PPS was used to assess maternal behaviours related to overprotection and autonomy granting.²⁶ The PPS contains 25 items (on a scale 0-3) and four subscales: Supervision, Separation, Dependence and Control. The Control scale was of greatest interest to the current study and includes items such as 'I determine who my child will play with' and 'I dress my child even if he/she can do it alone'. The PPS has shown adequate internal reliability, re-test reliability, criterion and content validity.^{26,27} The internal consistency in this sample was Cronbach's alpha = .65.

Speech preparation task. Mothers were observed interacting with their child during a three minute speech preparation task.¹³ The tasks were videotaped and Maternal Involvement and Maternal Negativity were coded by two postgraduate students in psychology, trained in the coding system. Both coders were unaware of participants' diagnostic status and rated each parent-child interaction. The reliability for the average of these ratings was ICC = .935 for the overinvolvement factor and ICC = .730 for the negativity factor. The average ratings of these two coders were used in analyses, with the exception of eight participants whose ratings were discrepant by more than two points. To ensure the data were as reliable as possible, these interactions were coded again by the first author who decided on a final value.

Five Minute Speech Sample. The FMSS was conducted and coded according to the method described by Magana and colleagues.²⁸ Parents were asked to describe their child and their relationship for five minutes. The speech samples were videotaped, transcribed and coded for criticism and over-involvement as outlined in the coding manual.²⁸ Coders were unaware of participants' diagnostic status or group membership. A subset of 48 (24%) of transcripts were assessed for inter-rater reliability: Overinvolvement (kappa = .632), Criticism (kappa = .955).

Attachment. At baseline, child-mother attachment was assessed using the preschool version of the Strange Situation procedure.²⁹ Children were classified as either securely or insecurely (insecure-avoidant, insecure-ambivalent, disorganised-controlling or insecure-other) attached following observational coding of videotaped interactions by one of two certified coders trained in the Cassidy-Marvin (Macarthur) Preschool Attachment Classification System²⁹. For the purposes of data analysis, children classified as insecure-other were combined with disorganised-controlling group. Both coders independently coded 42 (21%) cases and reliability for classification was kappa = .742.

Procedures

Macquarie University Human Ethics Committee approved the methods of the study. Following the initial screen using the parent-report STSC, children meeting entry criteria were invited to take part in the full study and mothers provided written consent. At baseline and follow-up, participants visited the university for two 2-hour sessions.. During the follow-up assessments, child anxiety diagnoses were assessed and the STSC approach scale and PAS were repeated. After both assessments, participants were rewarded with \$50 and a small gift for the child.

Data Preparation and Analysis

Complete diagnostic data were available for all 178 participants at follow-up, however, five participants were missing data on the PAS at follow-up and four participants were missing data on the STSC at follow-up. Analyses are conducted with all available data. There were no significant differences between those who participated and those that did not on BI group, child anxiety, child gender, maternal anxiety, maternal education, marital status, family income, ethnicity, or maternal age ($p > .05$).

A multi-method approach was taken for the analyses. To address the first hypothesis, the relationship between baseline BI (IV=BI group) and anxiety at follow-up was examined. To address the second hypothesis, the relationship between each family environment factor (IVs: overinvolvement; negativity; attachment security; number of current maternal anxiety diagnoses; number of lifetime maternal anxiety diagnoses) and anxiety at follow-up was assessed. For both sets of analyses, the following dependent variables (DVs) were available as measures of child anxiety: 1)

presence of any anxiety diagnosis; 2) presence of specific anxiety diagnoses; 3) number of anxiety diagnoses; 4) PAS score. The statistical method used was determined by the type of dependent variable. As variables 1 and 2 are binary, logistic regression was used. Variable 3 conformed to a negative binomial distribution, as often occurs with count data, so negative binomial regression was used. Variable 4 was positively skewed and was transformed to approximate normality, along with baseline PAS score, using a square root transformation and the ANCOVA procedure was then used for this variable. For both sets of analyses, the relationship between the IV and anxiety at follow-up was assessed initially, and then baseline anxiety was included to examine whether these factors predicted *changes* in anxiety over time. The extent to which BI and family environment factors represented interactive or additive risk factors for child anxiety was evaluated using path analysis.

