FAILURE-TO-THRIVE IS ASSOCIATED WITH
DISORGANIZED INFANT–MOTHER ATTACHMENT
AND UNRESOLVED MATERNAL ATTACHMENT

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ABSTRACT: This study provides further evidence for the co-occurrence of atypical patterns of attachment and failure-to-thrive (FTT). Eighty-three children with FTT and 130 normally growing comparison children were seen in Ainsworth’s Strange Situation at ages 11 to 32 months. These subjects were highly diverse with respect to social, economic, and ethnic characteristics. Children with FTT were significantly less likely to show secure and more likely to show anxious, disorganized attachments than normally growing comparisons: only 34% of FTTs were secure, while 46% showed disorganized attachments. In contrast, 66% of comparisons were secure and 16% were disorganized. In addition, a subsample of 59 mothers (23 FTT and 36 comparison) were interviewed with the Adult Attachment Interview (AAI). Mothers of FTTs were more than twice as likely as comparisons (65% versus 22%) to use discourse indicating unresolved loss or trauma. Similarly, mothers of FTTs were less likely to show autonomous (secure) discourse than mothers of well-nourished children (13% versus 58%). There were no differences in infant or adult attachment classifications between organic and nonorganic FTT groups, further discrediting this as a psychologically meaningful distinction. These results support the notion that disturbed patterns of attachment are common in FTT, regardless of the etiology of growth failure. The findings suggest that evaluations and treatments of FTT should address psychological, as well as medical problems in these families.

RESUMEN: Este estudio presenta evidencias adicionales sobre la co-presencia de patrones atípicos de unión afectiva y las fallas en el crecimiento (FTT). 83 niños con FTT y 130 niños que en comparación presentaban casos de crecimiento normal fueron examinados entre los 11 y 32 meses de nacidos en base a la Situación Extraña de Ainsworth. Los niños objetos del estudio presentaban características sociales, económicas y étnicas muy diversas. Los niños con FTT estuvieron significativamente menos propensos...
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showed secure and more likely to show anxiety and a disorganized union affecting. The group of comparison: only 34% of the children with FTT were secure, whereas 46% demonstrated a disorganized union affecting. In contrast, 66% of the children of the group of comparison were secure and 16% were disorganized. In contrast, the mothers of children with FTT did not demonstrate less security that the mothers of children of the group of comparison (65% versus 22%). Similarly, the mothers of children with FTT exhibited less secure and more likely to show a conversation autonomous that the mothers of children well-fed (13% versus 58%). No differences were observed in the classification of union affecting, infantile or adult, between the groups of FTT organically and non-organically, which discredits even more this notion as a distinction sociologically important. These results support the notion that the dangers of the attachment are frequent in cases of FTT, independent of the etiology of the failure in growth. The findings suggest that the evaluations and treatments of the cases of FTT should consider both the psychological problems and the medical problems in these families.

RéSUMÉ: Cette étude apporte des arguments supplémentaires à l'idée de la co-occurrence du retard de croissance (FTT) et des modes atypiques d'attachement. 83 enfants avec FTT et 130 enfants à croissance normale ont subi une Situation Étrangère de Ainsworth à 11 et 32 mois. Ces sujets étaient très divers en termes de caractéristiques sociales, économiques et ethniques. Les enfants avec FTT montraient bien plus fréquemment des états d'attachement anxieux et désorganisés que ceux à croissance normale: 34% seulement des FTT étaient sûres, alors que 46% montraient un attachement désorganisé. Par comparaison, 66% des enfants du groupe témoin étaient sûres, et 16% étaient désorganisés. De plus, un sous-ensemble de 59 mères (23 FTT et 36 témoins) ont été interviewées avec l'Adult Attachment Interview. Les mères des enfants FTT étaient deux fois plus enclines à utiliser un discours indiquant un deuil non résolu ou un traumatisme. De même, les mères des FTT avaient moins tendance à produire un discours autonome (sûre) que les mères d'enfants à croissance normale (13% versus 58%). Il n'y avait pas de différences dans les classifications de l'attachement des enfants ou des mères entre les FTT organiques et non organiques, ce qui contribue à montrer qu'il ne s'agit pas d'une différence pertinente sur le plan psychologique. Ces résultats soutiennent la notion que les troubles de l'attachement sont fréquents dans les FTT, quelle que soit l'étiologie du retard de croissance. Ces résultats suggèrent que l'évaluation et le traitement des FTT doivent s'adresser aux difficultés psychologiques de ces familles.

