AN EVALUATION OF THE PSYCHOMETRIC PROPERTIES OF THE BEECH BROOK ATTACHMENT DISORDER CHECKLIST

by

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Submitted to the Graduate Faculty of the
College of Science and Engineering
Texas Christian University
in partial fulfillment of the requirements
for the degree of

Doctorate of Philosophy

August 2009

ACKNOWLEDGEMENTS

I am grateful for the opportunity to acknowledge those individuals who have provided me with much-needed encouragement and support. First, I would like to thank my advisor and mentor, Dr. David Cross, who always leads by example. He has been a constant source of guidance, insight, and knowledge. I would also like to thank Dr. Karyn Purvis, for her knowledge and encouragement.

I owe a special thanks to my parents, Chuck and Cindy Hiles, for always allowing me to put my education first and for encouraging me to keep asking questions. Finally, I thank my husband, John, and my son Elias, for their unending patience, love, and support on this and all of my endeavors.

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AN EVALUATION OF THE PSYCHOMETRIC PROPERTIES OF THE BEECH BROOK ATTACHMENT DISORDER CHECKLIST

According to Bowlby (1969/1982), attachment representations are relatively stable in a consistent caregiving environment but can adapt in response to substantial changes in caregiving. Fostered and adopted children experience such changes in caregiving when placed with a new family (Dozier, Lindhiem, & Ackerman, 2005). One would expect an adjustment in the internal working model and, therefore, the attachment behaviors of these children (Steele, Hodges, Kaniuk, Hillman, & Henderson, 2003). Although it seems logical that attachment behaviors would become more positive when the child enters a more consistent caregiving environment, researchers have found that negative attachment behaviors continue to persist long after placement with a consistent, supportive family (Gunner, 2001; Zeanah, 2000). Specifically, children who have expereinced pervious maltreatment are at risk for attachment problems and often exhibit psychopathology despite living with nurturing caregivers (Howe, 2006; Zeanah, 2000). As a result, measuring attachment behavior and problems associated with attachment disturbances is difficult in these populations (Chisholm, 1998; Zeanah, 2000; Zeanah, Smyke, & Dumitrescu, 2002).

Most of the methods currently being utilized to examine attachment disturbances were designed for clinical applications and require an intensive semi-structured interview by a clinician (Zeanah, 2000; Zeanah & Boris, 2000; Zeanah, Smyke, & Dumitrescu, 2002). Although these interviews provide a tremendous amount of information to the individual clinician, they may not be efficient for larger scale study of attachment disturbances. As a result, both clinical and developmental studies of attachment disorder in children are concerned with the lack of measure of attachment disturbances that can be used both in the

clinical and in research studies (O'Connor Bredenkamp, Rutter, & ERA, 1999; Zeanah & Boris, 2000).

Some measures of attachment security have been adapted to evaluate attachment problems, such as the Strange Situation in infants (Ainsworth Blehar, Waters, & Wall, 1978) and the Adult Attachment Interview in adults (Main, Kaplan, & Cassidy, 1985). To our knowledge only three measures have been to assess issues in attachment. These include the Randolph Attachment Disorder Questionnaire (RADQ; Randolph, 1997), The Reactive Attachment Disorder Scale (RAD) (Minnis, Rabe-Hesketh, & Wolkind, 2002), and the Beech Brook Attachment Disorder Checklist (BBADC; Hussey, Moss, Weinland, & Lester, 1997). In the following sections, the prevalence of attachment disturbances in adopted children, issues regarding the diagnostic criterion of attachment disorder within this population, and the methodology and validity of the potential measures of attachment disturbances will be discussed. The measures of interest are divided into two categories: (a) diagnostic measures for Reactive Attachment Disorder, including the RADQ and the RAD scale and (b) non-diagnostic measures that look at disturbed attachment behavior in general, the BBADC. Measures will be compared in terms of methodology and psychometric strengths and limitations.

Attachment Disturbances in Maternally Deprived Children

Previous research has observed attachment disturbances in children that have suffered from maternal deprivation (Zeanah, 2000). Developmental researchers typically evaluate attachment via classification type (secure, insecure/avoidant, insecure/ambivalent, and disorganized) as assessed in Ainsworth's Strange Situation (Ainsworth, et al., 1978).

Clinical studies typically approach attachment in the context of attachment disorders and the associated diagnostic criteria.

Children that have suffered from maternal deprivation are at risk for insecure and disorganized attachment. Previous research (Chisholm, 1998; Chisholm, Carter, Ames, & Morison, 1995) has found that post-institutionalized adopted children exhibited are more likely to be classified as insecure and express more abnormal attachment behavior, reflecting disturbances in the attachment relationship. Zeanah and colleagues (2005) found that of children residing in orphanages less than 20% were classified as secure when participating in the Strange Situation with their "preferred" caregiver. Whereas nearly 75% of the non-insitutionalized children were classified as secure (Zeanah, Smyke, Koga, Carlson, & the Bucharest Early Intervention Project Core Group, 2005). Further, less than a quarter of the institutionalized children had a standard attachment classification, where to nearly 80 percent of comparison group had an organized attachment style. An overwhelming, 12.6 percent of children residing in orphanages were considered unclassifiable. Further, using a clinical perspective, children with histories of maltreatment and maternal deprivation susceptible to attachment disorders and psychopathology (Chisholm, 1998; O'Connor et al., 1999; Tizard & Rees, 1975; Zeanah, 2000; Zeanah & Boris, 2000).

Issues with the Diagnostic Criteria for Attachment Disorders

There is much debate within the developmental and clinical fields regarding what constitutes an attachment disorder diagnosis (O'Connor et al., 1999; Zeanah & Boris, 2000). According to clinical diagnostic criteria, Reactive Attachment Disorder (RAD) can be classified as Disinhibited and Inhibited (Diagnostic and Statistical Manual of Mental Disorders 4th ed. (DSM-IV), American Psychiatric Association, 1994; International

Classification of Diseases 10th ed. (ICD-10), World Health Organization, 1992). Disinhibited children have diffused attachment relationship including symptoms such as indiscriminate sociability. Inhibited children have difficulty initiating and engaging in social interactions. Children raised in institutional can are susceptible to both Disinhibited and Inhibited RAD, with disinhibited occurring at greater frequency (Zeanah et al., 2005).

Disinhibited RAD in characterized by indiscriminate sociability where children do not differentiate between attachment caregivers. This is frequently seen in children who were previously raised in institutional care (Groark, Muhamedrahimov, Palmov, Nikiforova, & McCall, 2005; O'Connor et al., 1999; Tizard & Rees, 1975). Some researchers (Chisholm, 1998) have found that, though indiscriminate sociability is observed more commonly insecure children, it also has been observed in children with secure attachment relationships. This is consistent with the findings of Marcovitch et al. (1997). Moreover, some researchers have theorized that after placement in an adoptive home, indiscriminate sociability and attachment may follow separate trajectories (Zeanah, 2000). This finding suggests that indiscriminate sociability may not necessarily indicate disordered attachment, and therefore does not fit into the diagnostic criterion for RAD.

Due to issues with the role of indiscriminate sociability in attachment disorder and differences between diagnostic criterion and findings within the developmental literature, researchers continue to debate the diagnostic criterion of RAD. Some researchers have suggested an alternate scheme to the DSM-IV and ICD-10 (Lieberman & Zeanah, 1995; O'Connor & Zeanah, 2003; Zeanah, 1996; Zeanah & Boris, 2000; Zeanah, Smyke, & Dumitrescu, 2002). This scheme focuses on the developmental literature rather than clinical observation.

Measures of Attachment Disorder

Although researchers continue to debate the diagnostic criteria for RAD, it is nearly universally accepted that attachment disorders do exsit and stem from a previous history of maltreatment (O'Connor et al., 2000; Zeanah, 2000). Further, researchers continue to express a need for a sensitive, standardized measure of disturbed attachment behavior that can be efficiently used both in the developmental and clinical realms (O'Connor et al., 1999; Zeanah & Boris, 2000).

