

**Is Attachment Transmitted
Across Generations?
*The Plot Thickens***

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BACKGROUND

- Mothers' mental representations of attachment relationships → infant quality of attachment (Main, Kaplan & Cassidy, 1985)
- Patterns of *sensitive responsiveness* appear to be intergenerationally transmitted as assessed through the AAI and SSP
- Meta-analysis of 13 studies demonstrated continuity between AAI and SSP classifications (Van Ijzendoorn, 1995)
 - 75% concordance on secure/insecure split
 - 63% concordance on 4-way classification

BACKGROUND

	MAIN (ABC+D)	CRITTENDEN (DMM)
Strategy	Continuity/Disorganization	Self-protection/adaptation
Classification Added	D : Disorganized	A3-8; C3-8; A/C
Model of attachment	Vary categorically : Secure/Avoidant/Resistant / Disorganized	Vary dimensionally : Self-protective strategies : cognitive/ affective
Role of Fear	Disorganizing	Organizing Mechanism
Representational system	Individual had 1 internal working model (IWM) of attachment that endured over time	Multiple D.R. : Dispositional representations based on different processing pathways

- DMM characterizes patterns of attachment as self-protective strategies learned through interaction with attachment figures
- Predicated on *adaptation*, and can change over time

HYPOTHESES

1. Within *secure* attachment, there will be *matching* of attachment classifications
 - Type B mothers → Type B infants
2. Within *insecure* attachment, there will be evidence of *inversion / meshing* of attachment classifications
 - Type A mothers → Type C infants
 - Type C mothers → Type A infants

HYPOTHESES

3. DMM-SSP classifications will be related, but not identical to ABC+D SSP classifications
4. DMM-AAI classifications will be associated with ABC+D SSP classifications but less strongly than between the two DMM models

METHODS

Overview

- First time, pregnant women were recruited to participate in an fMRI study of maternal brain responses to infants' facial expressions
(Strathearn et al, 2009)
- Exclusions: psychotropic medications, cigarette use, left handed, contra-indications to MRI scanning
- Longitudinal design with 4 visits over 16 months: pregnancy, 7 months, 11 months, 14 months

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METHODS

Sample Characteristics : n= 49

	Mean / Percent	Range
Age (years)	27.8	19-41
Marital Status (Married)	70.5%	
Income		< \$15,000 - >\$100,000
Maternal Education (College)	79%	
Maternal IQ	110	81-120

** No differences between mothers who participated at 14 mo. visit and those who were lost to follow-up.*

METHODS

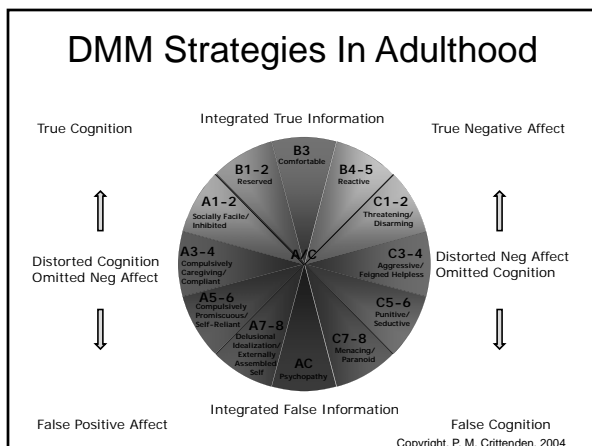
Procedure

TIME	MEASURES
Pregnancy	DMM-Adult Attachment Interview (AAI)
	Beck Depression Inventory
	Personality Disorder Questionnaire
	Demographic/ SES risk
7 Mo.	Parenting Stress Index <small>(Abidin, 1995)</small>
	Adult Temperament Questionnaire-Short Form <small>(Rothbart, 2000)</small>
	Infant Behavior Questionnaire-Revised <small>(Garstein, 2003)</small>
14 Mo.	Mother-Infant Attachment (SSP)
	Infant Development: Bayley III Screening Test <small>(Bayley, 2006)</small>

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DMM-Adult Attachment Interview

- DMM-AAI (Crittenden & Landini, in press) :
 - Semi-structured interview which characterizes a mother's capacity to form secure attachment relationships
 - Based on the narrative of her childhood attachment experiences
 - Includes additional questions designed to probe for six memory systems
 - Strategies: Type B, Type A, Type C, Type A/C, Type AC