Failure-to-thrive (FTT) is a diagnosis used to describe impaired physical growth, especially deficient weight gain, in young children. Researchers used a variety of criteria to diagnose FTT until the mid-1980s, when a panel of clinical researchers advised diagnosis on the basis of anthropometric criteria alone (Drotar et al., 1985). In this report, we apply the term “FTT” to children with weights below the fifth percentile on standardized norms for age and gender. The term also is used for children who show significant failure to gain weight at age-appropriate rates (falling back two or more standard deviations in six months or less). This degree of weight deficit, labeled “FTT” in the United States and other developed nations, is the same degree of deficit endemic in developing countries and simply called “malnutrition.” Thus, FTT reasonably can be called “malnutrition in the first world” (Ward, Brazelton, & Wust, 1999).

It is common to find scientists and clinicians who operate with the belief that malnutrition, accompanied by another disease (“organic FTT”), is distinctive from malnutrition without other disease (“nonorganic FTT”). By the 1980s, writers rejected that distinction as invalid (e.g., Woolston, 1985). However, it still is not uncommon for researchers to report exclusion of children with any illness known to co-occur with FTT from their studies. For example, cleft palate and gastroesophageal reflux are used frequently as exclusion criteria, although neither of these conditions leads necessarily to FTT. Drotar and Robinson (1999) have advocated for the direct investigation of “organic” factors in studies of FTT, using the Woolston (1985) system to quantify the role of such factors in malnutrition.

For most children, the diagnosis of FTT is a static descriptor of multiple and changing processes involving medical and nutritional (i.e., biological) as well as psychological and social (i.e., environmental) influences (Drotar et al., 1985). In the literature, there is evidence of a link between malnutrition and stressors in the family environment and in parent–child relationships (cf., Ward et al., 1993), although some researchers have urged careful review of this evidence (e.g., Wolke, 1996). Drotar and colleagues (1985) have suggested that distressed relationships are the central factor in the genesis of FTT, as relationships fail to buffer these families from the stressful experiences they report.
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Among developmental scientists, quality of attachment in infancy is of significance, as secure attachment is associated with later social and emotional competence (see Bretherton & Waters, 1985). Although this association is influenced by intervening experiences, early security seems to provide children with resilience to face challenges later (Lewis, Feiring, McGuffog, & Jaskir, 1984). Gunnar (1996) posits that secure attachment serves as a coping resource for young children in their adaptation to a variety of stressors in the environment.

The construct of infant–mother attachment, as described by Bowlby (1969) and operationalized by Ainsworth (Ainsworth, Blehar, Waters, & Wall, 1978) provides a useful framework for examining parent–child relationships in FTT dyads. In a laboratory observation (the Strange Situation procedure — SSP) developed by Ainsworth and her colleagues (1978), patterns of infant behavior in response to social events, including separations and reunions, are coded. A four-group classification is used to describe individual differences in the organization of infant attachment behavior (Ainsworth et al., 1978; Main, Kaplan, & Cassidy, 1985).

Secure (Group B) attachment is the most common pattern observed among human infants (comprising 50% to 70% of most samples). Temperamental differences in proneness to distress or interest in novelty are irrelevant in classifying a child as secure. Secure children differ from all anxious groups in showing a species-typical, adaptive balance between attachment (or behaviors to maintain proximity to the mother) and exploration of the environment in the face of separations and reunions.

Infants with anxious attachments show one of three patterns:

Anxious-avoidant (Group A) attachment is seen in 10% to 25% of most samples. This pattern is characterized by adequate exploration and active avoidance of proximity to the mother, especially when the child is distressed. On reunion, avoidant children actively avoid proximity to and interaction with the mother: they turn away, crawl away, look away, or ignore her altogether — or they may begin to approach, only to abort the approach before getting close to the mother.

Anxious-resistant (Group C) attachment is seen in 3% to 20% of most samples. This pattern is characterized by incompetence in exploration, wariness about novelty, and anger in reaction to distress. These children are strongly ambivalent on reunion with mothers, mixing anger with apparent desire for contact, so that the child both rejects contact and seeks to be close to the mother. Contact with the mother typically is ineffective in reducing their distress.

Anxious-disorganized or disoriented (Group D) infants show anomalous, contradictory, confused, or fearful reactions to the caregiver when distressed by separation. They are characterized by a lack of strategy in coping with normal stresses, due to an unsolvable fear experienced in the presence of the caregiver (Main & Solomon, 1990). In contrast, avoidant and resistant infants show behavior patterns that, while nonoptimal, are clearly strategic.