Diagnostic

In order to meet this need, some researchers have developed measures based on the DSM-IV criterion that are designed to capture and help diagnose Reactive Attachment Disorder.

RADQ. The RADQ (Randolph, 1997, 2001) is a 30-item caregiver-report scale that was developed as a screening instrument to assess attachment and the presence of attachment disorders. The RADQ is the only available instrument designed to measure attachment disturbances that provides any data concerning its reliability and validity (Cappellety, Brown, & Shumate, 2005; Randolph, 1997, 2001). The RADQ is efficient, appropriate for a wide age range, and does not require training for administration and scoring. However, independent research published on the RADQ has found that the measure was unable to discriminate between different pathologies, including attachment disorder (Cappellety et al., 2005). This finding is particularly problematic considering attachment disorder diagnosis is the focus of the instrument. This limits the validity of the RADQ and

its usefulness in assessing attachment disorder (Cappellety et al., 2005; Shepris, Doggett, Hoda, Blanchard et al., 2003).

RAD Scale. The RAD Scale (Minnis, Rabe-Hesketh, & Wolkind, 2002) is a 17-item caregiver-report questionnaire developed to assess the inhibited and disinhibited types of Reactive Attachment Disorder. The RAD scale is efficient, appropriate for a wide age range, and does not require training for administration and scoring. Although few studies have utilized the scale, the RAD scale has shown high associations with other measures of psychopathology. However, the scale developers (Minnis et al., 2002) found that the scale-items overlap, meaning that some items did not sufficiently capture differences between symptoms of attachment problems. The researchers concluded that the behavioral descriptors in the scale did not always differentiate disordered behavior from behaviors of an immature or anxious but otherwise normal child. Thus, the RAD scale may not be useful in assessing disturbances in attachment.

Non-Diagnostic Measures

As previously mentioned, the definition of attachment disorder has been somewhat in flux and controversial in recent years (Shepris et al., 2003). Due to this instability, a measure explicitly geared toward diagnosing attachment disorder may not be useful to researchers interested in disturbed attachment in general and not the clinical diagnoses per se. Therefore, some researchers have developed measures, which are not meant to be used as a diagnostic tool for Reactive Attachment Disorder, that focus on the behavior related to the disturbed attachment.

BBADC. Unlike measures that have been designed to assess attachment disorder (i.e. the RADQ and the RAD Scale), the BBADC focuses on attachment and behaviors related to

attachment disturbances but is not a means of clinical diagnosis of attachment disorder. This makes the BBADC useful for two reasons. First, it can be used with children that exhibit elements of disordered attachment but are not necessarily disturbed to the level of an attachment disorder. Second, it allows researchers to look at the overall patterns of behaviors exhibited by the child rather than the presence or absence of an attachment disorder.

The BBADC (Hussey et al., 1997) items were generated through analysis of the description of attachment disorder and years of experience working with at-risk adopted children. In fact, the measure was specifically designed for use with adopted populations, although it could potentially be used with other populations as well (i.e. children in foster care). The BBADC measures both positive attachment-behaviors, which encourage a close, caregiver-child relationship, and negative or disturbed attachment-behaviors, which distance the caregiver from the child. Further, the BBADC is efficient, does not require training for administration and scoring, and is appropriate for a wide age range.

During the validation study, researchers found that the BBADC was predictably related to a measure of child behavior and showed good psychometric properties (Hussey et al., 1997). The instrument's authors initially derived four factors from the original factor analysis but decided to use only two which they labeled the Positive Attachment Scale and the Negative Attachment Scale (D. Hussey, personal communication, March 7, 2006). The authors encouraged the current researchers to independently reevaluate the factor structure of the BBADC.

The initial exploratory analysis of the BBADC supported the four factor model (Howard, Cross, Purvis, Schwalm, & Razuri, 2008). These factors were labeled

Machiavellianism, Affection/Attachment, Aggression, Anxiety, and Executive Functioning (EF) according to the items that loaded on each factor. Although promising, this initial evaluation had several limitations. Primarily, it was conducted using a relatively small sample (n = 101). As a result the researchers were unable to conduct a comprehensive investigation of sex and age differences. Specifically, one concern in this initial sample was that the participants ranged in age from 4 to 16. This wide age range raised issues about the varying developmental stages of the participants, and indeed the appropriateness of diverse attachment related behaviors at different ages. Behaviors that may be appropriate in a small child (sitting on the parent's lap) would be considered inappropriate for an adolescent. Due to the small number of participants falling in the preschool and adolescent age groups, age differences were not examined. Upon careful examination of the BBADC items one realizes that the items are worded in such a way that they can be generalized across developmental stages, making the wide age range less of a concern. Regardless, in order to further validate BBADC, it is necessary to use a larger sample to investigate potential age differences.

Further, little is known about the pre-adoption background of many of the children in the initial study. One would expect quantitatively distinct factor patterns for adopted children who were abused versus adopted children who were neglected. For example, according to Zeanah and Boris (2000), the major components of nonattachment disorders are emotional withdrawal and indiscriminate sociability. Therefore, one would expect these children to score high on the factors with items regarding manipulation and low on factors with items capturing attachment and affection factor. Thus, access to pre-adoption information would allow the researchers to more precisely describe patterns in the BBADC

factors for children with differing etiologies. Based on these initial findings, we sought to further establish the discriminant and convergent validity of the BBADC.

The Present Study

The present study has three major purposes. First, we examined the factor structure of the BBADC by conducting exploratory and confirmatory factor analyses and Rasch analysis. Exploratory analyses were conducted to determine how many BBADC subscales were appropriate. Rasch analyses were conducted to further refine the subscales by determining individual item fit and unidimensionality of each subscale. Confirmatory analyses were conducted to compare the obtained factor structure to the original factor structure. The second purpose was to investigate individual differences in the factor patterns of the BBADC factors. Specifically, we investigated differences in the patterns by adoption history, sex, attachment disorder diagnosis, and age. Third, we established convergent and divergent validity of the BBADC by correlating obtained factors with the Child Behavior Checklist (CBCL; Achenbach, 1991) subscale scores. Two types of relationships were expected in the correlations between the BBADC factors and the CBCL subscales. The first type was relationships that have empirical overlap and are essentially tapping into the same construct (e.g. factors that contain items regarding aggression and the CBCL Aggression subscale). These relationships would support the convergent validity of the BBADC. The second type was relationships that have conceptual overlap and are measuring constructs that are related in predictable ways (e.g. factors containing items regarding attachment and affection and the Withdrawn subscale). These relationships support the discriminant validity of the BBADC. Attachment is an approach behavior whereas withdrawal is an avoidance behavior, one would expect factors containing items regarding attachment and

affection on the BBADC to correlate negatively the Withdrawn subscale on the CBCL. This would reflect that the factor was capturing attachment behavior. In addition, the failure of the factors containing items regarding attachment and affection to correlate strongly with several of the remaining CBCL subscales would suggest that the BBADC factors containing items regarding attachment and affection are capturing more than general childhood behavioral problem such as would be reflected in the CBCL.

Method

Participants

Participants were 403 adopted children (179 males, 224 females) living in the United States. Children ranged in age from 3 to 18 (M = 7.70, SD = 4.27). Families were recruited from adoption agencies, parent support groups, and the Institute of Child Development mailing list. The children's age at adoption ranged from birth to 14 years (M = 3.22, SD = 3.15). The amount of time the children have lived in the adoptive home ranged from .25 years to 18 years (M = 4.50, SD = 3.50). Most (92.5%) of the children had spent time in institutional care. Length of institutional stay ranged from none to 13 years (M = 2.03, SD = 1.89). Over half (63.3%) of the children were adopted from outside the United States (29.0% Russia and Eastern Europe, 21.6% China and Southeast Asia, 6.9% Caribbean and Latin America, 4.2% Africa, and 1.5% India) and 36.7% of the children were adopted from within the United States. A complete list of frequencies and percentages for country of origin can be found in Table 1. Approximately half (54.8%) of the children had at least one clinical diagnosis, and 19.4% were diagnosed with an attachment disorder. Further, 35.2% had multiple diagnoses. A complete list diagnoses can be found in Table 2. Adoption history was collapsed into maltreatment (57.8%) and no maltreatment (42.2%).

