

Mothers' Representations of Their Infants are Concordant with Infant Attachment Classifications

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Abstract. The Working Model of the Child Interview is a structured interview designed to elicit a narrative description of a parent's internal representation of a young child. In this preliminary investigation, ratings of various features of mothers' narrative descriptions of their 12 month old infants were systematically related to the infants' attachment classifications ($F=2.32$, $p<0.1$). Specifically, ratings of the mothers' richness of perceptions of their infants, openness to change in light of new information about the infants, coherence of the narrative, and the sensitivity of the descriptions of the infants were all significantly greater for the mothers of secure rather than insecure infants. Classifications of mothers' narrative descriptions of their infants into *disengaged*, *balanced*, and *distorted* patterns also were systematically related to the infants' attachment classifications of *avoidant*, *secure* and *resistant*, respectively ($\kappa=.50$).

Acknowledgements: The coding system for the Working Model of the Child Interview was developed in collaboration with several teams of investigators, including Massimo Ammaniti and colleagues at the University of Rome, Graziella Fava Vizziello and colleagues at the University of Padua, Anetta Slade and colleagues at the City University of New York, and Daniel Stern and colleagues at the University of Geneva. The authors also appreciate the assistance of Drs. Lewis Lipsitt and Lynn LaGasse with the research project.

Note: The WMCI and its scoring system may be obtained from the first author.

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Infants have multiple meanings for their parents. Ascertaining major themes in parents' descriptions of their subjective experience of who their infant is and why he/she behaves in particular ways, has long been a central focus of infant-parent psychotherapy. Recently, more specific theoretical models have begun to speculate about the components of parents' internal representations (Stern, 1991; Bretherton, 1985; 1987; Zeanah & Anders, 1987). At the same time, methodological advances have led to investigations explicitly focused on internal representations in adults (Main, Kaplan, & Cassidy, 1985) and on psychodynamically oriented psychotherapy focused on mothers' internal representations of their infants (Espasa & Manzano,

1987; Cramer & Stern, 1988; Stern-Bruschweiler & Stern, 1989).

Two lines of research led to this current interest in parents' representations of their infants and children. First, research throughout the 1980's on parents' perceptions of their infants demonstrated that parents are not objective reporters of their children's characteristics. A variety of parental characteristics have been demonstrated to be associated with how they perceive their children (see Zeanah & Anders, 1987, for a review). Even before the child is born, parents already attribute a variety of characteristics to their infants which are related to their attributions of their child after birth (Mebert & Kalinowsky, 1986; Mebert, 1989; Zeanah, Keener, Anders & Stewart, 1985; Zeanah, Keener & Anders, 1986; Zeanah, Zeanah & Stewart, 1990). Second, Main, Kaplan & Cassidy (1985) developed the Adult Attachment Interview, a structured one hour interview focusing on the subject's recall of childhood relationship experiences. Scoring narrative interview responses focused less on what a subject reported and more on formal and organizational features of the responses. From these features, Main and her colleagues (Main, in press) developed a typology of adult attachment classifications (states of mind with respect to attachment) that have been repeatedly demonstrated to predict infant attachment classifications (Main, Kaplan & Cassidy, 1985; Ainsworth & Eichberg 1991, Zeanah, Benoit, Barton, Hirshberg, Regan & Lipsitt, 1993). These results have been interpreted to mean that narrative interview responses reflect different features of internal representations of attachment relationships (Main, Kaplan & Cassidy, 1985).

Still, the Adult Attachment Interview relied upon narrative descriptions of one's

childhood rather than narrative descriptions of one's child. Bretherton, Biringen, Ridgeway, Maslin & Sherman (1989) developed a structured interview to examine the parental rather than the filial perspective on attachment relationships. Using the Parental Attachment Interview, they found significant correlations between ratings of the sensitivity/insight of mothers' narrative descriptions of their infants and infant attachment classifications in the Strange Situation at 18 months, with Attachment Q-sort (Waters & Deane, 1985) ratings at 25 months and 37 months, and with Attachment Story Completions by the child at 37 months. Sensitivity-insight of mothers' descriptions were not related, however, to secure reunion behavior in another separation-reunion procedure at 37 months.