Main and her colleagues originally described the D pattern as a solution to inadequacies in the A/B/C system for describing the behavior of children from atypical populations. In fact, when applied to atypical populations, the A/B/C criteria overestimate the frequency of secure attachments and underestimate the frequency of anxious attachments (Main & Solomon, 1990), because the traditional criteria do not encompass atypical behaviors such as fear reactions, stereotypies, and anomalous behaviors. Researchers have suggested that the disorganized pattern may be the characteristic pattern of infant–mother attachment in atypical populations, such as the offspring of adults with manic–depressive illness (Radke-Yarrow, Cumming, Kuczynski, & Chapman, 1985). However, the converse does not necessarily hold: disorganized infant attachment is observed among the offspring of normally functioning adults of all social groups (cf., error of interpretation in Chatoor, Ganiban, Colin, Plummer, & Harmon, 1998). Observation of this pattern of infant attachment does not imply parental maltreatment or...
psychopathology, as correlation does not imply causation. Disorganized infant attachment is associated on a highly consistent basis with mothers’ unresolved loss or trauma (van IJzendoorn, 1995; see also below).

It is important to emphasize that avoidant, resistant, and disorganized children all have in common a lack of the balance between attachment and exploration typically seen in secure children.

Goldberg (1988) has found that serious illness per se is not associated with increased risk for anxious attachment, as the propensity of infants to form secure attachments and the propensity of parents to provide conditions for typical relationships are not easily disrupted. In contrast, Goldberg noted that when stressors directly affect mothers’ abilities to provide care, increased risk for anxious attachment is observed consistently. In our work, we have documented the resilience of secure attachment in the face of poverty and difficult early experience (Ward & Carlson, 1995), in contrast with the vulnerability of security in the face of malnutrition and social stress (Ward et al., 1993).

Correspondingly, illness per se does not lead necessarily to FTT: among children with many chronic illnesses, only some will show malnutrition. However, rates of growth and levels of energy intake appear to be associated with quality of infant–mother attachment. Goldberg (1988) found that anxious infants with cystic fibrosis showed much poorer nutritional status than secure infants with the same disease. On longitudinal followup, she and her colleagues (Simmons, Goldberg, Washington, Fischer-Fay, & Machlasy, 1995) found that children with cystic fibrosis and a history of anxious, avoidant attachment showed declining weight for height from one to three years, indicating compromised nutritional status. In comparison, secure and anxious, disorganized infants showed more age-appropriate rates of growth. Infants in all groups had shown equivalent severity of illness at intake.

We have demonstrated that FTT is associated with unusually high rates (46%) of anxious, disorganized attachment, compared to observations of normative groups (see Ward et al., 1993). In this sample of FTT children selected with anthropometric criteria alone, when organic influences were quantified objectively (using the Woolston, 1985, criteria), organic and nonorganic FTT groups did not differ in levels of stressful life events and atypical attachments, although both FTT groups differed from a sample of normally growing comparison children on those factors (Ward, Kessler, & Altman, 1993).

Valenzuela (1990) also observed an extreme elevation (93%) in the rate of anxious attachment among very poor and malnourished children (n = 42) in Chile. In contrast, in a group of equally poor, but adequately nourished children (n = 43), anxious attachments were much less common (50%). Chatoor and colleagues (1998) found elevated rates of anxious, but not disorganized attachment among their “infantile anorectics,” which are a highly select subset of economically advantaged children with malnutrition and extreme food refusal.

There is clear and abundant evidence in the literature that attachment classification is not associated with measures of ethnicity, prematurity, culture, or maternal age (the reader is referred to meta-analyses of attachment data; e.g., van IJzendoorn & Kroonenberg, 1988; van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999).

**FTT and maternal attachment.** Measures of both infant–mother attachment and adult models of attachment are included in the studies reported here. Abundant evidence supports the premise that quality of maternal attachment predicts later quality of infant attachment (Fonagy, Steele, & Steele, 1991; Ward & Carlson, 1995).

The concept of security is central in Bowlby’s construct of the “internal working model,” which has been defined operationally by Main and colleagues (e.g., 1985) as “state of mind with respect to attachment,” expressed in discourse about early relationships in the Adult At-
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Attachment Interview (AAI). Adult states of mind are observed in the ways they describe and reflect on childhood experiences. Scoring of the AAI focuses on coherency of discourse, rather than on global depiction of early experience. Four patterns of adult discourse in the AAI correspond to the four patterns of infant attachment described above (Main & Goldwyn, 1984; van IJzendoorn, 1995).

**Autonomous** adults (Group F) express value of attachments in balance with a capacity for objective appraisal of past experience. These parents provide coherent discourse about qualities and effects of relationships, whether experiences were positive or negative (Main & Goldwyn, 1984).

Three groups of nonautonomous individuals differ from autonomous persons in displaying a lack of balance between attachment and objectivity in their discourse in the AAI.

**Dismissing** adults (Group Ds) are cut off from attachments, using idealization of attachment figures and lack of memory for childhood events to distance themselves from their early experiences.