Table 1

Frequencies and Percentages for Country of Origin (n = 403).

Country of Origin	Frequency	%
Belarus	1	.2
Brazil	2	.5
Bulgaria	1	.2
China/Taiwan/Hong Kong	83	20.6
Ethiopia	14	3.5
Guatemala	22	5.5
Haiti	4	1.0
India	6	1.5
Kazakhstan	13	3.2
Korea	2	.5
Kyrgyzstan	1	.2
Liberia	3	.7
Lithuania	1	.2
Romania	4	1.0
Russia	84	20.8
Thailand	1	.2
Ukraine	12	3.0
United States of America	148	36.7
Vietnam	1	0.2

Table 2

Frequencies and Percentages for Current Clinical Diagnoses (n = 403).

Diagnosis	Frequency	%
Attention Deficit Hyperactive Disorder	64	15.9
Anxiety Disorder/Generalized Anxiety	22	5.5
Autism Spectrum Disorder	24	6.0
Auditory Disorder	3	.7
Bipolar Disorder	28	6.9
Borderline/ Mood Disorder	12	3
Conduct/Oppositional Defiant Disorder	23	5.7
Depression	14	3.5
Emotional Dysfunction	1	.2
Fetal Alcohol Exposure	16	4.0
Post Traumatic Stress Disorder	37	9.2
Learning Disability	9	2.2
Mentally Retarded/Handicapped	4	1.0
Obsessive Compulsive Disorder	4	1.0
Attachment Disorder	78	19.4
Sensory Processing Disorder	27	6.7
Speech/Language Disorder	19	4.7

Measures

BBADC. The BBADC (appendix A) is an other-report measure of childhood attachment disturbances that assesses both positive and negative aspects of the attachment relationship (Hussey et al., 1997). An example of a positive attachment item is "the child seems to feel that his/her caretaker will continue to care for him/her no matter what." An example of a negative attachment item is "the child seeks negative attention over positive." The caregiver indicates how often the child exhibits each of 89 behaviors in the last six months as a (0) never, (1) rarely, (2) occasionally, (3) frequently, or (4) very frequently. The item scores for each scale are totaled and divided by the number of scale items to arrive at a mean score ranging from 0 to 4.

CBCL. The CBCL (appendix B; Achenbach, 1991; Achenbach & Dumenci, 2001; Achenbach, Howell, Quay, & Connors, 1991) is an other-report measure of general child behavior problems. The CBCL has been used with children 3- to 18 (Achenbach, 1991; Heflinger, Simpkins, & Combs-Orme, 2000). The CBCL produces an overall score, a composite scores Internalizing and Externalizing, and individual scale score for the nine subscales. The Internalizing subscales are Withdrawn (e.g. withdrawn), Somatic Complaints (e.g. can't sleep), and Anxious/Depressed (e.g. worries). The Externalizing subscales are Delinquent Behavior (e.g. destroys property) and Aggressive Behavior (e.g. gets in fights). The four remaining subscales include Social Problems (e.g. acts young), Thought Problems (e.g. over reactive), Attention Problems (e.g. implusive), and Other Problems (e.g. sex problems). Caregivers rate the child on each of the 113 behaviors as (0) not true (as far as you know), (1) somewhat or sometimes true, or (2) very true or often true, based on the child's behavior during the past six months.

Procedures

Families that were interested in participating contacted the researchers, who sent the questionnaires via mail. Response rate was 62%. A caregiver completed a child history questionnaire (appendix C), the CBCL, and the BBADC and returned the questionnaires to the researchers via mail.

Results

Results are presented in three sections, corresponding to the three research purposes. In the first section, the factor and Rasch analyses of the BBADC items are presented. Further, the derived factors are compared to the instrument's original Positive Attachment scale and Negative Attachment scale. In the second section, individual differences in the BBADC factors for adoption history, sex, attachment disorder diagnosis, and age are assessed. In the third section, the obtained BBADC factors are correlated with the CBCL subscales to establish convergent and divergent validity.

BBADC

Exploratory Factor Analysis. A principal component analysis with orthogonal varimax rotation of the BBADC items was conducted using half of the sample (n = 201). The number of factors extracted was determined by a joint consideration of Kaiser's eigenvalue criterion and the scree test (Cattell, 1967). The analysis yielded five distinct factors. Items were removed if they failed to load on any factor (loading <.50) or had unacceptably high secondary loadings (>.35). Based on examination of the factor loadings, the least acceptable items were removed in blocks of five, and the analysis was then rerun with the remaining items. The EFA continued in this manner until a clean solution was obtained. The five factors accounted for 18.11%, 15.37%, 12.47%, 6.54% and 9.09% of the

total variance, respectively. These factors corresponded closely to the factors from the initial validation study. However, items from the Aggression/Anxiety factor in our initial study loaded on two separate factors. One contained items relating to Aggression, the second contained items relating to Anxiety. Therefore, the current study yielded five instead of four factors. Based on the items that loaded on each factor, factors were labeled Machiavellianism, Affection/Attachment, Aggression, Anxiety, and Executive Functioning. Item numbers, factor loadings, and item descriptions for each factor can be found in Tables 3-7. A detailed description of each factor can be found in the discussion. Separate analyses were conducted to examine differences in factor structure from sex and age (3 -9 years old versus 10 to 18 years old). The resulting factor structures were virtually identical. Therefore, data for the sexes and age categories were treated as identical for the remainder of the analyses.

In general, two types of factors were apparent: the factor that measured "pure'|' attachment behaviors (Affection/Attachment) and factors that measured behaviors associated with attachment (and/or attachment disturbances) but that do not capture attachment itself (Machiavellianism, Aggression, Anxiety, and Executive Functioning). 'Pure' attachment behaviors are defined as those that correspond with Bowlby's definition of attachment (Bowlby, 1969/1982).

Table 3

Item number, Item Loadings, and Questions for Item Loadings on the First Factor, which was labeled "Machiavellianism" (n = 201).

		Factor 1 (18.11% of total variance)
Item	Loading	Questions
21	.76	The child tries to be the boss even when it may get him/her in trouble.
88	.70	The child must always be the center of attention.
77	.69	The child seems to think that the world revolves around him/her (self centered).
63	.68	Intense emotional or physical reactions are generated between caretaker and child during negative interactions (e.g., yelling or spanking).
57	.68	The child gets very upset when he/she cannot do things his/her own way.
61	.68	The child seems to know exactly the negative behaviors the caretaker cannot stand ("button pushing").
65	.64	How often do well-laid plans about how to handle chronic problems go out of the window?
10	.63	No matter what the caretaker does for the child it is never enough.
67	.64	The child blames the caretaker for a negative interaction rather than taking responsibility for his/her behavior.
84	.60	When a caregiver does not give the child his/her way the child seeks out someone else who will (the other caregiver, another adult).
41	**.60**	**The child increases aggravating behavior until it is dangerous or cannot be ignored.**
19	.59	The child engages in persistent, meaningless chatter, or asks many nonsense questions, especially when the person he/she is talking to is busy.
48	.58	The child gets excessively angry or has temper tantrums over seemingly small things.

Boldface = item removed in later analyses.

Table 4

Item number, Item Loadings, and Questions for Item Loadings on the Second Factor, which was labeled "Attachment/Affection" (n = 201).

		Factor 2 (15.37% of total variance)
Item	Loading	Questions
16	-.86	The child likes to be cuddled or hugged by caretaker or family members.
8	-.85	The child naturally sits close to a caretaker or a family member, or shows signs of affection.
4	-.78	The child expresses affection, concern, or closeness to a family member or caretaker.
7	.74	The child holds back and/or seems awkward when hugging (e.g., uses one arm or holds body stiff).
13	-.74	The child asks for or accepts help or comfort from caretaker when ill, injured, frightened, or upset.
58	.73	The child distances him/herself from others in relationships where closeness is expected.
5	-.71	The child initiates positive interactions.

