3-31-2011

# The Puzzle of Sibling Attachment Non-Concordance: Implications of Categorical versus Continuous Approaches to Attachment

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# The Puzzle of Sibling Attachment Non-Concordance: Implications of Categorical versus Continuous Approaches to Attachment

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Supported by grants from Health Canada and the Social Sciences and Humanities Research Council of Canada.

SRCD 2011, Montreal Canada

Poster available at http://works.bepress.com/gregmoran/

## INTRODUCTION

### INTRODUCTION

➢Theory has traditionally minimized the possibility of differences in siblings' attachment relationships. Yet, empirical research indicates that non-concordance (i.e. dissimilarity) is remarkably common (van IJzendoorn et al., 2000).

➢ In attempting to account for non-concordance, one avenue that remains uninvestigated relates to potential issues arising from use of the Strange Situation Procedure (SSP). The SSP's coding scheme provides continuous scales for rating infants' attachment behavior, but relationships are ultimately assigned to categories.

➢ Empirical research, however, has revealed no consistent empirical support for a categorical model of attachment; rather, the traditional classifications appear best considered as linear combinations of several dimensions that capture variation in the organization of relationships (Fraley & Spieker, 2003).

➢ Two main dimensional models of attachment relationships have been proposed in previous research, each employing a different statistical approach:

- ➢ Fraley and Spieker (2003) described emergent patterns of attachment behavior observed in the SSP.
- ➢ Richters, Waters, & Vaughn (1988) aimed to reveal dimensional differences in behavior among infants classified as avoidant, secure, or resistant.

➢The issue of whether attachment is best represented continuously may be especially important in studies of sibling attachment, as important information about the degree and nature of concordance may be masked when attachment is represented categorically.

### PURPOSE OF THE CURRENT STUDY

➢ To determine whether characterizing the quality of attachment as a continuous measure impacts the extent to which siblings' attachment relationships are judged concordant.

➢To investigate whether continuous measures of attachment provide additional information regarding the similarity of more specific aspects of siblings attachment relationships.

## METHOD

➢ When first-born siblings were one year of age, mothers' mean age was 30.12 years. The majority of mothers (77%) were married. On average, mothers had completed 14.57 years of education. Mean household income was $50 000 - $70 000 CDN.

➢ Average spacing between siblings ranged from approximately 10 to 56 months (*M* = 28.70 months; *SD* = 11.61).

## METHOD (cont'd)

### MEASURES

➢ **Categorical measure of attachment – the Strange Situation Procedure (SSP, Ainsworth et al., 1978).**
Mothers and infants participated in a series of separations and reunions, used to assess the quality of the attachment relationship, when each child was approximately one year of age. Each SSP was videotaped, allowing experienced coders to rate each dyad according to Ainsworth et al.'s two-stage coding system:

***1.Ratings of Infant Attachment Behavior.*** Coders first rated infant interactive behavior during Episodes 5 and 8 (reunions with mother) on each of four 7-point scales (higher scores represented greater intensity, duration, and/or frequency of behavior):

***i.Proximity- and contact-seeking behavior***, describing the extent to which the infant attempted to achieve (or re-achieve) contact or proximity to his mother;
***ii.Contact-maintaining behavior***, reflecting the infant's efforts to maintain contact, whether initiated by the mother or infant;
***iii.Resistance***, or the infant's display of angry or rejecting behavior;
***iv.Avoidance***, or the infant's efforts to avoid proximity and/or interaction.
Coders also noted the frequency of infant ***crying*** during separation:
-Episodes 4 and 6 were divided into 15-second intervals
-The total number of intervals during which the infant was crying represented his crying score.

***2. Classification of the Attachment Relationship.*** Coders then classified each dyad's relationship as ***Avoidant, Secure,*** or ***Resistant***.
-Assignment to a classification was based primarily on clinical judgment; scale ratings described above only served to guide coders.

➢**Continuous measures of attachment**
For this exploratory study, both dimensional models previously outlined were applied to the data so that patterns emerging from each set could be examined. Scores were calculated for each sibling.

**1. Richters et al. (1988)** used multiple discriminant functions analysis and the SSP's continuous scales to a) distinguish between secure and non-secure infants; and b) distinguish between avoidant and resistant infants. This analysis revealed two dimensions of infant attachment behavior:
•**Function 1 – Secure vs. non-Secure**
•**Function 2 – Avoidant vs. Resistant**
- infants' scores on each dimension were calculated by multiplying each infant's standardized SSP scale scores by their corresponding weighting for Function 1 and Function 2, then summing.

**2. Fraley and Spieker (2003)** applied principal-axis factoring with oblique rotation using the four behavioral scales of the SSP outlined above. Patterns of attachment appeared best accounted for by a two-factor solution, described as:
•**Factor 1 – Proximity Seeking versus Avoidant Strategies**
-scores on Proximity Seeking, Contact Maintenance and Avoidance in Episodes 5 and 8 were multiplied by their associated factor loading and summed
•**Factor 2 – Angry and Resistant Strategies**
-scores on Resistance were averaged across Episodes 5 and 8

## RESULTS

### Concordance across Siblings - Categorical

• Two-way (secure/non-secure) classifications of attachment were used to establish concordance across siblings.

• Concordance was 68%, occurring in 23 of the 32 sibling pairs. Sibling attachment classifications were not significantly related, $\chi^2$ (1) = 1.49, *ns* (see Table 1).