**Preoccupied** adults (Group E) are passive and unobjective about memories of early experiences, often expressing strong and “unprocessed” anger over childhood events.

**Unresolved** adults (Group U) are fearful and/or irrational about early loss or trauma, such as assuming blame for abuse or for a death (Main & Goldwyn, 1984).

In two previous studies, maternal AAI classification was associated with infant FTT status. Benoit and colleagues (1989) first reported that mothers of children diagnosed with FTT were significantly more likely than mothers of normally growing children to be classified nonautonomous (insecure) on the AAI. Coolbear and Benoit (1999) reported recently that 4- to 36-month-old infants with FTT (n = 30) were significantly more likely than normally growing comparison children (n = 27) to show “clinical disturbances of attachment,” as indicated by nonautonomous AAIs, disturbances in feeding interactions, and unbalanced maternal views of the child. In combination with the data on infant attachment, these findings provide empirical support for the widely held clinical notion that disturbances of infant–caregiver relationships occur commonly with FTT.

In the studies described in this report, quality of infant–mother attachment was examined in American children with organic and nonorganic FTT. These studies may represent an advance in studying attachment in FTT for three reasons: (1) the criteria for D classification are used with a large sample (n = 213) that includes families with diverse social, economic, and ethnic backgrounds, (2) the FTT group includes children with what traditionally has been called organic FTT, and (3) measures of both infant–mother attachment behaviors and mothers’ internal working models of attachment are included in the same sample.

These studies represent a concurrent replication of the studies of Benoit, Ward, and their colleagues (Benoit, Zeanah, & Barton, 1989; Coolbear & Benoit, 1999; Ward et al., 1993). In this report, we focus on two questions: (1) What is the association between children’s growth status and (a) maternal AAI classification and (b) child attachment (SSP) classification? (2) What is the association between maternal AAI and child SSP classifications?

Existing evidence led us to predict that children with FTT would show high rates of the anxious, disorganized pattern of attachment described by Main and her colleagues (e.g., Main et al., 1985) and low rates of secure attachments compared to normally growing comparison children. Similarly, we expected that mothers of children with FTT would show elevated rates of unresolved and low rates of autonomous attachments. In line with previous findings, we predicted that children with FTT would not show elevated rates of avoidant and resistant attachments, and that their mothers would not show elevated rates of dismissing or preoccupied attachment. In addition, we predicted that maternal and infant attachment would show significant concordance.
Subjects

Subjects were 213 children and their mothers, who participated in a study of psychological, physiological, and social factors in FTT.

Children were excluded from this study if they (1) were seriously or terminally ill, (2) had documented neurological anomalies, (3) had a diagnosis of endocrine disorder or were on medication that affected adrenocortical function, (4) were born after fewer than 33 weeks gestation, and/or (5) had a history of intrauterine growth retardation.

Children with FTT had weights below the fifth percentile on National Center for Health Statistics (NCHS) charts and/or had failed to gain weight after six months of age so as to fall two or more standard deviations on NCHS charts within a period of six months. Subjects were referred to a protocol for the evaluation of FTT by professionals at The New York Hospital—Cornell Medical Center, private pediatricians, and community clinics, as well as by parents themselves who saw public service announcements. In addition, clinic records were reviewed regularly to assure more complete referral patterns.

Comparison subjects were selected randomly from among children who were outpatients in the Department of Pediatrics at The New York Hospital or were patients in collaborating pediatric practices. All comparison subjects were above the 10th percentile for weight and height on NCHS charts.

Procedures

For the study, mothers and their 9- to 30-month-old children made two to four visits to the lab. All families were asked to make the first two visits, as described below. At a third visit, medical data were gathered for the FTT group only. Finally, a group of randomly selected subjects were invited for a fourth session to administer the AAI. All staff who ran procedures were not informed about group status or child age.

First session. Upon arrival between 11:45 a.m. and 1:00 p.m., mother and child were videotaped in ten minutes of play and in a feeding session. Mothers then were interviewed about demographics, social support, and life events.

Second session. Approximately one month later, at the same time of day as the first visit, children were videotaped in the Ainsworth and Wittig (1969) Strange Situation (SSP) to assess attachment quality. Children who were nine months old at intake were seen with a two-month delay, so that all children were at least 11 months old when observed in the SSP. The dyad then was videotaped for 20 minutes while mother completed questionnaires. Mothers then were interviewed about psychiatric symptoms, using a standard protocol.

The SSP is a standardized laboratory procedure that is used to observe individual differences in quality of infant—mother attachment. Based primarily on infant behavior in reunion with the mother after brief separation, attachments are classified into one of four groups described above: (1) Secure or Group B; (2) Anxious, avoidant or Group A; (3) Anxious, resistant or Group C; or (4) Anxious, disorganized/disoriented, or Group D.

