

## Maternal-Infant Bonding and Pediatric Asthma: An Initial Investigation

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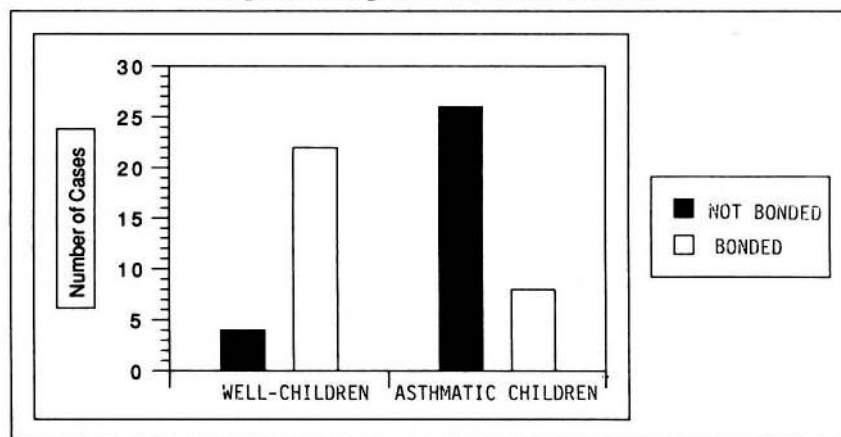
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**Abstract:** None available.

**Full Text:** Headnote ABSTRACT: This study examined the frequency of disruptions in maternal-infant bonding within a pediatric asthma population. Two groups, 30 mothers of asthmatic children and 30 mothers of well children, were interviewed through the Maternal Infant Bonding Survey (M.I.B.S.) to study the frequency of non-bonding events in the birth histories of their children. Raters determined that 86% of the asthmatic children were non-bonded as compared to 26% of the well children. The often noted relationship of childhood asthma and maternal rejection/over-protection is re-examined, and a treatment for pediatric asthma targeted at repairing psychological effects of maternal-infant non-bonding is discussed. INTRODUCTION The psychological dimensions of childhood asthma have been well documented. Studies have examined psychological causes of asthma, the psychological effects of asthma, and treatment programs which do not involve medications (1-10). These studies suggest that there are strong links between asthma and emotions and that at least some forms of asthma can be treated through drug free methods. A number of researchers are of the opinion that a disturbance in the mother-child relationship is of significant importance in the etiology of childhood asthma (11-20). The literature repeatedly points to the mother-child relationship as characterized by maternal rejection and/or maternal over-protection. These two maternal behaviors of rejection and over-protection are seen as relational, sharing a common origin (19-23) involving mother's intrapsychic conflicts about her emotional needs. The child's asthma is then considered a somatic metaphor for engulfment or abandonment. Madrid and McPhee (16, 17) have suggested that some cases of asthma are related to a kind of early childhood separation between mother and child which results in a lack or deficit of "maternal-infant bonding." Maternal-infant bonding refers to the emotional attachment between mother and her newly born infant, optimally occurring immediately after birth. Its absence, or "non-bonding", is detailed in Klaus and Kennell's work, *Maternal-Infant Bonding* (24). Critical events which can disturb or prevent bonding are categorized by Klaus and Kennell as either physical separation or emotional separation between mother and child. Physical separation occurs when the mother and child are separated soon after birth: during Caesarean section; when a mother is anesthetized; when a child is placed in an incubator or intensive care nursery; when a child is adopted; when a child is a twin or triplet; or when the mother is incapacitated following the birth. Emotional separation occurs when the mother is experiencing an emotion of such intensity that it is incompatible with bonding emotions. Such emotions or events can be: grief over the death of someone close; intense guilt; intense, overwhelming fear; an unwanted pregnancy; drug addiction; or depression caused by a recent divorce or separation. This study investigated the mother-asthmatic child relationship according to the defining feature of maternal-infant bonding described by Klaus and Kennell. It compared the number of events associated with deficits in maternal-infant bonding between a pediatric asthma group and a group of well children. The study attempted to answer the question: Are children with asthma more likely to be non-bonded than well children? METHODS Subjects The subjects for this study were two groups of 30 mothers each. The experimental group consisted only of mothers of medically diagnosed asthmatic children. One-third were from the Erickson Institute where the children were being treated for asthma through psychological methods. Two-thirds were referred from various other sources including classroom volunteers and friends of people who were involved in the study. The control group consisted of mothers of well children, i.e., children with no chronic illness, who were either classroom volunteers or friends of people involved in the study. Subjects were all biological mothers whose children were currently between the ages of 5 and 12 and were from a primarily white, Northern California, middle class suburb. All subjects were interviewed over a two