Based on the baseline laboratory assessment of BI, 92 participants were classified as inhibited and 110 participants as uninhibited. Classifications were in agreement with the original parent-report groups for 74% of participants (Kappa = .49). Analyses were therefore conducted initially using the parent-report groups and then conducted again using only those participants whose parent-report classification was consistent with their laboratory-based classification (referred to as consistent subsample). Where differences in significance were found, these are reported.

Results

BI and Anxiety at Follow-up

Table 2 shows the prevalence rates for anxiety diagnoses at baseline and two-year follow-up in the BI and BUI groups. The prevalence of anxiety disorders decreased in both groups between baseline and follow-up; 43% of participants with an anxiety diagnosis at baseline no longer meeting criteria at follow-up and 20% of those who did not have an anxiety diagnosis at baseline *gained* a diagnosis at follow-up. BI status, according to parent-report, changed for 21 participants: 2 from the BUI group and 19 from the BI group.

The results of the analyses examining the relationship between BI and anxiety are shown in Table 3. These results show that, even after controlling for baseline anxiety, the BI group were significantly more likely to meet criteria for an anxiety diagnosis, had a higher number of anxiety diagnoses, and were significantly more likely to meet criteria for Social Phobia and Generalised

Anxiety Disorder. The BI group were also significantly more likely to meet criteria for Specific Phobia and Separation Anxiety Disorder but not after controlling for baseline anxiety. BI group was also a significant predictor of PAS score, but not after controlling for baseline anxiety. Ethnicity was included in all models but no significant effect was found ($p > .1$).

When these analyses were conducted with the consistent subsample, the same patterns of significance were found although the effect of BI group on GAD diagnosis could not be reliably estimated with this reduced sample as none of the uninhibited children met criteria for GAD at follow-up.

To examine the relationship between observed BI alone and anxiety, these above analyses were also conducted using BI classification from observation only. Observed BI predicted social phobia and GAD, but not the presence of any anxiety disorder, number of anxiety diagnoses, specific phobia or separation anxiety.

Family Risk Factors and Anxiety at Follow-up

To minimise the number of analyses, two dependent variables were selected for these analyses: number of child anxiety diagnoses and PAS score. After controlling for baseline anxiety, there was a significant effect of number of maternal anxiety diagnoses at baseline on number of child anxiety diagnoses at follow-up, $b = .50$, $SE = .11$, $Wald \chi^2(1, N = 178) = 4.34$, $p = .04$, $IRR = 1.65$. In addition, number of maternal lifetime anxiety diagnoses, $b = .23$, $SE = .07$, $Wald \chi^2(1, N = 178) = 10.46$, $p = .001$, $IRR = 1.25$, maternal overinvolvement, $b = .36$, $SE = .17$, $Wald \chi^2(1, N = 178) = 4.33$, $p = .04$, maternal negativity, $b = .55$, $SE = .18$, $Wald \chi^2(1, N = 178) = 9.31$, $p = .002$, and attachment, $Wald \chi^2(3, N = 173) = 10.30$, $p = .02$, were all significant predictors of number of child anxiety diagnoses at follow-up. However, none of these family environment variables were significant predictors once baseline anxiety was controlled for ($p > .05$). When PAS score was the dependent variable, the pattern of results was almost identical. The only exception was that there was a significant effect of number of maternal lifetime anxiety diagnoses on PAS score, even after controlling for baseline anxiety, $F(1, 168) = 4.37$, $MSE = 5.48$, $p = .04$.