As the coding criteria for the Strange Situation are most applicable to children between 12 and 18 months of age, coders received extensive training focused on reliable coding of children older than 18 months of age. Using subjects from another sample, they achieved
agreement of at least 85% with the first author, who was trained by L. Alan Sroufe and Mary Main and is an expert coder of the SSP.

Ratings of the 215 SSPs from this study were completed by a team of five coders (hereafter Coders A, B, C, D, and E), over the course of approximately five years. Coders A and E served on the team for the entire five years. Coder E (the first author of this report) was the senior coder on the team. She served as one of the six experts who compiled the standards for the SSP reliability test available through L. Alan Sroufe at the University of Minnesota. All but one of the other four coders were trained directly by Sroufe and Elizabeth A. Carlson, in addition to the training they received from Coder E. Coder D also was trained in the Cassidy/ Marvin (C/M) system for attachment classifications, and was certified reliable in that system by Marvin. Coder E had extensive experience with the C/M system, but was not certified.

Coders A, B, and C had extensive training in the lab with the C/M system, focused on recognizing aspects of attachment behavior seen in preschoolers, but not infants. When behaviors covered by the C/M, but not the infant system were encountered, decisions about classification were deferred to Coder D or E, who made coding decisions using criteria from the C/M and infant systems jointly. Team members met approximately twice per month to review codes and to resolve differences. Discrepancies in classifications usually were resolved in favor of Coder E.

The majority of the SSP coding for this study was completed by Coder A: she coded 170 of the 215 available cases (79%). Of these 170 cases, Coder A completed 43 (25%) working alone, 105 (62%) coding jointly with Coder E, and 22 (13%) independently with Coder B or C for estimates of inter-rater reliability. Coders A and B rated 10 SSPs independently, achieving four-group (A/B/C/D) agreement of 90% (kappa = .86). Coders A and C rated 12 SSPs independently, achieving four-group (A/B/C/D) agreement of 83% (kappa = .69).

In addition, 17 SSPs (8% of the 215) were coded solely by Coder B, C, or E. Finally, 28 SSPs (13% of the 215) were coded by coders from the University of Washington. These coders were contracted to complete these SSPs when Coder A developed a disability toward the end of the study and was unable to continue coding. These coders passed the SSP reliability test and were on the coding team for the NIMH Child Care Study. Two coders completed the 28 SSPs, with overlap of 11 independently coded tapes (39%). Inter-rater agreement for four-group classifications was 64% (kappa = .49). Disagreements were resolved in conference.

Medical session. After a comprehensive medical and developmental evaluation, including a comprehensive battery of laboratory tests, a team of two pediatricians rated the contribution of organic factors to the etiology of FTT for each case, using the scale developed by Woolston (1985). For purposes of distinguishing between organic and nonorganic FTT, children with scores of 1 (no illness) or 2 (minor illnesses caused by malnutrition) on this scale were classified as nonorganic and those with scores of 3 or higher (illnesses that co-occur with, contribute to, or cause malnutrition directly) as organic. By these criteria, children were classified NFTT and OFTT for analyses. This information was not available to any persons who ran procedures, coded behavioral observations, or conducted interviews.

AAI session. Main’s Adult Attachment Interview (AAI) was administered to 60 mothers of both FTTs and comparisons in a separate session. These subjects were randomly selected from among those who completed both Sessions 1 and 2, with half of them having received an Axis I and/or Axis II diagnosis on the Structured Interview for DSM III-R and half not. In comparisons with the remainder of the sample, there were differences between these subjects and those who did not complete the AAI only on child age, with women who completed the AAI having younger children than those who did not.
The AAI consists of questions that probe the respondent’s (1) general descriptions of attachment relationships; (2) recollection of specific memories that support the general descriptions; (3) descriptions of experiences concerning upset, minor injuries and illnesses, separations, rejection, and harsh physical treatment; and (4) assessment of the effects of early experiences on current personality and parenting.

Interviews were audiotaped and transcribed verbatim, all identifying information (e.g., names of persons, cities, schools, hospitals) was removed, and identification numbers were scrambled to assure that coders were blind to all other information. Transcripts were coded using Main and Goldwyn’s (1984) manual.

Based on discourse about early experience with caregivers and their interpretations of the effects of those experiences, mothers were classified into one of four groups: (1) Autonomous or Group F, (2) Dismissing or Group Ds, (3) Preoccupied or Group E, or (4) Unresolved or Group U, as described above. One coder (Coder 1), who is certified as reliable by Mary Main, coded all transcripts. Two other coders (Coders 2 and 3) independently scored 13 and 11 of the 60 transcripts. Agreement on Ds/E/F/U classification for Coders 1 and 2 was 92% (kappa = .88); for Coders 1 and 3 was 82% (kappa = .68); and for Coders 2 and 3 was 78% (kappa = .61). Disagreements were resolved by majority opinion of the three coders.