month period of time. The mean age of the asthmatic children was 8.33, with a standard deviation of 2.42. Mean age of the well children was 8.22, with a standard deviation of 2.59. For mothers, mean age of mothers of asthmatic children was 26.57, with a standard deviation of 5.13, while mean age of mothers of asthmatic children was 29.45, with a standard deviation of 4.35. Designs and Procedures Before starting the interview, subjects were informed about the general nature of the study, read and signed informed consents, and filled out a Demographic Information form. Participants were then requested to answer items from the Maternal Infant Bonding Survey. The Maternal-Infant Bonding Survey (M.I.B.S.) is a 19 item checklist (see Appendix A) which includes 15 events associated with interferences in maternal-infant bonding (24, 25). The M.I.B.S. function is to count the number of events which have been associated with typically interfering in the normal bonding process (17, 24). Most interviews were conducted at the subject's home. Roughly onequarter of the interviews were conducted over the telephone, in response to the subject's request, due to time constraints. Any questions asked by the subject regarding the study's purpose were answered with care, to guard against possible subject contamination. Data collected from the M.I.B.S. were analyzed using the chi-square test of independence, the Mann-Whitney U test and canonical discriminant function analysis. Two raters were selected to determine whether the mothers and their children were bonded or non-bonded without knowing the child's medical condition. These raters were members of the Erickson Institute in Santa Rosa, California, whose work with patients for over 10 years has been based on Klaus and Kennell's concepts of maternal-infant bonding and bonding deficits. Both raters made independent judgements on the question of bonded vs. non-bonded, and in the 12 cases where they disagreed, extensive discussion was employed in order to reach a mutually agreed upon decision for each case. RESULTS Interdependence of Bonding and Occurrence of Asthma The results of the judges' decisions are shown in Figure 1. Into the non-bonded group, they placed 26% of the well children and 86% of the asthmatic children (Table 1). The chi-square value for the test of independence is 19.62 ( $P = <.001$ ). Clearly, asthmatic children have a high probability of being judged as non-bonded, using the M.I.B.S.

**Figure 1**  
**Maternal-Infant Bonding:**  
**Expert Judgements and Asthma**

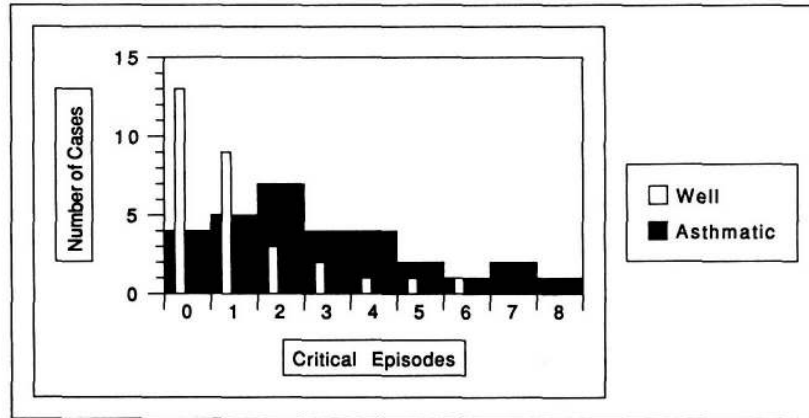


**Table 1**  
**Experts' Judgement of Mother/Child Pairs**  
**and Maternal-Infant Bonding**

	<i>Bonded</i>	<i>Not-Bonded</i>
Well Children	22	8
Asthmatic Children	4	26
Chi-square value = 19.62, < .001		

asthma and well-child population are presented in Figure 2. Asthmatic children averaged 2.8 critical episodes compared to 1.2 critical episodes for well children. Since the data were not normally distributed (see Figure 2), the Mann-Whitney U test was used to compare the two groups. The results in Table 2 indicate that there was a significant difference in the number of non-bonding events ( $p = .0049$ ).