Path Analysis

Path analysis was used to examine the longitudinal relationship between temperament, anxiety and family environment factors as measured at baseline, and anxiety and temperament as assessed at two-year follow-up. Four models were evaluated. The basic structure of all models is shown in Figure 1. All models included parent-reported BI and number of anxiety diagnoses at both baseline (exogenous variables) and two-year follow-up (endogenous variables). In addition, each model also included one family environment variable assessed at baseline: overinvolvement; negativity; maternal anxiety (measured by number of maternal anxiety diagnoses); attachment security. Each family environment variable was examined in an independent model to ensure that the sample size was adequate for reliable estimates. As no significant relationship between ethnicity and anxiety was found in preliminary analyses, ethnicity was not included.

The distributions of both endogenous variables violated the assumptions of normality. The number of child anxiety diagnoses variable conformed to a negative binomial distribution and was modelled as such. The BI data followed a bimodal distribution and were therefore converted into a binary variable based on scores above or below the normative mean on the STSC. The exogenous variables were entered as measured. The path analysis was conducted using the Expectation-Maximisation (EM) algorithm and Monte Carlo Integration in MPlus Version 6.³⁰ Exogenous variables were allowed to covary.

To examine whether BI and family environment act as additive or interactive risk factors, the interaction between the family environment variable and BI was included in all initial models (see Figure 1) and removed if no significant paths were found to originate from it ($p > .05$). Interaction terms were created by multiplying mean-centred variables. All significant paths in the reduced models are shown on Figure 2 with unstandardised coefficients (note that standardised coefficients are not available when models include categorical endogenous variables).

The path analysis models were also examined using PAS score as the child anxiety measure and also using the consistent subsample. The overall pattern of results was almost identical with the following exceptions. The paths from follow-up BI to follow-up anxiety and from baseline anxiety to follow-up BI were significant ($p < .05$), presumably as a result of the increased shared method variance. The path from attachment security to follow-up anxiety was not significant ($p = .597$). For the

consistent subsample model, the only noteworthy difference was that the path from maternal anxiety to child anxiety at follow-up was not significant ($p = .19$).

Discussion

The current study uses a multi-method approach to examine the role of BI and family environment in the prediction of anxiety in BI and BUI children. The results clearly indicate that BI at age four was a significant predictor of anxiety at age six. Once baseline anxiety was controlled for, BI was associated with social phobia and GAD only. These findings are in keeping with previous research demonstrating a relationship between BI and anxiety. Given that the prevalence of anxiety diagnoses decreased over time in both groups, the present research may more accurately be conceptualised as examining the factors that predict the *maintenance* of anxiety over time.

Maternal anxiety, overinvolvement, negativity and attachment were all associated with anxiety at follow-up. However, after controlling for baseline anxiety, only maternal anxiety present at baseline was a significant predictor of child anxiety at follow-up. The relationship between *lifetime* maternal anxiety and child anxiety was less convincing, suggesting that the severity of maternal anxiety during the child's preschool years may be particularly important in understanding the maintenance of anxiety over time. Presumably maternal anxiety that is present during the child's life impacts child anxiety because it confers both genetic and environmental risk. In contrast, anxiety prior to the child's birth only confers genetic risk. However, it is also possible that the mothers who had a current anxiety diagnosis had more chronic or severe anxiety than those who had met criteria for an anxiety disorder in the past only.

As no significant interactions were found, the results suggest that BI and family environment act as additive risk factors. Whilst this is not in keeping with theoretical models,⁹⁻¹⁰ it is reasonably consistent with the previous studies that have examined BI alongside environmental risk factors using questionnaire measures. Although BI and environment interactions have been reported for the prediction of internalising problems and temperament,^{17,31} no BI by family environment interactions have consistently been found for child anxiety.^{15,16}

The present results suggest that the role of BI and parenting in child anxiety should perhaps be conceptualised differently. Consistent with previous research suggesting that maternal overinvolvement may affect child BI,¹⁶⁻¹⁸ maternal overinvolvement was a significant predictor of BI at follow-up, after controlling for BI and anxiety at baseline. If follow-up BI confers risk for future anxiety, as would be anticipated, BI might ultimately *mediate* a relationship between maternal overinvolvement and child anxiety. There was little evidence that maternal negativity had a significant effect on BI or child anxiety over the follow-up period. In our previous research with this sample, we found a significant cross-sectional relationship between negativity and both BI and child anxiety.²⁰ Taken together these findings suggest that maternal negativity may increase *in response* to BI and anxiety rather than playing a causal role.