Other groups also have developed similar interviews. Aber and colleagues (1985), for example, developed the Parent Development Interview, but to date they have reported only qualitative results. Stern developed another interview for use in a study of the effects of psychotherapy on mothers' representation of their infants (Cramer, et al., 1990). To develop more direct and systematic measures of the origins, development, and clinical implications of parents' internal representations of their infants, we developed a structured interview for use with parents. The Working Model of the Child Interview (WMCi) is designed to elicit and to classify parents' perceptions of and thoughts and feelings about their infants. The content of the interview itself and especially the scoring system had two major influences from outside our group. The first was Main and colleagues work cited earlier. The second was input from an international group of investigators who first met together at the University of Rome in the

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fall of 1987 to discuss common interests
in parents' representations of their infants.
This and subsequent meetings of the group
led to a collaboration on scoring structured
interviews of parents' representations of
their infants. Many of the scales used to
rate the WMCI were developed in a preli-
minary form at those meetings.

Other groups of investigators who
attended meetings of the original group
have published results using scoring
systems with similarities to that of the
WMCI (see Ammaniti, Baumgartner,
Candelori, Perucchini, Pola, Tambelli, &
Zampino, 1992; and Fava-Vizziello,
Antonioli, Cocci & Invernizzi, 1993). In
addition to rating scales similar to those
used with previously described interviews,
we also included a classification of inter-
view narratives from the outset.

We conducted this preliminary investi-
gation comparing infant attachment classi-
fications using the Strange Situation pro-
cedure (Ainsworth et al, 1978) to
classifications of mothers' descriptions of
their infants and their relationships with
their infants using the WMCI. We addres-
sed two questions in this preliminary
investigation. First, we asked whether
selected features of mothers' narrative
descriptions of their infants and their rela-
tionships with their infants were related to
infant attachment classifications. Second,
we asked whether an a priori typology of
mothers' narrative descriptions were rela-
ted systematically to infant attachment
classifications. Specifically, narratives
which were detailed, open, well-modula-
ted and which conveyed sensitivity and
involvement were expected to be associa-
ted with secure infant attachments. Narratives which conveyed less emotional
involvement and less sensitivity were
expected to be associated with avoidant
infant attachments. Finally, narratives

which conveyed a less satisfying involve-
ment and which seemed less clearly focu-
sed on the infant and the careeiver's rela-
tionship with the infant were expected to be
associated with resistant infant attach-
ment.

Methods

Subjects:

The 45 mothers and infants we studied
were drawn from a non-clinical, middle-
class sample who were participating in a
longitudinal investigation of socioemotio-
nal development. The larger sample has
been described more fully elsewhere
(Zeanah, Benoit, Barton. Hirshberg,
Regan, & Lipsitt, 1993). To summarize,
mothers' mean age at the time of the study
was 29.9 years (range 20-40 years) and
their mean years of education was 14.3
years (range 11-20+ years). Infants were
12 months old and were 57% boys and
43% girls. They were 43% first-born, 31 c',
second-born and 26% third-born children
in the current sample.

Procedures:

Mothers were interviewed with the
WMCI in their homes (or occasionally in
the lab if they preferred) two to three
weeks prior to their infant's first birthday.
Interviews were audiotaped and later
transcribed.

One to two weeks after the interviews
were completed, Strange Situation
Procedures, as described by Ainsworth et
al. (1978). were performed with mothers
and infants. The procedure was videotaped
and later coded by two raters who were
unaware of mothers' interview responses
or classifications.

Measures

Working Model of the Child Interview:

The WMCI asks parents to describe their impressions of their infants' personalities and behavior in general and specific situations. They are asked whom their infants remind them of and how the infant is like and unlike each of the parents. Parents are asked to describe their infants when upset or difficult, including their own reactions and responses to the infant's behavior. They are asked to describe their relationships with the infants, what pleases and displeases them about the relationship, and how they expect the relationship to change over time. In addition to past and current impressions about the infant, parents are also asked about anticipations about the infant's future development. Specific examples are requested to augment and elaborate general impressions.

Interviews were audio-recorded and later transcribed. The transcripts were rated using the following anchored 5-point scales: *Richness of Perceptions*, *Openness to Change*, *Intensity of Involvement*, *Coherence*, *Caregiving Sensitivity*, and *Acceptance*.