Table 5

Item number, Item Loadings, and Questions for Item Loadings on the Third Factor, which was labeled "Aggression" (n = 201).

		Factor 3 (12.47% of total variance)
Item	Loading	Questions
44	.78	The child destroys property of other household members secretly when no one is looking.
26	.74	The child openly destroys property of other household members.
39	.72	The child destroys his/her things.
38	.63	The child seriously hurts or kills animals.
29	.61	The child is cruel to animals.
24	.60	The child steals from home or from household members.
35	.56	The child hurts him or herself.

Table 6

Item number, Item Loadings, and Questions for Item Loadings on the Fourth Factor, which was labeled "Anxiety" (n = 201).

		Factor 4 (6.52% of total variance)
Item	Loading	Questions
14	.85	The child is fearful in new or strange situations.
15	.84	The child is usually worried when separated from the caretaker.
76	.67	The child fears things (new situations, bugs, parties) to the point that it is irrational.

Table 7

Item number, Item Loadings, and Questions for Item Loadings on the Fifth Factor, which was labeled "Executive Functioning" (n = 201).

		Factor 5 (9.09% of total variance)
Item	Loading	Questions
60	-.68	The child realizes that negative behaviors generally bring about unpleasant consequences.
45	-.68	The child is able to put himself/herself in someone else's shoes (see from another person's point of view).
79	-.67	The child is able to respect others opinions even when he/she does not agree.
56	-.65	The child seems to know what is right and wrong.
89	-.63	The child is able to understand and regulate his/her emotions.

Rasch Analysis. In order to further refine the factors, Rasch analysis was performed to assess unidimensionality of each factor (for further explanation of unidimensionality see Bond & Fox, 2001). To determine unidimensionality of each factor, mean square standardized residuals (*MS*) and standardized *Z* scores (*ZSTD*) were assessed for each item on each factor. Previous research has suggested that an *MS* value of less than or equal to

1.30 (30% variance) is acceptable (Wright & Linacre, 1994). Items that are greater than or equal to 1.30 may be "misfitting" and should be considered for removal from the factor. In addition to *MS* statistics, we examined the improbability of participant responses to a particular response code on a particular item (i.e. responding with a three on item 61) using *ZSTD* scores. *ZSTD* scores of less than 0.00 indicate greater predictability, whereas *ZSTD* scores greater than 0.00 indicates less predictability. Items with *Z* scores of 2.00 or higher on any response code are considered to be very unpredictable and should be considered for removal from the factor (Linacre, 2002). Keeping in line with previous work (Pomeranz, Byers, Moorhouse, Velozo, & Spitznagel, 2008), items were considered "misfitting" in the current study if they exceed both the *MS* and *ZSTD* criteria ($MS \geq 1.30$ and $ZSTD \geq 2.00$). Only one item, item 41 on response ($MS = 1.46$; $ZSTD = 2.10$), fell outside the acceptable criterion on both tests for unidimensionality ($MS \geq 1.30$ and $ZSTD \geq 2.00$). The misfitting item was removed for the remainder of analyses.

Confirmatory Factor Analysis. To test the scales' overall goodness of fit with the data, we then subjected the original two factor structure to a confirmatory factor analysis using LISREL 8.80 on the second half of the sample (n = 202). We used the comparative fit index (CFI) and the root mean square error of approximation (RMSEA) to evaluate the overall goodness of fit for the model. For CFI, values >.90 indicate an acceptable model and >.95 an excellent model (Bentler & Bonett, 1980). A RMSEA <.08 is considered reasonable and <.05 excellent (Brown & Cudeck, 1993). Because the maximum likelihood chi-squared value is highly sensitive to sample size, it is reported but was not employed as a primary means of evaluating the overall model fit (Carmines & McIver, 1981).

Results indicated that the original two-factor model did not fit the data very well: χ^2 (494) = 1572.56, $p < .001$; CFI = .93, RMSEA = .105. Although values for the CFI reached those of an acceptable model, values for RMSEA failed to reach levels that indicate an acceptable model. Next, we tested the five factor structure determined by the exploratory factor analysis. The goodness-of-fit indicators of the five factor structure met both the cut-offs for an acceptable model fit. Results indicated that the five factor solution showed substantial improvement over the original two-factor model: χ^2 (517) = 1518.98, $p < .001$; CFI = .97, RMSEA = .065. Visual representations of the two-factor and five factor structures can be found in Figures 1 and 2 respectively.

Figure 1

Beech Brook Attachment Disorder Checklist Two-factor Model (n=202)