Description of the Sample

Of 228 dyads initially enrolled in the study, 215 (94%) completed the first two sessions of data collection, including the Strange Situation. Comparisons between the 13 who did not complete the two sessions and the rest of the sample revealed no differences in any of the data gathered in Session 1. Two dyads (one FTT, one comparison) were eliminated from analyses after procedures were run, because the children were found to be ineligible by inclusion criteria (see earlier text). Two additional FTT subjects did not complete the medical evaluation.

Of the 213 eligible children, 83 (39%) were diagnosed with FTT and 130 were normally growing comparison subjects; 130 (61%) of the children were male and 83 were female. Children’s mean age was 17.4 months ($SD = 5.78$; range = 9 – 30). Children’s ethnicity was 31% Latino, 28% African American, 24% Caucasian, 5% Asian, and 12% other or mixed ethnic origin.
Mothers’ ethnicity was 31.5% Latina, 29% African American, 27% Caucasian, 5% Asian, and 7.5% other or mixed ethnic origin. Mothers’ mean age was 28.6 years (SD = 6.86; range = 16–49) and mothers’ mean education was 13.7 years (SD = 2.89; range = 3–20). Fifty percent of the mothers were married; 37% were single; 6% were separated, divorced, or widowed; and 7% were living with a partner, but not married. Average household income was $44,490 (range = $2,592–1,000,000). Mothers had an average of about two children (M = 1.78; SD = 1.13; range = 1–10). Thus, this is a diverse group of families, including a range of socio-economic and ethnic variation rarely seen in developmental research.

In Table 1, comparisons between the FTT and comparison groups on demographic variables are presented. The two groups differed significantly (p < .05) on child’s age at Session 1 and mother’s marital status. In the FTT group, children were older by 2.6 months, and more mothers were married or lived with a partner (70% versus 48%) than in the comparison group.

RESULTS

Distribution of AAI and SSP Classifications

Infant attachment classifications for subjects from both groups (n = 213) using the four-group (A/B/C/D) system described by Main and Solomon (1990) were 54% secure (B); 15% anxious, avoidant (A); 4% anxious, resistant (C); and 28% anxious, disorganized (D). The distribution for the three-group (A/B/C) classification was 65% secure, 22% avoidant, 5% resistant, and 8% cannot code (CC). Following customary practice, the CC cases were grouped with the D group for data analyses.

The four-group (Ds/E/F/U) distribution of AAI classifications for the 59 women in this sample was as follows: 41% were classified autonomous (F); 14% dismissing (Ds); 7% preoccupied (E); and 39% unresolved (U). The distribution for the three-group (Ds/E/F) classification was 51% autonomous, 20% dismissing, 22% preoccupied, and 7% cannot code. Following customary practice, CC cases were grouped with the U group for data analyses.

Maternal and Infant Attachment Concordance

There were 59 eligible families for whom both AAI transcripts and Strange Situations were available (see Table 2). In 39 of 59 (66%) families, the predicted correspondence between autonomous adult attachment and secure infant attachment and nonautonomous adult and anxious infant attachment was observed. This level of concordance is an improvement over the expected secure/anxious and autonomous/nonautonomous concordance of 51% based on marginal distributions [kappa = .307, t = 2.36, p < .05, \( \chi^2(1) = 5.58, p < .05 \)].

Exact Ds/E/F/U and A/B/C/D agreement was observed in 27 of 59 (46%) of these families (see Table 2). Based on the observed marginal distributions, the expected four-group concordance was 35% (kappa = .170, t = 1.92, p = .062, \( \chi^2(9) = 19.11, p < .05 \)). Thus, knowledge of a mother’s autonomous versus nonautonomous AAI classification provided improvement in the level of prediction of secure versus anxious infant attachment over base rates, although the level of concordance for the four-group classification was lower than has been found in previous studies (e.g., Fonagy, Steele, & Steele, 1991; Ward & Carlson, 1995).