In relation to attachment security, no significant relationship was found between attachment and anxiety after controlling for baseline anxiety, and no significant paths were found between attachment security and BI or anxiety at follow-up. This is perhaps surprising in light of previous research suggesting a role for attachment security in the development of more general internalising problems.³² However, previous longitudinal research examining attachment security as a predictor of anxiety over time has been equivocal, with some studies reporting significant associations and others finding no association.³² The present findings suggest that attachment is associated with anxiety over time but that it does not contribute to *changes* in anxiety between the ages of 4 and 6 years. It remains possible that attachment during infancy, rather than preschool, may play a role in the development of anxiety and also that attachment may affect anxiety later in childhood.

A limitation of the present study is that only mothers participated. There is increasing recognition of the importance of fathers in child development and future research should seek to include these additional environmental factors.^{5,12,33} A further point for consideration is the prevalence of anxiety diagnoses in the BI group. This was high in comparison to previous research with older samples.^{5,12} These rates are, however, consistent with other research with preschool-aged inhibited children.³⁴ This may be due to the fact that anxiety was assessed at the same time as the participants were selected as being BI. Over time, some BI children become more confident and no longer meet the definition for BI. Consequently, if the assessment of anxiety is conducted some time after the

children are defined as BI, one would expect there to be lower rates of anxiety disorder than if they had been assessed at the same time as the child was defined as BI. Another possibility is that the ADIS over-diagnoses anxiety disorders in preschool aged children as it is not designed specifically for this age group. However, this measure is highly correlated with parent report measures and we have demonstrated good inter-rater reliability. Finally, it is important to note that only extreme groups were compared. Consequently, the findings are only informative with regards how BI and BUI children differ, not how these groups differ from the general population.

Overall, the present research suggests that at age 4, BI, maternal anxiety and child anxiety represent risk factors for anxiety at age 6. Furthermore, overinvolved parenting increases risk for BI at age 6, which may then lead to the development of anxiety in later childhood. These results suggest that early intervention/prevention programs should target not only child anxiety and BI but also maternal anxiety, with a particular emphasis on how maternal anxiety can act as an environmental risk factor, and maternal overinvolvement.

Table 1

Demographic characteristics of BI groups.

	BI group	BUI group
Age at baseline in months (M; SD)	48.14 (4.40)	48.26 (4.11)
Age at follow-up in months (M;SD)	72.55 (4.53)	72.22 (4.12)
Sex (M:F)	51:51	50:50
Ethnicity (% Australian; % Asian; % European; & Other)	61; 17; 17; 7	69; 3; 21; 7
Family income (% Middle to High income)	58	59
Maternal Age (M; SD)	36.36 (4.37)	36.20 (4.59)
Family Structure (% two-parent)	90	89
Maternal highest education (% School; % Post-school; % Degree)	14; 29; 57	17; 40; 43
Number of siblings at baseline (% none; % 1; % 2+)	13; 59; 28	18; 56; 26
Birth order (% 1 st child)	59	60

Table 2

Prevalence rates for anxiety diagnoses, mean number of anxiety diagnoses and mean Preschool Anxiety Scale scores at baseline and follow-up in behaviourally inhibited (BI) and uninhibited (BUI) groups.