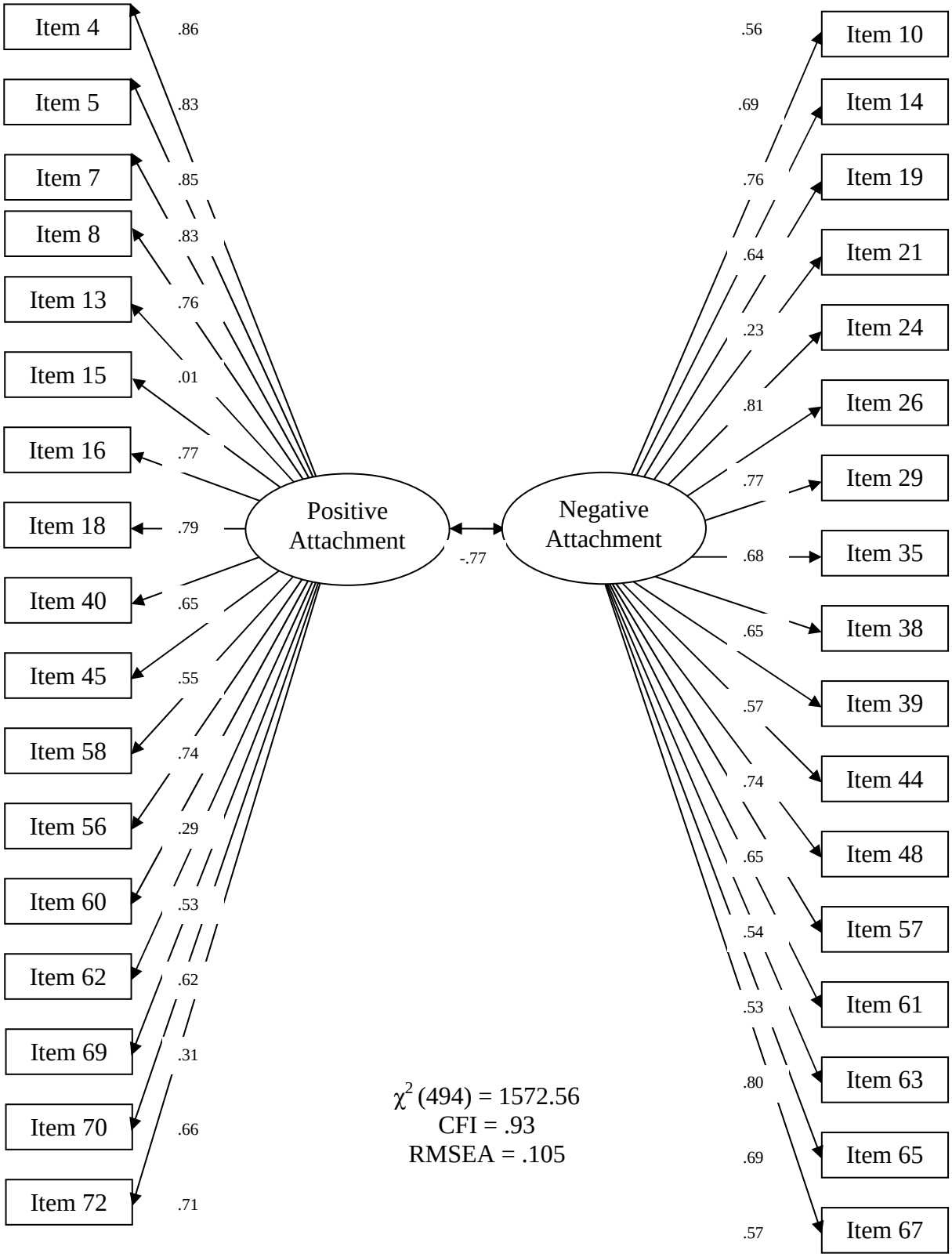
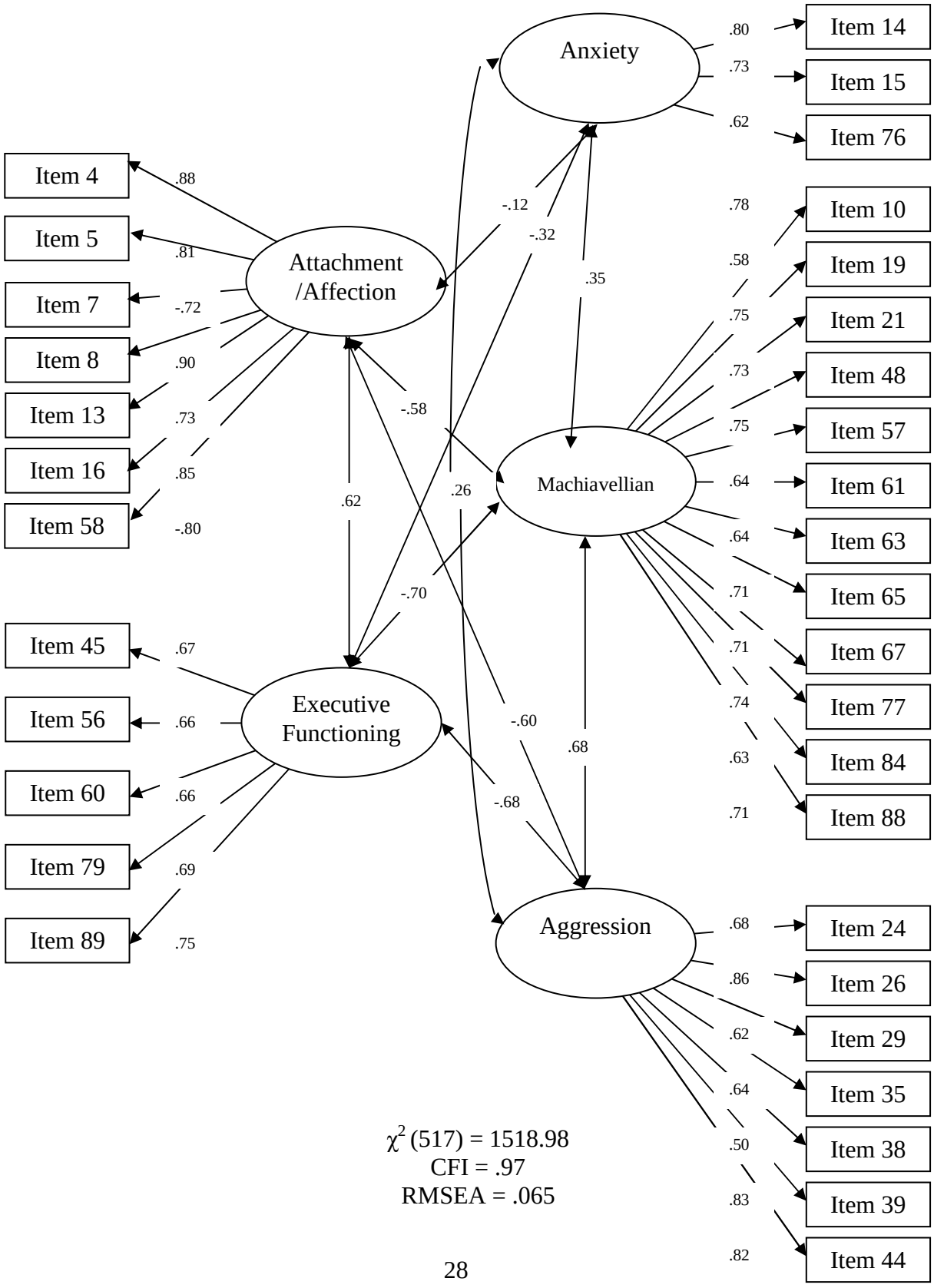


Figure 2

Modified Beech Brook Attachment Disorder Checklist Five-factor Model (n=202)



Relationship between Final BBADC Factors

Using the full sample (n = 403), we examined the intercorrelations of the final factors. In order to examine intercorrelations, factor scores were computed by reverse coding items that loaded against the trend of the factor and then taking the average of all items loading on that factor. Sample means and standard deviations for the derived BBADC factors are found in the top section of Table 8. Intercorrelations between factors are presented in top section of Table 9. Internal consistencies for each factor were assessed via Cronbach's coefficient alpha (Cronbach, 1951). The coefficients obtained were .91 for Machiavellianism, .92 for Affection/Attachment, .87 for Aggression, .75 for Anxiety, and .82 for Executive Functioning. Thus, it would appear that the BBADC consists of five moderately intercorrelated factors. As expected, the three factors that captured negative behavior (Machiavellianism, Aggression, and Anxiety) were positively correlated, suggesting that Machiavellianism, Aggression, and Anxiety are co-occurring. Affection/Attachment and Executive Functioning were also positively correlated. This finding suggests that behavior related to affection and attachment may be related to higher levels of executive functioning. Further, factors related to behavior that separate the child and caregiver were inversely related to factor that bring the child and the caregiver closer together. This would suggest that the factors on the BBADC are closely related, but do not overlap.

Table 8

Means and Standard Deviations for the BBADC Factors and the Negative and Positive Attachment Scales (n = 403).

Factors	Mean	SD
Machiavellianism	1.80	.96
Affection	3.03	.91
Aggression	.55	.71
Anxiety	1.45	.95
Executive Functioning	2.23	.83
Positive Attachment Scale	2.61	.83
Negative Attachment Scale	.83	.70

Table 9

Intercorrelations for the BBADC Factors and Correlations Among the Current BBADC Factors and the Original Negative Attachment Scale and the Original Positive Attachment Scale (n = 403).

Subscales	1	2	3	4	5	6
Machiavellianism	--					
Affection/Attachment	-.52**	--				
Aggression	.68**	-.53**	--			
Anxiety	.46**	-.28**	.32**	--		
Executive Functioning	-.65**	.53**	-.62**	-.31**	--	
Pos. Attachment Scale	-.67**	.91**	-.67**	-.22**	.85**	--
Neg. Attachment Scale	.83**	-.69**	.93**	.39**	-.67**	-.74**

**$p<.01$.

Correlations between the Current BBADC Factors and the Original BBADC Scales. Sample means and standard deviations for the original Negative Attachment Scale and the original Positive Attachment Scale can be found in the bottom section of Table 8. Correlations between the current BBADC factors and the original Negative Attachment Scale and the original Positive Attachment Scale can be found in the bottom section of Table 9. The sample means and standard deviations for Machiavellianism, Aggression, and Anxiety were similar to those of the original Negative Attachment Scale. Further, Machiavellianism, Aggression, and Anxiety were highly correlated with the original

Negative Attachment Scale of the BBADC. The sample means and standard deviations for the Affection/Attachment and Executive Functioning were similar to those of the original Positive Attachment Scale. The Affection/Attachment and Executive Functioning were highly correlated with the original Positive Attachment Scale of the BBADC. Thus, it appears factors obtained in the current study were similar to factors obtained in the original validation of the BBADC, but the five factor solution provides more detailed information regarding the child's behaviors and is a better fit to the current data.

Descriptives of the BBADC Factors.