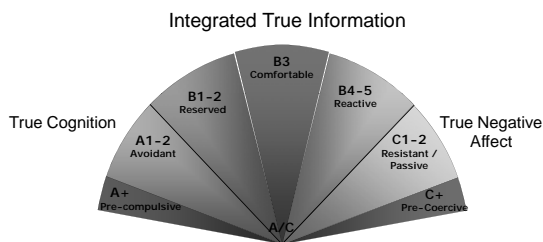


Mother-Infant Attachment Strange Situation Procedure

- Gold-standard instrument used in assessing the quality of attachment in 12-18 month old infants
- Includes a series of eight separations and reunions between the mother and child, involving mild but cumulative stress for the infant
- Goal is to observe infant behavior upon final reunion with caregiver
 - B: (Secure) :
 - A: (Insecure/ Avoidant) :
 - C: (Insecure/Resistant) :
 - A/C: Alternate use of A and C strategies depending on caregiver behavior



DMM Strategies in Infancy



Copyright, P. M. Crittenden, 2004

Classifications of the SSP

- B: Secure
 - Demonstrate clear affective signals in the expectation of protective availability of their attachment figure
 - Proximity Seeking: baby demonstrates active initiative to seek physical proximity with caregiver
 - Contact maintenance: baby aims to maintain physical contact with caregiver
- A : Avoidance
 - Avoid proximity and contact with caregiver
 - Ignore caregiver upon reunion : inhibit negative affect
- C: Resistance:
 - Angry /resistant behaviors to the caregiver; affectively distressed
- A/C:
 - Alternate use of A and C strategies in accordance with specific relationships

Farnfield, et al. 2010

B3



A1-2



C1-2



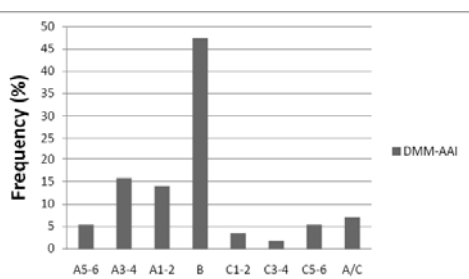
A/C



DATA ANALYSIS

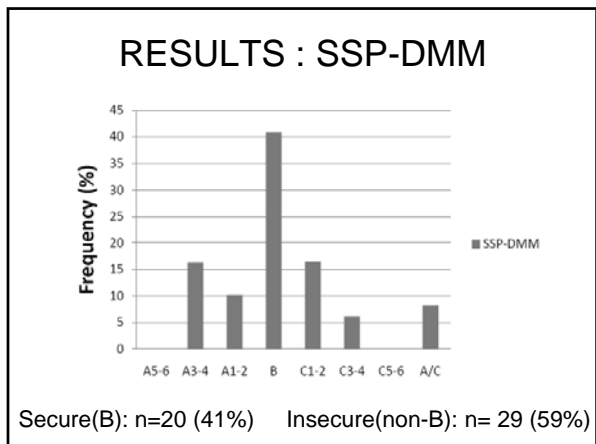
1. Univariate exploratory analysis of possible confounding variables on AAI and SSP
2. Comparisons between infant SSP classification and DMM and ABC+D methods using χ^2 , Fischer's exact test, or Phi-statistic
3. Delta-Prediction statistic employed to test hypotheses with row by row and cell by cell predictions

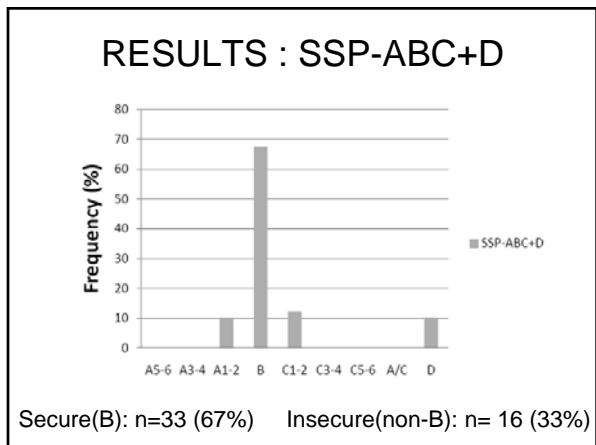
RESULTS : DMM-AAI

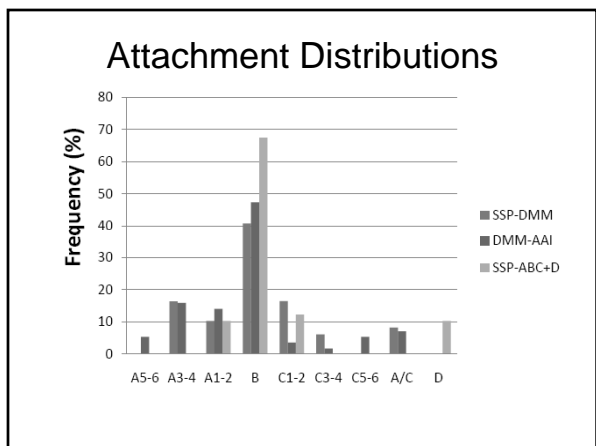


Secure(B): n=23 (47%) Insecure(non-B): n= 26 (53%)