It is useful to compare the observed and expected correspondence between specific AAI and infant attachment classifications. At the level of individual classifications, 0% of the mothers classified dismissing had avoidant infants, versus an expected match of 2%; 63% of mothers classified dismissing had avoidant infants, versus an expected match of 2%. 63% of auton-
TABLE 2. Associations between Mothers’ Attachment Interview Classifications and Infant-Mother Attachment Classifications

<table>
<thead>
<tr>
<th>Maternal AAI Classification</th>
<th>Dismissing [n = 8]</th>
<th>Autonomous [n = 24]</th>
<th>Preoccupied [n = 4]</th>
<th>Unresolved [n = 23]</th>
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<tbody>
<tr>
<td>Strange situation</td>
<td></td>
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<tr>
<td>Avoidant</td>
<td>0 (0.018)</td>
<td>5 (0.055)</td>
<td>0 (0.009)</td>
<td>3 (0.053)</td>
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<tr>
<td>Secure [n = 26]</td>
<td>15 (0.179)</td>
<td>1 (0.039)</td>
<td>7 (0.172)</td>
<td></td>
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<tr>
<td>Resistant [n = 3]</td>
<td>2 (0.07)</td>
<td>10 (0.21)</td>
<td>0 (0.03)</td>
<td>1 (0.020)</td>
</tr>
<tr>
<td>Disorganized [n = 22]</td>
<td>3 (0.053)</td>
<td>4 (0.132)</td>
<td>0 (0.001)</td>
<td>1 (0.020)</td>
</tr>
</tbody>
</table>

Four-Way Association From A/B/C/D to F/E/U

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<table>
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<tr>
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<tbody>
<tr>
<td>Expected match</td>
<td>46%</td>
</tr>
<tr>
<td>Observed match</td>
<td>35%</td>
</tr>
</tbody>
</table>

Chi-square: 19.11 (\text{df} = 9), p = 0.05
Kappa: 0.170, \text{t} = 1.91, p = 0.062

Note: Underscored entries are predicted cells. Expected frequencies are in parentheses.

Attachment and FTT Status

Attachment classification in children was strongly associated with FTT status \(\chi^2 (3) = 26.72, p < .001\). Children with FTT were notably less likely than comparisons to show secure attachment (34% versus 66%). In contrast, children with FTT were more than twice as likely as comparisons to show anxious, disorganized attachment (46% versus 16%).

Contrary to expectations of many clinicians and some researchers, in this sample there were no differences in distributions of attachment classifications between OFTTs and NFTTs. The 35 OFTTs (16 Group B, 3 Group A, 1 Group C, 15 Group D) were as likely as the 46 NFTTs (12 Group B, 10 Group A, 1 Group C, 23 Group D) to show anxious attachments (54% versus 74%, \(\chi^2 (3) = 4.62, \text{NS}\)). There was no Woolston rating available for two FTT children who did not complete the medical evaluation (Table 3).

Mothers’ AAI classifications also were related significantly to children’s nutritional status \(\chi^2 (3) = 14.47, p < .01\). Mothers of FTTs were more than twice as likely as comparisons (65% versus 22%) to use discourse indicating unresolved loss or trauma (the adult equivalent of disorganized, disoriented attachment in childhood). Mothers of malnourished children were less likely to show autonomous (secure) discourse than mothers of well-nourished children (13% versus 58%). These findings provide further evidence of the value of relationship constructs in distinguishing between malnourished and normally growing children, highlighting the promise of understanding the role of mothers’ own relationship histories in their children’s growth (Table 4).
TABLE 3. Infant Attachment Classifications for FTT and Comparison Groups

<table>
<thead>
<tr>
<th>Attachment Classification</th>
<th>FTT (n = 83)</th>
<th>Comparison (n = 130)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoidant (A)</td>
<td>14 (.169)</td>
<td>18 (.138)</td>
</tr>
<tr>
<td>Secure (B)</td>
<td>28 (.337)</td>
<td>86 (.662)</td>
</tr>
<tr>
<td>Resistant (C)</td>
<td>3 (.036)</td>
<td>5 (.038)</td>
</tr>
<tr>
<td>Disorganized (D)</td>
<td>38 (.458)</td>
<td>21 (.162)</td>
</tr>
</tbody>
</table>

$\chi^2 (3) = 26.32, p = .001$.

Note: Values in parentheses are column proportions.

TABLE 4. Adult Attachment Classifications for FTT and Comparison Groups

<table>
<thead>
<tr>
<th>Attachment Classification</th>
<th>FTT (n = 24)</th>
<th>Comparison (n = 35)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dismissing (Ds)</td>
<td>4 (.17)</td>
<td>4 (.11)</td>
</tr>
<tr>
<td>Autonomous (F)</td>
<td>3 (.13)</td>
<td>21 (.58)</td>
</tr>
<tr>
<td>Preoccupied (E)</td>
<td>1 (.04)</td>
<td>3 (.08)</td>
</tr>
<tr>
<td>Unresolved (U)</td>
<td>15 (.65)</td>
<td>8 (.22)</td>
</tr>
</tbody>
</table>

$\chi^2 (3) = 14.47, p = .01$.  

Note: Values in parentheses are column proportions.