**Figure 2**  
**Maternal-Infant Bonding:**  
**Critical Episodes and Asthma**

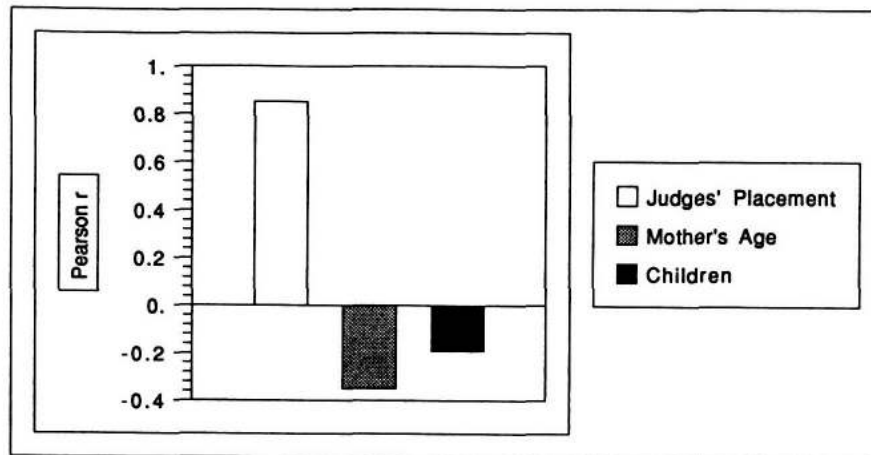


**Table 2**  
**Mann-Whitney U Statistic: Critical Episodes by Condition**

	<i>Sum of Ranks</i>	<i>Mean Rank</i>
Well	730	24.33
Asthmatic	1,110	36.67
U	265	
n1=n2	30	
z corrected for ties	-2.815	$p = .0049$
tied groups	7	

For well children, the range of critical episodes was zero to six, with 24 (80%) having zero or one episode. For asthmatic children, the range was zero to eight, with 21 (70%) having two or more critical episodes. Discriminant Function Analysis A discriminant function analysis using raters' placement (bonded/ non-bonded), age of mother at time of birth, and number of children at time of birth, correctly classified 73% of non-asthmatic children and 93% of asthmatic children in to the groups of "asthma" and "well child." (Figure 3.) This indicates that these factors are important in distinguishing pediatric asthma cases from well children. It also indicates that expert judges' ratings of M.I.B.S. scores is a strong indicator of group membership. The statistics presented are pooled-within-groups correlations between discriminating variables and the canonical discriminant function. These allow the assessment of the contribution of each variable to the discriminant function. A stepwise algorithm was used. The method of selection employed was based on minimizing the overall Wilks' lambda. The initial variables were: number of critical episodes (nonbonding events), experts' judgement, the age of the mother at childbirth, the age of the child, and the number of other children in the family.

**Figure 3**  
**Correlations Between Variables and**  
**Canonical Discriminant Function**



It should be noted that evaluation of a model utilizing the data used to create that model is inherently problematic. The discriminant function would most properly be tested with a group that did not contribute to its formulation. Thus, an independent group of children should be studied in order to fully evaluate this model.

**DISCUSSION** The purpose of this study was to examine the relationship between a lack of maternal-infant bonding and pediatric asthma by studying the incidence of events associated with non-bonding near or at birth of the asthmatic child. It was hypothesized that such events occur significantly more often in the histories of asthmatic children than in those of well children. The study's participants were 60 biological mothers of children ranging in age from 5 to 12 years. Thirty subjects were mothers of asthmatic children and 30 were mothers of well children, defined as having no chronic illness. Each mother was interviewed for general demographic information, and was administered the Maternal Infant Bonding Survey (M.I.B.S.). Expert judges studied each subject's answers to the M.I.B.S. without knowing the health of the child and assigned each to one of two groups: bonded or non-bonded. The data indicated that there were significantly more asthmatic children who did not bond with their mothers than well children. There were also more non-bonding events in the histories of asthmatic children than in the histories of well children. These data indicate that, at the very least, there is an associative relationship between events which can potentially disturb or erode maternal-infant bonding and the occurrence of pediatric asthma. The study clearly indicates a concomitant variation between non-bonding events and pediatric asthma. The relationship seems strong enough to expect non-bonding to be seen as a feature in a large percentage of asthmatic children. These data offer a new perspective for understanding mothers of asthmatic children who have traditionally been described as being either rejecting or overprotective (14, 19, 26-28). Madrid and McPhee have seen these negative descriptors as predictable and unavoidable emotions which accompany non-bonding. They point out that a lack of bonding makes mothers vulnerable to feelings of anger, resentment and rejection (17). Klaus and Kennell have noted that failure-to-thrive and child abuse are closely associated with non-bonding (24). Mothers who do not bond with their children may feel insecure about taking care of them and often appear as anxious or unduly concerned. This over-protective stance can be viewed as the attempt to do deliberately what does not occur automatically. It is a type of reaction formation—a compensation for a feeling which is missing. French and Alexander (29) in 1939 stated that asthma can be viewed as the child's cry for his mother. Decades of investigators have interpreted this to mean that the mother was, in some way, unloving. This study's data point to the lack of bonding as a key critical variable for the mother's distance from the child. Although no provisions were made in this study to gather information about mother's personality, Madrid and McPhee have stressed that non-bonding has little to do with the personality or