The following section provides basic descriptive for the revised BBADC. Multivariate Analysis of Variances (MANOVAs) were conducted with adoption history (two levels: maltreatment, no maltreatment), sex (two levels: male, female), attachment disorder diagnosis (two levels: RAD, no RAD), and age category (three levels: preschool, middle childhood, adolescence) as the independent variables and BBADC factors as the dependent variables. Means and standard deviations for adoption history, sex, attachment diagnoses, and age category can be found in Tables 10 - 13. The overall multivariate effect was significant for attachment disorder diagnosis, F (5, 350) = 7.96, $p < .001$, but not for adoption history F (5, 350) = 1.56, $p = .170$, sex, F (5, 350) = 1.87, $p = .099$, or age category, F (5, 350) = 1.06, $p = .392$. This pattern held even when accounting for the other factors.

Table 10

Means and Standard Deviations for BBADC Factors by Maltreatment (n = 403).

	N	*Mean*	*SD*	*F*	*p*
Machiavellianism				.21	.648
Maltreated	170	1.67	.87		
Not Maltreated	233	2.07	.95		
Attachment/Affection				2.32	.129
Maltreated	170	3.37	.73		
Not Maltreated	233	2.77	1.09		
Aggression				2.29	.131
Maltreated	170	.97	.37		
Not Maltreated	233	1.11	.53		
Anxiety				1.04	.308
Maltreated	170	1.37	.85		
Not Maltreated	233	1.51	1.02		
Executive Functioning				.11	.744
Maltreated	170	2.12	.85		
Not Maltreated	233	1.67	.87		

Table 11

Means and Standard Deviations for BBADC Factors by Gender (n = 403).

	N	*Mean*	*SD*	*F*	*p*
Machiavellianism				.12	.648
Male	179	1.91	.93		
Female	224	1.90	.94		
Attachment/Affection				2.15	.144
Male	179	3.04	1.02		
Female	224	3.01	.99		
Aggression				1.70	.193
Male	179	1.06	.44		
Female	224	1.04	.50		
Anxiety				2.66	.104
Male	179	1.35	.94		
Female	224	1.53	.96		
Executive Functioning				2.45	.119
Male	179	2.19	.79		
Female	224	2.27	.84		

For attachment diagnoses, results revealed a significant univariate effect for attachment disorder diagnosis on Machiavellianism, F (1, 403) = 26.54, $p < .001$, indicating that children diagnosed with attachment disorder scored higher on the Machiavellianism subscale (M = 2.84, SD = .70) than children not diagnosed with attachment disorder (M = 1.73, SD = .87). Results also revealed a significant univariate effect for attachment disorder diagnosis on Attachment/Affection, F (1, 403) = 17.14, $p < .001$, indicating that children diagnosed with attachment disorder scored lower on the Attachment/Affection subscale (M = 1.93, SD = 1.08) than children not diagnosed with attachment disorder (M = 3.23, SD =

.84). Results revealed a margially significant univariate effect for attachment disorder diagnosis on Aggression, F (1, 403) = 3.43, p = .065, indicating that children diagnosed with attachment disorder scored higher on the Aggression subscale (M = 1.38, SD = .69) than children not diagnosed with attachment disorder (M = .99, SD = .39). There was a significant univariate effect for attachment disorder diagnosis on Anxiety, F (1, 403) = 6.96, p < .01, indicating that children diagnosed with attachment disorder scored higher on the Anxiety subscale (M = 1.73, SD = 1.15) than children not diagnosed with attachment disorder (M = 1.40, SD = .91). Finally, results revealed a significant univariate effect for attachment disorder diagnosis on Executive Functioning, F (1, 403) = 19.08, p < .01, indicating that children diagnosed with attachment disorder scored lower on the Executive Functioning subscale (M = 1.59, SD = .75) than children not diagnosed with attachment disorder (M = 2.35, SD = .78).

Table 12

Means and Standard Deviations for BBADC Factors by RAD (n = 403).

	N	*Mean*	*SD*	*F*	*p*
Machiavellianism				26.54	.000
No RAD Diagnosis	325	1.73	.87		
RAD Diagnosis	78	2.84	.70		
Attachment/Affection				17.14	.000
No RAD Diagnosis	325	3.23	.84		
RAD Diagnosis	78	1.93	1.08		
Aggression				3.43	.065
No RAD Diagnosis	325	.99	.39		
RAD Diagnosis	78	1.38	.69		
Anxiety				6.96	.009
No RAD Diagnosis	325	1.40	.91		
RAD Diagnosis	78	1.73	1.15		
Executive Functioning				19.08	.000
No RAD Diagnosis	325	2.35	.78		
RAD Diagnosis	78	1.59	.75		

Table 13

Means and Standard Deviations for BBADC Factors by Age Category (n = 403).

	N	*Mean*	*SD*	*F*	*p*
Machiavellianism				.00	.996
Preschool	134	1.59	.78		
Middle Childhood	145	1.92	.92		
Adolescence	123	2.22	1.02		
Attachment/Affection				3.55	.030
Preschool	134	3.49	.66		
Middle Childhood	145	3.11	.91		
Adolescence	123	2.40	1.10		
Aggression				1.29	.275
Preschool	134	.99	.36		
Middle Childhood	145	1.05	.44		
Adolescence	123	1.12	.61		
Anxiety				.29	.745
Preschool	134	1.34	.80		
Middle Childhood	145	1.57	1.01		
Adolescence	123	1.44	1.04		
Executive Functioning				.15	.861
Preschool	134	2.35	.67		
Middle Childhood	145	2.25	.87		
Adolescence	123	2.07	.89		

Pearson's product moment correlations were conducted to examine the relationships between continuous demographic variables and BBADC factors (see Table 14). The results revealed a significant positive correlation between Machiavellianism and age at adoption, r (403) = .18, $p < .05$, indicating that children who were older at the age of adoption were more Machiavellian. There was a significant positive relationship between Machiavellianism and age at time of survey, r (403) = .23, $p < .001$, indicating that children

who were older at the time of the survey displayed more Machiavellian behaviors. In addition, the results revealed a significant positive correlation between Machiavellianism and total time in institutional/foster care, r (403) = .17, $p < .05$, indicating that children who spent more time in institutional care displayed more Machiavellian behavior. Machiavellianism was also related to total time in home, r (403) = .12, $p < .05$, indicating that children who spent more time in the adoptive home displayed more Machiavellian behavior. The results revealed a significant negative correlation between Attachment/Affection and age at adoption, r (403) = -.39, $p < .05$, indicating that children who were younger at the age of adoption were more affectionate and displayed more attachment behavior. There was a significant negative relationship between Attachment/Affection and age at time of survey, r (403) = -.46, $p < .001$, indicating that children who were older at the time of the survey displayed were less affectionate and displayed fewer attachment behaviors. The results also revealed a significant negative correlation between Attachment/Affection and total time in institutional/foster care, r (403) = .17, $p < .05$, indicating that children who spent more time in institutional care were less affectionate and displayed less attachment behavior. Attachment/Affection was also related to total time in home, r (403) = -.21, $p < .05$, indicating that children who spent more time in the adoptive home displayed less affectionate and attachment behavior. There was a significant negative relationship between Executive Functioning and age at adoption, r (403) = -.11, $p < .05$, indicating that children who were older when adopted displayed had lower executive functioning. Moreover, there was a significant negative relationship between Executive Functioning and age at time of survey, r (403) = -.12, $p < .001$, indicating that children who were older at the time of the survey displayed were less executive functioning.

Table 14

Pearson Correlations for BBADC Factors and Continuous Demographic Variables (n = 403).