	Baseline		Two-year follow-up	
	BI	BUI	BI	BUI
Any anxiety disorder	73%	17%	60%	13%
Social Phobia	43%	0%	48%	2%
Separation Anxiety Disorder	30%	2%	13%	2%
Specific Phobia*	50%	12%	28%	10%
- Animal	12%	5%	10%	4%
- Natural Environment	27%	6%	27%	6%
- Blood / Medical	10%	1%	10%	1%
- Situational	1%	0%	1%	0%
- Other	22%	3%	22%	3%
Generalised Anxiety Disorder	12%	3%	18%	1%
Obsessive Compulsive Disorder	2%	2%	2%	0%
Post Traumatic Stress Disorder	2%	0%	1%	0%
Mean number of anxiety diagnoses	1.59	0.24	1.28	0.19
	(sd = 1.38)	(sd = 0.55)	(sd = 1.48)	(sd = 0.56)
	Range: 0 -	Range: 0 -	Range: 0 -	Range: 0 -

	5	2	6	3
Mean PAS score (transformed)	5.83	3.10	5.36	3.67
	(sd = 1.46)	(sd = 1.37)	(sd = 1.56)	(sd = 1.32)

Note. PAS: Preschool Anxiety Scale.

Table 3

Statistical comparisons of behaviourally inhibited (BI) and uninhibited (BUI) groups on anxiety outcome measures at 2-year follow-up.