character of the mother (17). Mothers who do not bond to a certain child frequently bond to their other children. Events which result in non-bonding happen by accident: such as a death in the family, a Caesarean section delivery, or a recent abandonment by a husband. Non-bonding and the resultant emotions of estrangement, distance, over-protection or rejection are part of this accident. The pediatric asthma which follows is then accidental and unrelated, for the most part, to the personality of the mother. This study did not attempt to provide a comprehensive, operational definition of bonding. The study was based on the assumption that certain events can interfere with the process of bonding between mother and child (24). The concept of bonding has been operationalized through the M.I.B.S. However, it is assumed that the M.I.B.S. can actually identify non-bonding. It is these non-bonding events which have now been shown to significantly correlate with pediatric asthma. The use of raters to categorize the children as bonded or non-bonded may make the study difficult to replicate. A standardized method of reaching this choice is needed, perhaps using weighted items and canonical discriminant functions. Findings derived from this study may have practical implications for research or applied practice. The study establishes a strong relationship between non-bonding events as described by Klaus and Kennell (24) and pediatric asthma. Child and family therapists now have an additional lens through which to view their pediatric asthma patients, by exploring the questions of whether the child properly bonded with mother near the time of birth. This study points to the possibility of treating the child's asthma by treating the lack of bonding. In conclusion, although this study cannot demonstrate a causal relationship between non-bonding and pediatric asthma, it is difficult to think that such a relationship is not in effect. The high pre-incidence of non-bonding (or non-bonding critical episodes) associated with asthmatic children leads us to hypothesize that non-bonding results in asthmatic illness in certain children. Further, we suggest that nonbonding events can be expected to be found in the histories of a significant number of asthmatic children.

**SUMMARY** This study examined the possibility that there is a greater number of events associated with disturbances in maternal-infant bonding near or at the time of birth in some cases of pediatric asthma. Two groups consisting of 30 mothers of asthmatic children and 30 mothers of well children were interviewed through administration of the Maternal Infant Bonding Survey (M.I.B.S.). The study found that there was a significant difference ( $p < .05$ ) in the frequency of non-bonding events in the lives of mothers and their asthmatic children, as compared with mothers and their well children. Expert judges determined a significantly higher number of mother-asthmatic child pairs to be non-bonded as compared with the mother-well child counterparts. Within the limits of the study, the findings demonstrate an associative relationship between events which can erode or disturb maternal-infant bonding, and the occurrence of pediatric asthma. The long term implication of these findings is that a treatment for pediatric asthma targeted at repairing psychological effects of non-bonding between mother and child may be further developed.

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Appendix  
APPENDIX A Maternal-Infant Bonding Questionnaire  
1. Why is your child being seen today? (if applicable) 2. How old were you when this child was born? \_\_\_\_\_ years 3. What were the ages of your older children (if any) at the time of this child's birth? 4. Did you have any miscarriages during the two years before this child's birth? Yes/No. If yes, how far along were you? \_\_\_\_\_ weeks 5. Was there any death in the family during the two years before this child was born? Yes/No. If yes, relationship to you 6. What was your physical condition during the pregnancy? (Check one only) \_\_\_ very seriously ill \_\_\_ poor \_\_\_ average \_\_\_ good \_\_\_ excellent Please describe any conditions you experienced. 7. What was your emotional condition during pregnancy? (Check one only) \_\_\_ very seriously ill \_\_\_ poor \_\_\_ average \_\_\_ good \_\_\_ excellent Please describe any conditions you experienced. 8. In what hospital was your child born? 9. Please describe any complications at birth. 10. Please describe any anesthesia used during the birth. 11. Was your child delivered by cesarean section? Yes/No. 12. Was your child a twin, triplet, etc.? 13. How long was it after your child's birth before you first saw him/ her? \_\_\_ 0-30 minutes \_\_\_ 30-60 minutes \_\_\_ 60-90 minutes \_\_\_ over 90 minutes (how long? \_\_\_\_\_) How long were you together? \_\_\_ 0-30 minutes \_\_\_ 30-60 minutes \_\_\_ 60-90 minutes \_\_\_ over 90 minutes (how long? \_\_\_\_\_) 14. How long was it after your child's birth before you first held him/her? \_\_\_ 0-30 minutes \_\_\_ 30-60 minutes \_\_\_ 60-90 minutes \_\_\_ over 90 minutes (how long? \_\_\_\_\_) How long did you hold him/her at that time? \_\_\_ 0-30 minutes \_\_\_ 30-60 minutes \_\_\_ 60-

90 minutes \_\_\_\_ over 90 minutes (how long? \_\_\_\_\_) 15. After delivery, where was your child placed? (Check one only) \_\_\_\_ the hospital nursery \_\_\_\_ an intensive care nursery \_\_\_\_ an incubator \_\_\_\_ other (describe) \_\_\_\_\_ 16. Was there any significant separation from your child in the first year? Yes/No. If yes, for how long? \_\_\_\_\_ 17. Were there any deaths in the family during the child's first year? Yes/No. If yes, relationship to you \_\_\_\_\_ 18. Did you experience any serious emotional difficulties during your child's first year? Yes/No. 19. How did you feel when you first held your baby? THANK YOU FOR YOUR PATIENCE AND COOPERATION!

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