	Age at Adopt	Age at Survey	Time in Care	Time in Home
Machiavellianism	.18 **	.23 **	.17 **	.12 **
Attachment	-.39 **	-.46 **	-.23 **	-.21 **
Aggression	.04	.09	.05	.06
Anxiety	.01	.01	.06	.01
Executive	-.11 *	-.12 *	-.10 *	-.04

* $p < .05$

Multiple regression models were used to predict BBADC factor scores from gender, age at adoption, age at time of survey, presence of a clinical diagnosis, RAD diagnosis, presence of multiple diagnoses, history of maltreatment, total time in institutional/foster care, and whether the child was domestically or internationally adopted. Multiple regression analysis is used with continuous dependent variables and categorical or continuous independent variables. Categorical predictor variables were dummy coded prior to inclusion in the regression models. A multiple regression analysis was conducted to predict Machiavellianism from demographic variables. The results revealed a significant model, $F(10, 402) = 14.09$, $p < .001$, and accounted for 26.4% of the variance ($R^2 = .264$). As shown in Table 15, Machiavellianism was significantly predicted by presence of a clinical diagnosis (*Beta* = .448, $p < .001$). In other words, having a clinical diagnosis predicted more Machiavellian behaviors. Further, Machiavellianism was significantly predicted by a diagnosis of RAD (*Beta* = .715, $p < .001$). In other words, being diagnosed with RAD predicted more Machiavellian behaviors. A multiple regression analysis was conducted to

predict Attachment/Affection from demographic variables. The results revealed a significant model, F (10, 402) = 20.89, $p < .001$, and accounted for 34.8% of the variance ($R^2 = .348$). As shown in Table 16, Attachment/Affection was significantly predicted by a diagnosis of RAD (*Beta* = -.729, $p < .001$). In other words, being diagnosed with RAD predicted fewer affectionate and attachment behaviors. A multiple regression analysis was conducted to predict Aggression from demographic variables. The results revealed a significant model, F (10, 402) = 4.52, $p < .01$, and accounted for 10.3% of the variance ($R^2 = .103$). As shown in Table 17, Aggression was significantly predicted by a diagnosis of RAD (*Beta* = .216, $p < .01$). In other words, being diagnosed with RAD predicted more aggressive behaviors. Moreover, Aggression was significantly predicted by domestic adoption (*Beta* = .022, $p < .05$). Being adopted from within the United Sates predicted more aggressive behaviors. A multiple regression analysis was conducted to predict Anxiety from demographic variables. The results revealed a significant model, F (10, 402) = 2.30, $p < .05$, and accounted for 5.5% of the variance ($R^2 = .055$). As shown in Table 18, Anxiety was significantly predicted by a diagnosis of RAD (*Beta* = .339, $p < .05$). In other words, being diagnosed with RAD predicted more anxiety. A multiple regression analysis was conducted to predict Executive Functioning from demographic variables. The results revealed a significant model, F (10, 402) = 9.53, $p < .001$, and accounted for 19.6% of the variance ($R^2 = .196$). As shown in Table 19, Executive Functioning was significantly predicted by presence of a clinical diagnosis (*Beta* = -.331, $p < .01$). In other words, having a clinical diagnosis predicted lower executive functioning. Further, Executive Functioning was significantly predicted by a diagnosis of RAD (*Beta* = -.495, $p < .001$). Thus, being diagnosed with RAD predicted lower executive functioning.

Table 15.

Summary of Multiple Regression Analysis for Variables Predicting BBAC Machiavellianism (n = 403).

	Unstandardized *B*	SE	*Beta*	*t*	*p*
Female	-.015	.08	-.008	-.18	.855
Age at Adoption	.037	.08	.126	.49	.625
Age at Survey	-.031	.07	-.142	-.42	.674
Clinical Diagnosis	.448	.12	.238	3.85	.000
RAD	.715	.12	.301	5.95	.000
Multiple Diagnosis	.022	.12	.011	.19	.852
History of Maltreatment	.057	.09	.030	.61	.540
Total Time in Institution	.025	.03	.051	.86	.389
Total Time in Home	.032	.07	.119	.44	.663
Domestically Adopted	.088	.09	.045	.97	.335

Table 16.

Summary of Multiple Regression Analysis for Variables Predicting BBAC Attachment/Affection (n = 403).

	Unstandardized *B*	SE	*Beta*	*t*	*p*
Female	.008	.08	.004	.10	.924
Age at Adoption	-.098	.08	-.309	-1.28	.202
Age at Survey	-.021	.07	-.089	-.28	.779
Clinical Diagnosis	-.034	.12	-.017	-.29	.773
RAD	-.729	.12	-.288	-6.05	.000
Multiple Diagnosis	-.137	.12	-.065	-1.15	.253
History of Maltreatment	-.120	.09	-.059	-1.28	.203
Total Time in Institution	.042	.03	.080	1.43	.154
Total Time in Home	-.033	.07	-.116	-.45	.653
Domestically Adopted	-.074	.09	-.036	-.81	.418

Table 17.

Summary of Multiple Regression Analysis for Variables Predicting BBAC Aggression (n = 403).

	Unstandardized *B*	SE	*Beta*	*t*	*p*
Female	-.008	.05	-.008	-.17	.865
Age at Adoption	-.055	.04	-.363	-1.28	.201
Age at Survey	.043	.04	.385	1.03	.302
Clinical Diagnosis	.122	.07	.128	1.88	.061
RAD	.216	.07	.179	3.21	.001
Multiple Diagnosis	-.012	.07	-.012	-.17	.862
History of Maltreatment	.056	.05	.058	1.08	.283
Total Time in Institution	.006	.02	.023	.35	.729
Total Time in Home	-.046	.04	-.341	-1.13	.259
Domestically Adopted	.117	.05	.119	2.29	.022

Table 18.

Summary of Multiple Regression Analysis for Variables Predicting BBAC Anxiety (n = 403).

	Unstandardized				
	B	SE	*Beta*	*t*	*p*
Female	.177	.10	.092	1.86	.063
Age at Adoption	-.015	.09	-.048	-.16	.870
Age at Survey	-.018	.09	-.079	-.21	.837
Clinical Diagnosis	.197	.13	.102	1.47	.144
RAD	.339	.14	.140	2.44	.015
Multiple Diagnosis	.020	.14	.010	.15	.883
History of Maltreatment	.057	.11	.029	.53	.599
Total Time in Institution	.038	.03	.075	1.12	.262
Total Time in Home	.001	.08	.004	.01	.991
Domestically Adopted	-.017	.11	-.009	-.16	.869

Table 19.

Summary of Multiple Regression Analysis for Variables Predicting BBAC Executive Functioning (n = 403).

	Unstandardized *B*	SE	*Beta*	*t*	*p*
Female	.076	.08	.046	1.01	.312
Age at Adoption	-.017	.07	-.066	-.24	.807
Age at Survey	.025	.07	.130	.37	.713
Clinical Diagnosis	-.331	.11	-.201	-3.11	.002
RAD	-.495	.11	-.238	-4.51	.000
Multiple Diagnosis	-.124	.11	-.072	-1.14	.254
History of Maltreatment	-.046	.09	-.028	-.54	.588
Total Time in Institution	-.003	.03	-.008	-.12	.902
Total Time in Home	-.004	.07	-.016	-.06	.955
Domestically Adopted	-.132	.08	-.078	-1.58	.114

CBCL

The percentage of participants that fell in the Normal, Borderline, and Clinical range on each of the CBCL subscales can be found in Table 20. We note that 36.5% of the children fell in the Borderline or Clinical ranges of the Internalizing composite and that 48.4% fell in the Borderline or Clinical ranges of the Externalizing composite. Intercorrelations between the CBCL subscales are found in Table 21. In the current sample, all CBCL subscales were significantly related, and most of the subscales were at least

moderately related (Cohen, 1988). Thus, in addition to scoring in the Borderline and Clinical range on several of the subscales, many children in the current sample also exhibited comorbidity of behavioral problems, which is a common finding in the developmental literature (e.g. Costello, Mustillo, Erklani, Keeler, & Angold, 2003). Cronbach's alpha coefficient for the CBCL was .92.

Table 20

Percentage for Participants in the Normal, Borderline, and Clinical Range on the CBCL (n = 403).

CBCL Subscale	Normal	Borderline	Clinical
Withdrawn	84.9	8.4	6.7
Somatic	91.0	5.0	4.0
Anxious/Depressed	81.6	8.7	9.7
Social Problems	70.2	14.2	15.6
Thought Problems	68.2	16.9	14.9
Attention Problems	63.0	14.4	22.6
Delinquency	72.2	11.4	16.4
Aggression	69.7	9.7	20.6
Internalizing	63.4	12.9	23.6
Externalizing	51.6	12.2	36.2

Table 21

Intercorrelations for the CBCL (n = 403).