Richness of Perceptions is used to measure the poverty or richness of the caregiver's perceptions of the infant and the relationship with the infant. Rather than merely a count of the number of words used, it is also how much the words are used to elaborate a sense of "who" the infant is. Higher scores are given to narratives that richly but succinctly describe details about the infant than to narratives that are much longer but do not convey much about the infant's personality, feelings, and behavior. Openness to Change is used to measure the flexibility with which new information about the infant is

accommodated. Given the ambiguity of infant behavior and the rapid changes accompanying development in the first three years of life, openness to change in parents' representations of their infants reflects in part the process of discovery of the new infant that characterizes early parenthood.

Intensity of Involvement is used to assess the amount of caregiver psychological preoccupation with the infant and/or the caregiver's psychological immersion in the relationship with the infant. Obviously, many factors may influence intensity of involvement (e.g., presence of siblings or health status of the infant), but these factors are not taken into consideration when rating caregiver intensity of involvement. As with the other scales, the variable in question is not a direct measure of caregiver behavior with the infant, but instead an attempt to determine the intensity of psychological involvement.

Coherence was derived from and is essentially analogous to the Coherency of Record Scale used in scoring the Adult Attachment Interview (Main and Goldwyn, 1984). It attempts to measure the overall coherence of thoughts and feelings in the caregiver's descriptions of the infant. Essentially, this refers to a well organized and understandable flow of ideas and feelings about the infant and the caregiver's relationship with the infant.

Infant Difficulty is used to rate the caregiver's perception of the infant as difficult to care for and to relate to. This includes direct statements by the caregiver about the infant as well as indirect indications that the infant is especially difficult. The attempt is not to ascertain how difficult the infant's behavior is in an absolute sense, but rather to measure how difficult the caregiver perceives the infant to be for one of any number of reasons.

the ambiguity of the rapid changes in the infant's behavior in the first year of life. The infant's behavior is characterized by the caregiver's descriptions of his/her recognition of and responses to the infant's own needs and affective experiences. The caregiver's recognition of and respect for the infant as a separate but dependent individual are included in ratings with this scale.

Acceptance is used to assess the degree of acceptance of the child by the caregiver as revealed by descriptions of the infant and of the relationship. Infants present caregivers with an enormous array of challenges and responsibilities. For caregivers, this means subordinating one's own needs to those of the infant and to some degree surrendering one's own autonomy in order to promote psychological development in the infant. This scale is used to determine the caregiver's acceptance of the infant and all the challenges and responsibilities that caring for him/her entails. In addition to these scales, the overall narrative was also classified into one of the following types: *balanced*, *disengaged*, *distorted*, based on characteristics of each of these types.

Narratives classified as balanced are characterized by interviews that convey in a straightforward manner, a reasonably full and rich impression of who the baby and what the caregiver's relationship with the baby is like. The impression is not rigid nor resistant to new information. Prominent is a sense of the caregiver as engrossed in his/her relationship with the infant. The caregiver values the relationship with the infant and considers it to have effects on the infant's behavior and development.

Interviews classified as disengaged are identified by the caregiver's prominent

disengagement from the relationship with the infant. This may take the form of emotional aloofness or a more pervasive distancing from or even aversion to the infant. This is particularly evident in lack of caregiver engrossment with the infant and the relationship with the infant. Details about the infant are not particularly rich, and there may seem to be little flexibility to accommodate changes in the representation over time. Descriptions of the infant may be characterized by partial or unelaborated descriptions (eg. "a regular baby").

Distorted narratives convey a sense of the caregiver as more involved, but one of several types of distortion characterize the representation of the infant. The narrative is distorted by being internally inconsistent rather than in comparison to some putative objective reality. For example, the caregiver may seem preoccupied or distracted by other concerns, confused and anxiously overwhelmed by the infant, or self-involved and insensitive to the infant as an individual. Descriptions of the infant may be confused or contradictory. The caregiver may have difficulty remaining focused on the infant and the relationship with the infant during the interview. As a group, these narratives convey the sense of an unsuccessful struggle to feel close to the infant.

Transcripts of the interviews were scored using the rating scales and classifications described below. A criterion rater coded transcripts of all 45 interviews. A second rater coded 15 of the transcripts. Interrater agreement was defined as ratings within one point of each other on each anchored 9-point Likert scale. Reliability ranged from 75% (openness to change, intensity of involvement, and infant difficulty) to 100% (coherence), with a mean of 85% agreement for the

scale ratings. Exact agreement about the overall classification was 83%. Differences were settled by conferencing to arrive at a final classification.