* No statistically significant differences between B and non-B mothers *







Hypothesis 1: "Matching Hypothesis"

- Within *secure* attachment, there will be *matching* of attachment classifications
 - Type B mothers → Type B infants
- On 2-way comparison (DMM Secure-Insecure) mother infant classifications matched 73.4% of the time
- $\chi^2 = 10.684$, $df = 1$, $\kappa = 0.463$, $p = 0.001$

**Prenatal AAI and 14mo DMM-SSP
(% SSP predicted by AAI 4-way)**

DMM-AAI	DMM- SSP Classification			
	Type B	Type A	Type C	Type A/C
Type B	65.2%	26.1%	8.7%	0.0%
Type A	29.4%	17.6%	41.2%	11.8%
Type C	0.0%	80.0%	0.0%	20.0%
Type A/C	0.0%	0.0%	50.0%	50.0%

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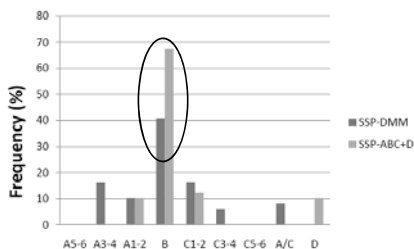
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Type A	29.4%	17.6%	41.2%	11.8%
Type C	0.0%	80.0%	0.0%	20.0%
Type A/C	0.0%	0.0%	50.0%	50.0%

Hypothesis 2: "Meshing Hypothesis"

- Within *insecure* attachment, there will be *meshing* of attachment classifications
 - Type A mothers → Type C infants
 - Type C mothers → Type A infants
- N=14 Anxiously attached mothers (A or C) had anxiously attached infants (A or C)
 - 7/10 Type A mothers had a Type C infant
 - 4/4 Type C mothers had a Type A infant
- $\chi^2 = 5.600, df= 1, p=0.018$; Fischer : $p=0.035$
- Full model : $\Delta p= 0.38, p= 0.001$

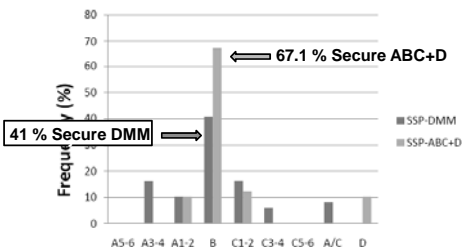
Hypothesis 3: DMM and ABC+D

- DMM-SSP classifications will be related, but not identical to ABC+D SSP classifications



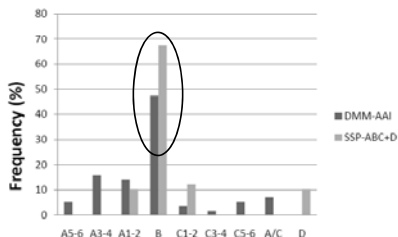
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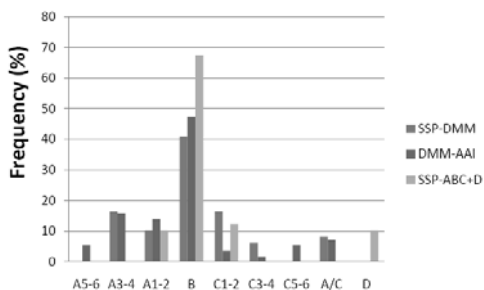


Hypothesis 4: AAI and ABC+D

- DMM-AAI classifications will be associated with ABC+D SSP classifications but less strongly than between the two DMM models



Hypothesis 4: AAI and ABC+D



SUMMARY OF FINDINGS

- DMM Classifications had lower rates of security (41% DMM-SSP and 48% DMM-AAI) than ABC+D AAP (67%)
- (+) Evidence of intergenerational continuity for "transmission" of secure attachment
- Opposite intergenerational "transmission" patterns noted for anxious attachment:
 - $A_M \rightarrow C_i$
 - $C_M \rightarrow A_i$
 - This suggests a mechanism of ADAPTATION for developing infant attachment security
- Differences between DMM and ABC+D systems are due to differences in anxious attachment classification

Limitations

- Small sample size prevented testing fully for AC and A/C patterns
- Replication in larger sample is merited, including samples at risk
- AAI was only coded with DMM method, thereby preventing us from comparing fully DMM and ABC+D methods.

IMPLICATIONS

- Evidence of complimentary anxious strategies between mother and infant can guide intervention
- Maternal behavior is derived from maternal representations of the infant.
 - A focus on the mother’s D.R. is important in guiding treatment strategies
 - Psychoeducational strategies (for limited repertoire of skills)
 - Mentalization (if mother misreads infant’s cues)
 - Individual psychotherapy

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Thank you!



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