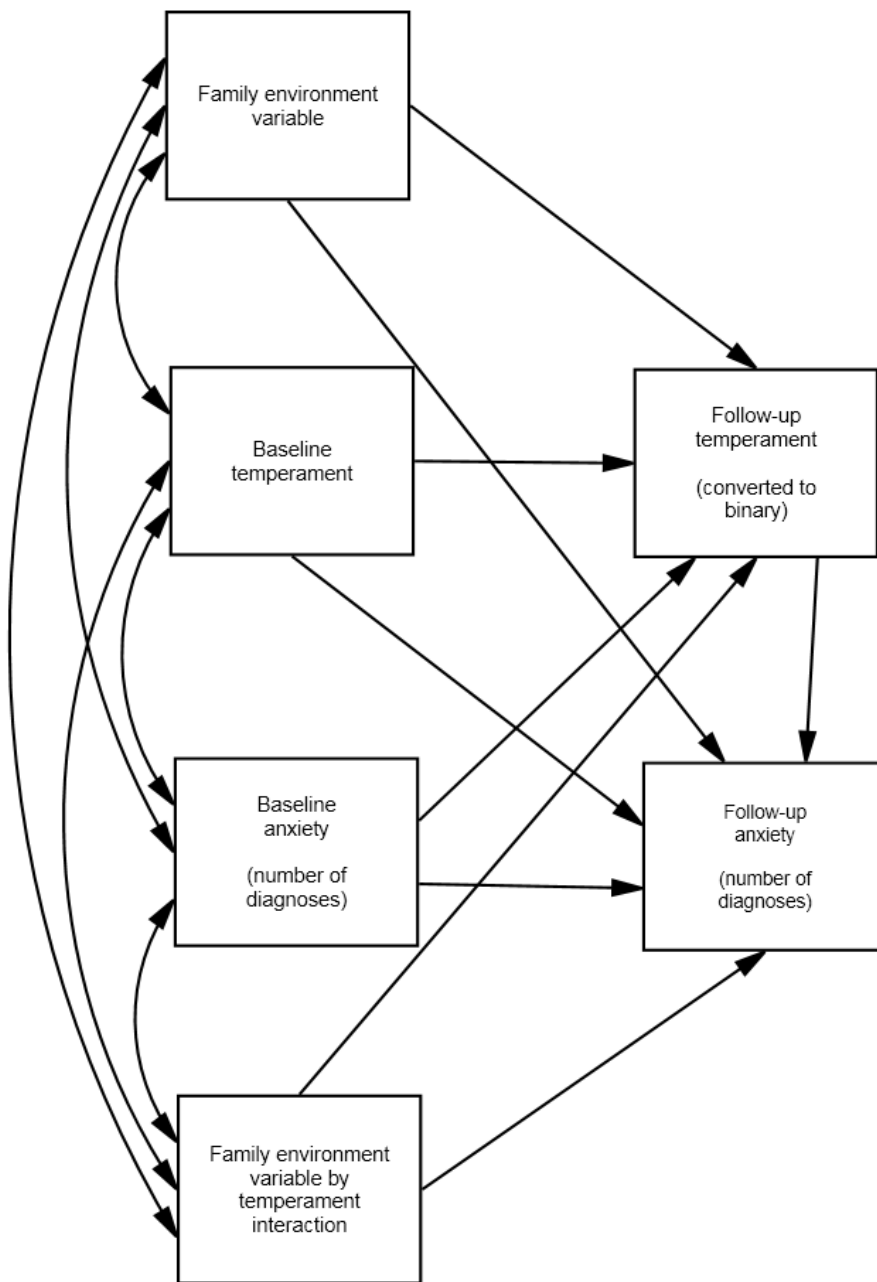
Dependent variable	Before controlling for baseline anxiety	After controlling for baseline anxiety
Any anxiety disorder	$b=2.21$, $SE=.39$, Wald $\chi^2(1, N=177) = 32.83$, $df=1$, $p<.001$, $OR=9.07$	$b=1.80$, $SE=.42$, Wald $\chi^2(1, N=177) = 18.16$, $df=1$, $p<.001$, $OR=6.05$
Number of anxiety disorders	$b=1.92$, $SE=.31$, Wald $\chi^2(1, N=177) = 39.52$, $df=1$, $p<.001$, $IRR=6.82$	$b=1.42$, $SE=.34$, Wald $\chi^2(1, N=177) = 17.51$, $p=.03$, $IRR=4.14$
Social Phobia	$b=3.65$, $SE=.75$, Wald $\chi^2(1, N=177) = 23.65$, $df=1$, $p<.001$, $OR=38.33$	$b=3.55$, $SE=.77$, Wald $\chi^2(1, N=177) = 21.06$, $df=1$, $p<.001$, $OR=34.77$
Separation Anxiety Disorder	$b=2.04$, $SE=.79$, Wald $\chi^2(1, N=177) = 6.70$, $df=1$, $p=.01$, $OR=7.66$	$B=1.18$, $SE=.88$, Wald $\chi^2(1, N=177) = 1.82$, $df=1$, $p=.18$, $OR=3.25$
Specific Phobia	$b=1.31$, $SE=.43$, Wald $\chi^2(1, N=177) = 9.10$, $df=1$, $p=.003$, $OR=3.69$	$b=0.78$, $SE=.48$, Wald $\chi^2(1, N=177) = 2.68$, $df=1$, $p=.10$, $OR=2.18$
GAD	$b=2.98$, $SE=1.05$, Wald $\chi^2(1, N=177) = 8.10$, $df=1$, $p=.004$, $OR=19.75$	$b=2.85$, $SE=1.053$, Wald $\chi^2(1, N=177) = 7.33$, $df=1$, $p=.01$, $OR=17.33$
Preschool Anxiety Scale	$b=.64$, $SE=.23$, $t=7.29$, $df=1$, $p<.001$	$b=.06$, $SE=.24$, $t=.26$, $df=1$, $p=.79$