DISCUSSION

These findings support the notion that disturbed parent–child relationships are common among clinically referred infants with FTT, regardless of the etiology of the disorder. In a similar way, Goldberg (1988) has pointed out that medical illness per se does not predict problematic mother–infant relationships.

In this study, we observed higher rates of anxious attachments than observed for FTTs by Drotar et al. (1985) (45%) or by Gordon and Jameson (1979) (50%). Use of the D classification in this study may explain the discrepancy in results, suggesting the importance of including D classifications in any study of children with FTT. Chattoo and her colleagues used the D classification, and observed an exceedingly low rate of that group (9%) among the highly select subpopulation of children with “infantile anorexia.” Coders in that study appear to have underrecognized the D pattern (coding as D only 2% of the combined index and comparison groups), perhaps in part because they attempted to use the infant and the preschool coding systems simultaneously, without reliability in the infant system.

Questions about the reasons for high rates of disorganized/disoriented and unresolved attachments within the FTT group in this sample are essential for intervention. Mothers’ own histories of unresolved trauma or loss may interfere with their abilities to provide the consist-
entity responsive care that leads to secure attachment. Such relationship vulnerability may then transact with postulated vulnerabilities in their infants to lead to FTT.

In a 1993 report (Ward et al., 1993), we described a study of attachment in a separate sample of FTT and contrast children, where the results indicated an elevated rate of disorganized attachment among FTTs. We acknowledged that the characteristics of FTT children certainly played a contributory role in the etiology of anxious attachments, but that it was likely anxious attachments in children with FTT arose from a complex transaction among characteristics of the child, characteristics of the mother, and characteristics of the social environment. The data from the current study further support the importance of transactional effects.

As it was not a prospective study, data from this study cannot address the etiologic role of anxious attachment in FTT. Instead, anxious attachments in children with FTT could reflect the disruptive impact of malnutrition on infant–parent interaction and attachment. The high frequency of both disorganized attachments in children with FTT and unresolved working models of attachment in their mothers do imply that assessment of relationship qualities should be a central aspect of the evaluation of malnutrition in American children.

It is important to note that the population of children with FTT clearly is not a monolithic one: in this sample, fully one-third of children with FTT showed secure attachments. At the same time, a large portion (46%) of them showed disorganized/disoriented patterns that may indicate risk for later psychopathology (van IJzendoorn et al., 1999) or current clinical disturbances of attachment (Coolbear & Benoit, 1999). Drotar and Robinson (1999) have similarly emphasized that there is considerable variation in severity and kind of psychological impairment within groups of children with FTT.

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Not all writers have supported the position that psychological as well as medical problems should be assessed in FTT. Wolke (1996) reported that fewer than 20% of a population-based cohort of British infants with weights below the third percentile were referred for evaluation by their first birthdays. In this cohort, Wolke failed to find differences between FTTs and children with normal weights on measures of mother–child interaction. These findings led Wolke to question the representativeness of all samples of children with FTT in published studies, and thus to question the validity of data suggesting that interactional difficulties co-occur with FTT. Although Wolke’s cautions merit attention—indeed, published studies often are woefully homogenous—the results from a study that yielded null findings and was reported in a nonpeer-reviewed publication should not be overinterpreted. These valid cautions certainly should not be used as justification for ignoring evidence (Benot et al., 1989; Coolbear & Benoit, 1999; Valenzuela, 1990; Ward et al., 1993) that relationship disturbances co-occur with FTT.

As professionals who work with the families of children with FTT, we report these findings with some hesitancy. This hesitancy arises from the concern that these data could be misinterpreted as blaming parents for their children’s feeding and growth problems. In our clinical experience, the parents of children with FTT commonly feel blamed for their children’s growth problems; we believe implications of such blame are misdirected. Disturbances in relationships occur as a result of complex interactions among multiple contributing factors. Providing useful intervention requires acknowledgment of such complexity in the search for opportunities for change.

Clearly, children with FTT make contributions to their relationships. As we have suggested (Ward et al., 1999), clinical experience (viz., Chatoo et al., 1998) indicates that many children with FTT begin life with vulnerabilities that challenge their families. Similarly, it is rare for a family to have more than one child with FTT, which undermines a hypothesis of parental blame. We believe that there is clear evidence that a large portion of children with FTT (67% with anxious attachment) have clinical disturbances of attachment (cf. Coolbear & Benoit,
and that many children with FTT may be at risk for later psychopathology, because of disorganized attachments (van IJzendoorn et al., 1999). We believe that such clinical disturbances, where they exist, merit evaluation and treatment along with nutritional deficits and feeding disorders.

REFERENCES

the Ainsworth strange situation. In M.T. Greenberg, D. Cicchetti, & E.M. Cummings (Eds.), Attachment in the preschool years (pp. 121–160). Chicago: University of Chicago Press.