A criterion rater coded all the Strange Situation videotapes. A second rater coded 18 of the tapes, with an interrater agreement of 83% for major classifications. Differences were resolved by conferencing. *Strange Situation Procedure* (Ainsworth, Blehar, Waters & Wall, 1978)

This is the most widely used procedure for determining infant attachment classifications. It consists of a series of separations from and reunions with the infant's caregiver. Scoring attends to the infant's behavior, particularly during reunion episodes when the attachment system is expected to be activated to ascertain the infant's responses to the caregiver. On the basis of the organization of the infant's behavior towards the caregiver the infant's quality of attachment to that caregiver is designated secure, avoidant or resistant. The stability (Main & Weston, 1981; Waters 1978) and validity (Bretherton, 1985; Sroufe, 1988) of the procedure are well-established.

Interrater agreement for 16 infant

attachment classifications was 85%. Differences were resolved by conferencing which led to a single consensus classification for each infant.

Results

Infants' attachment classifications for this sample were 51 % Secure. 33% avoidant. and 16% resistant. This is somewhat fewer secure classifications and somewhat more avoidant classifications than has been noted in most other middle class samples, although Main & Weston (1981) found 56% secure and 27% avoidant classifications in their middle-class sample.

Mothers' representations of their infants were classified 52% balanced, 24% disengaged, and 24% distorted.

Intercorrelations of the WMCI rating scales are presented in TABLE 1. Overall, the scales were moderately to highly intercorrelated, indicating some redundancy in what the scales measure. The lone exception to this pattern was Infant Difficulty which was largely unrelated to other aspects of mothers' representations of their infants.

TABLE I
Intercorrelations of Ratings of Mothers'
Descriptions of Their Infants

	Openness	Intensity	Coherence	Difficult	Sensitive	Acceptanc
Richness of Perceptions .	.78***	.67***	.78***	-.15	.83***	.61***
Openness to Change		.52***	.88***	-.06	.89***	.61***
Intensity of Involvement			.62***	.32*	.64***	.47**
Coherence				.07	.92***	.61***
Infant Difficulty					.07	-.29*
Caregiving Sensitivity						.67***

*p<.05

**p< .01

***p< .001

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Using Hotellings t-test, a MANOVA of the rating scales by infant attachment classifications was significant. F=2.32, p<.01. The univariate contrasts are shown in TABLE 2. Four scales distinguished mothers of secure versus insecure infants, although no scale was significantly different for all three classifications.

Concordance between mothers attachment classifications, as defined by balanced-secure, disengaged-avoidant, and distorted-resistant, is presented in TABLE 3. The relationships between mothers' narratives as balanced and the infant's being classified secure and between mothers' narratives as distorted and the infant's being classified resistant were particularly strong. On the other hand, only 8 of 15 infants classified avoidant had mothers whose interviews were classified disengaged. In fact, 33% of infants classified avoidant had mothers whose interviews were classified balanced, although over two-thirds of the mothers classified disengaged had infants who were classified avoidant.

Discussion

These results indicate that there are strong concurrent relationships between

TABLE 3
Concordance Between Mothers' Representations of Their
Infants and Infants' Attachment Classifications

	Disengaged	Balanced	Distorted
Avoidant	08	05	02
Secure	03	17	03
Resistant	00	01	06

agreement=69%. kappa=0.50

mothers' narrative descriptions of their infants and the infants' patterns of attachment to them. It is worth emphasizing that the results reported here are the first demonstration that a typology of parents' representations of their infants are systematically related to infant attachment classifications. Our demonstration that selected rating scales tapping various features of the mothers' narrative descriptions of their infants also are associated with infants' security attachment. on the other hand, are similar to the results reported by Bretherton et al. (1989) using their sensitivity/insight scale. These findings with the WMCI are especially noteworthy given the paucity of maternal characteristics that have been related to infant attachment

TABLE 2
Ratings of Mothers' Descriptions of Their
Infants Predicting Infant Attachment Classification

CLASSIFICATIONS							
isitive	Acceptanc	Avoidant	Secure	Resistant	F	P	Contrast
*x	.61***						
	.61***	Richness of Perceptions	307(80)	359(81)	258(92)	3.75	.034 II>III
	.47**	Openness to Change	273(78)	350(90)	225(82)	6.13	.005 II>I,III
	.61***	Intensity of Involvement	317(72)	382(95)	333008)	2.28	.117
	-.29*	Coherence	287(79)	362(58)	200(78)	7.11	.003 II>I,III
	.67***	Infant Difficulty	193(92)	227(99)	250038)	0.78	.467
		Caregiving Sensitivity	270(75)	356(98)	225(69)	6.82	.003 II>I,III
		Acceptance	293(78)	353 (112)	275 (117)	0.42	.148

classifications in previous research (Spieker & Booth, 1988).