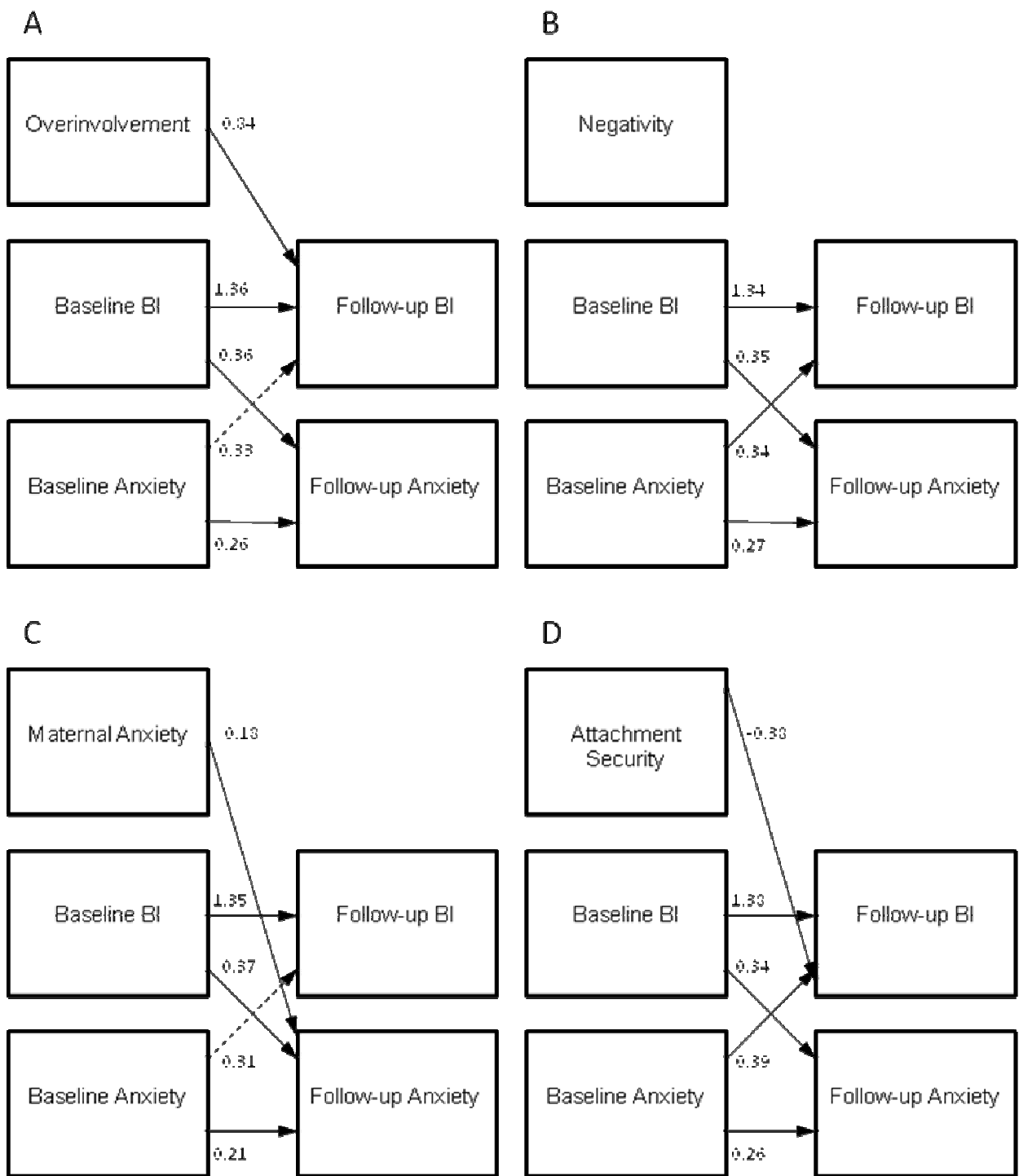
Note. GAD: Generalised Anxiety Disorder.

Figure captions

Figure 1: The basic structure for each model tested.

Figure 2: Behavioural Inhibition (BI) and anxiety predicting BI and anxiety at follow-up with (A) maternal overinvolvement; (B) maternal negativity; (C) maternal Anxiety; (D) attachment. Solid lines indicate significant paths at $p < .05$. Dotted lines indicate paths that approached significance ($p < .1$). Unstandardised coefficients are shown.





Footnotes

a

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