**Table 1.** Rates of non-/concordance in sibling attachment classifications.

| | | Second-born sibling | | |
|---|---|---|---|---|
| | | Secure | Non-secure | Total |
| Firstborn sibling | Secure | 19 (17.6) | 4 (5.4) | 23 |
| | | 56% | 12% | 68% |
| | Non-secure | 7 (8.4) | 4 (2.6) | 11 |
| | | 21% | 12% | 32% |
| | Total | 26 | 8 | 34 |
| | | 77% | 24% | |

### Similarity between Siblings – Continuous

**Table 2.** Intercorrelations among continuous measures.

| | [1]Secure vs. non-Secure | [2]Avoidant vs. Resistant | [3]Proximity Seeking vs. Avoidant Strategies | Angry and Resistant Strategies |
|---|---|---|---|---|
| Secure vs. non-Secure | | .48** | .28* | -.76** |
| Avoidant vs. Resistant | | | -.61** | -.79** |
| Proximity Seeking vs. Avoidant Strategies | | | | .30** |

*$p$ <.05; **$p$ < .01.

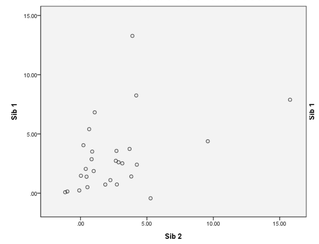
[1]High scores on Secure vs. non-Secure represent greater security. [2]High scores on Avoidant vs. Resistant represent greater degree of avoidance. [3]High scores on Proximity Seeking vs. Avoidant Strategies represent a greater degree of proximity-seeking.

➢ **Model 1 – Richters, Waters, & Vaughn (1988)**
• Scores on **Secure vs. non-Secure** were significantly correlated across siblings, $r$ = .42, $p$ < .05.
- Sib1: *M* = 3.05, *SD* = 3.03; Sib2: *M* = 2.59, *SD* = 3.42
- Infants' scores on this function were significantly correlated with two-way attachment classification, $r$ = .64, $p$ < .01.

• Scores on **Avoidant vs. Resistant** were not significantly correlated across siblings, $r$ = .13, *ns.*
- Sib1: *M* = 1.00, *SD* = 2.87; Sib2: *M* = 1.66, *SD* = 2.51

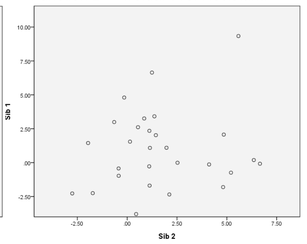
• Scatterplots depicting siblings' scores on each function are presented in Figures 1 and 2.

**Figure 1.** Scores across siblings on Function 1 – Secure vs. non-Secure.




$r$ = .42, $p$ < .05

**Figure 2.** Scores across siblings on Function 2 – Avoidant vs. Resistant.




$r$ = .13, *ns*

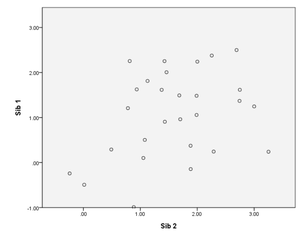
## RESULTS CONT'D

➢ **Model 2 – Fraley and Spieker (2003)**
• Scores on **Proximity Seeking vs. Avoidant Strategies** were not significantly correlated across siblings, $r$ = .33, *ns.*
- Sib1: *M* = 1.14, *SD* = 0.92; Sib2: *M* = 1.72, *SD* = 0.83

• Scores on **Angry and Resistant Strategies** were significantly correlated across siblings, $r$ = .39, $p$ < .05.
- Sib1: *M* = 2.16, *SD* = 1.38; Sib2: *M* = 2.19, *SD* = 1.57

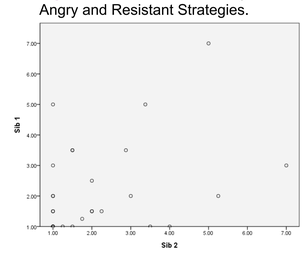
• Scatterplots depicting siblings' scores on each factor are presented in Figures 3 and 4.

**Figure 3.** Scores across siblings on Proximity Seeking / Avoidant Strategies




$r$ = .33, *ns*

**Figure 4.** Scores across siblings on Angry and Resistant Strategies.




$r$ = .39, $p$ < .05

## DISCUSSION

➢ When attachment is considered categorically, non-concordance in sibling attachment relationships appears relatively prevalent. This trend is consistent with past empirical research (van IJzendoorn et al., 2000).

➢ When attachment is viewed continuously, trends differ depending on the approach. In interpreting these results, fundamental differences between models are likely relevant: while Model 1 was based on the assumption that the SSP's categories are valid in conceptualizing attachment, Model 2 characterized emergent differences in attachment behavior without being constrained by this assumption.

- ➢ When Model 1 was applied, siblings appeared similar in the extent to which their behavior reflected a secure pattern of attachment, but different in the positioning of their behavior on an avoidant versus resistant continuum.
- ➢ Patterns emerging from Model 2 reflect modest associations between siblings on both Proximity Seeking vs. Avoidant Strategies, and Angry and Resistant Strategies.

➢ The results emerging from the use of the dimensions developed by Richter et al. (1988; Model 1) suggest substantial similarity in the level of attachment security displayed by siblings in interaction with their mother; in sharp contrast, their tendencies to maximize versus minimize emotionality in these interactions are quite dissimilar.

➢ These findings lend support to the notion that variability in attachment security relies primarily on experiential factors (which, given their common mother, may be shared among siblings), while ways in which (in)security are displayed may be more dependent on the child's individual characteristics (e.g. temperament; Belsky & Rovine, 1987).