The lone exception to this trend has been the strong and consistently replicated association between Adult attachment Interview Classifications and infant attachment classifications (Main, Kaplan & Cassidy, 1985; Ainsworth & Eichberg, 1990; Fonagy, Steele & Steele, 1991; Benoit & Vidovic, 1992; Ward et al., 1992; Zeanah et al., 1993). In fact, the magnitude of the association between a parent's state of mind with respect to attachment, as measured by the Adult Attachment Interview, and the infant's pattern of attachment, as measured in the Strange Situation Procedure, is similar to the magnitude of the relationship reported here for mother's representation of her child and her child's attachment classification with her (see Ainsworth & Eichberg, 1990; Main, Kaplan & Cassidy, 1985, and Zeanah et al., 1993). This raises the question for future research about whether the two methods are measuring the same or different but related constructs.

Building on the theoretical elaborations of Bowlby (1969; 1973; 1980), of Stern (1989), and of Bretherton (1985; 1987), Zeanah & Barton (1989) suggested that Adult Attachment Interview classifications ought to reflect more a more general level of internal representation, relating to a number of the individual's intimate, caregiving relationships. Parents' representations of a particular infant, on the other hand, ought to be more specific to a relationship with the particular child being described. Clearly, this is another important area for future research. A measure which captures individual differences in different parent-child relationships within the same family would be a valuable addition to the field.

Although the magnitude of the associa-

tion between mothers' representations of their infants and the infants' attachment classifications was impressive in the sample, it is important to bear in mind that almost a third of the dyads were discordant. Further research with larger and more varied samples is necessary to determine whether the pattern of discordance apparent in this investigation is a characteristic of the scoring system or merely a variation in the sample studied here. Discordance, of course, invites further exploration of factors related to differences in the representations of mothers and infants.

We assert that the WMCI assesses salient individual differences in parents' representations of their infants. No claims about direction of effects can be made from a cross-sectional design, but this would appear to be an important area for future research. Is it that securely attached infants possess characteristics that elicit balanced descriptions from their mothers? Or, alternatively, is it that mothers who perceive and experience their child in a balanced manner also relate to them in ways that promote a secure attachment in the child towards them? One strategy for examining this question would be to examine parents' prenatal fantasies using the WMCI and to see if it predicts infant attachment classifications a year later in the Strange Situation Procedure. Already, this has been demonstrated convincingly using the Adult Attachment Interview prenatally in three different samples (Benoit & Vidovic, 1992; Fonagy, Steele & Steele, 1991; Ward et al., 1992).

Other directions for research are also apparent. It will be important to obtain interviews with fathers to see if comparable relationships exist between fathers' representations of their infants and infants' patterns of attachments to them.

representations of infants' attachment are less representative in the sample than the sample bear in mind that the 1994 study was discordant with larger and more necessary to determine of discordance. Attachment is a characteristic system or merely a sample studied here. The study, however, invites further research related to differences of mothers and

VMCI assesses salient differences in parents' representations of their infants. No claims or effects can be made about the experimental design, but this is an important area for future research that securely attached characteristics that elicit from their mothers? That is, mothers who need their child in a way that relate to them in secure attachment in the future? One strategy for future research would be to examine infant fantasies using the VMCI. It predicts infant representations a year later in the VMCI Procedure. Already, the VMCI is rated convincingly in the Attachment Interview present samples (Benoit & Steele, 1992; Steele & Steele, 1997) or research are also important to obtain data to see if comparisons between fathers' and mothers' representations of their infants and attachments to them.

The relationship between parents' representations of their infants and their interaction with their infants is another area that ought to be explored. Finally, because of the importance of parents' representations of their infants to clinical work with disordered dyads, examination of parents' representations of their infants in clinical samples is important. Ultimately, the hope is that examination of parents' representational processes may enrich our understanding of infant-parent relationships and lead to more specific and more successful treatments.

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