Subscales	1	2	3	4	5	6	7	8	9	10
1. Withdrawn	--									
2. Somatic	.504	--								
3. Anxious	.661	.567	--							
4. Social	.567	.408	.625	--						
5. Thought	.675	.489	.625	.617	--					
6. Attention	.629	.447	.647	.724	.706	--				
7. Delinquent	.565	.396	.560	.522	.532	.578	--			
8. Aggression	.530	.451	.678	.655	.568	.679	.687	--		
9. Other	.593	.490	.683	.638	.651	.661	.534	.694	--	
10. Internal	.833	.732	.940	.651	.702	.695	.606	.680	.714	--
11. External	.580	.467	.689	.660	.598	.696	.839	.972	.693	.706

All $p<.01$.

Correlations between the BBADC Factors and CBCL Subscales

To assess construct validity of the five factor structure of the BBADC, we examined the correlations between the derived factors BBADC and the CBCL subscales. We hypothesized that the related constructs would be more strongly correlated than construct that are not related. Results show that as hypothesized, the five factors correlated differently with the CBCL subscales (Table 22). Negative factors (Machiavellianism, Aggression, and Anxiety) were positively correlated with the CBCL subscales, suggesting that as negative attachment behaviors increase, so do general behavioral problems. Both positive factors (Affection/Attachment and Executive Functioning) were negatively correlated with the CBCL subscales, suggesting that as positive attachment behaviors increase, behavioral problems are less pervasive. Thus, negative and positive attachment behaviors, as measured by the BBADC factors, were related to behavioral problems in expected ways.

More specifically, Machiavellianism correlated positively with each of the CBCL subscales. Further, Machiavellianism correlated highest with Externalizing Behavior and Aggression, suggesting that individuals high in Machiavellianism were more likely to engage in externalizing and aggressive behavior. The Aggression factor correlated positively with each of the CBCL subscales. Aggression correlated highest with the Aggression subscale, which is by definition tapping into the same construct. The Anxiety factor correlated positively with each of the CBCL subscales. Anxiety correlated highest with the Anxious/Depressed subscale, which is tapping into an overlapping construct. Executive Functioning correlated negatively with all of the CBCL subscales and was most strongly correlated with Thought Problems, Externalizing Behavior, and Aggression. This suggests that individuals high in executive functioning are less likely to have thought problems and use aggression or other externalizing behavior as a coping strategy. The Affection/Attachment factor correlated negatively with all CBCL subscales. As one might expect, Affection/Attachment was most highly correlated with the Withdrawn subscale, suggesting that withdrawn individuals are less likely to exhibit affection and attachment behaviors in their relationships. Of the CBCL subscales, Somatic Complaints correlated the least strongly with five BBADC factors, suggesting that the BBADC is not a measure of physical symptoms or that attachment disturbances do not manifest themselves through physical symptoms.

Although most CBCL subscales were at least moderately related to the BBADC factors, the strength of these correlations varied from factor to factor (Cohen, 1988). Specifically, the factors that captured behaviors associated with attachment (and/or attachment disturbances) but that did not capture attachment itself (Machiavellianism,

Aggression, Anxiety, and Executive Functioning) were more strongly related to the CBCL subscales than the factor captured "pure" attachment behaviors (Affection/Attachment). The current findings suggest that although the Machiavellianism, Aggression, Executive Functioning and, to a lesser extent, Anxiety appear to be capturing constructs strongly related to behavioral problems, the Affection/Attachment is capturing a construct that cannot be explained by a measure of behavioral problems.

Table 22

Pearson Correlations for BBADC Factors and CBCL Subscales (n = 403).

CBCL	BBADC Factors				
Subscales	Machiavellianism	Affection	Aggression	Anxiety	Executive
Withdrawn	.46**	-.68**	.28**	.51**	-.46**
Somatic	.38**	-.36**	.24**	.28**	-.32**
Anxious	.59**	-.32**	.35**	.63**	-.43**
Social	.56**	-.37**	.42**	.45**	-.52**
Thought	.51**	-.37**	.41**	.41**	-.64**
Attention	.61**	-.35**	.38**	.38**	-.56**
Delinquency	.61**	-.41**	.60**	.27**	-.48**
Aggression	.84**	-.42**	.74**	.42**	-.60**
Other	.61**	-.37**	.49**	.43**	-.52**
Internalizing	.58**	-.51**	.35**	.62**	-.47**
Externalizing	.84**	-.48**	.67**	.29**	-.60**

**$p<.01$.

Discussion

The major goal of the present study was to evaluate the BBADC using a sample of adopted children. This was accomplished (1) by assessing the factor structure of the BBADC, (2) establishing convergent and divergent validity of the BBADC, and (3) examining systematic individual differences in BBADC factors.

BBADC Factor Structure

Exploratory Factor Analysis. First, a principal components analysis of the BBADC yielded five factors which were labeled Machiavellianism, Affection/Attachment, Aggression, Anxiety, and Executive Functioning according to the items that loaded on each factor. Below is a brief description of each factor.

The central themes of the first factor were manipulation and lack of moral and emotional connectedness. Previous research has described Machiavellians as being manipulative, lacking concern for the emotions and experiences of others, and being alexithymic or emotionally unconnected (Christie & Geis, 1970; Wastell & Booth, 2003). Several features of Machiavellianism correspond to items that loaded onto the first factor. Manipulation is exemplified in questions such as Item 84, "When a caregiver does not give the child his/her way the child seeks out someone else who will (the other caregiver, another adult)." Item 67, "The child blames the caretaker for a negative interaction rather than taking responsibility for his/her behavior," is an example of a lack of concern for the experiences of others. Although no particular item embodies alexithymia per se, several items imply emotional disconnectedness. For example, item 48, "The child gets excessively angry or has temper tantrums over seemingly small things," suggests that the child is unable

to regulate emotional responses. Thus, Machiavellianism seemed the most appropriate label for the first factor.

Although the major theme of the second factor was positive child-caregiver relationships, the sub-themes that emerged were affectionate and attachment behaviors. Affectionate behavior included items regarding willingness to give and receive physical affection such as item 16, "The child likes to be cuddled or hugged by caretaker and family members" or item 8, "The child naturally sits close to a caretaker or a family member, or shows signs of affection." Attachment behaviors included items related to the dynamics of the caregiver-child relationship, such as item 4, "The child expresses affection, concern, or closeness to a family member or caretaker" or item 13, "The child asks for or accepts help or comfort from caretaker when ill, injured, frightened, or upset." These items capture the essence of Bowlby's definition of attachment (Bowlby, 1969/1982). Thus, Affection/Attachment was the most appropriate label for the second factor.

The central theme of the third factor was aggressive behavior. The majority of the items related to destruction of property or physical violence toward the self and others, including cruelty to animals. An example would be item 26, "The child openly destroys property of other household members" or item 38, "The child seriously hurts or kills animals." Thus the factor was labeled Aggression to account for both types of aggressive behavior.

The central theme of the third factor was anxious behavior and this factor had the smallest number of items. All of the items related to fears or worries and focused on anxiety in various situations, such as item 76, "The child fears things (new situations, bugs, parties) to the point that it is irrational" or anxiety related specifically to the attachment relationship,

such as item 15, “The child is usually worried when separated from the caregiver” or “The child is fearful in new or strange situations.” Thus, the factor was labeled Anxiety to account for the items included in the factor.

The themes of the final factor were cognitive flexibility and the ability to understand and accept consequences. Previous research has characterized executive functioning as having the ability to be cognitively flexible, anticipate consequences, and inhibit or modify unsuccessful behavior (Anderson, 2002; Mezzacappa, Kindlon, & Earls, 2001). Cognitive flexibility involves a range of behaviors, such as perspective-taking and rule comprehension. This is best exemplified by item 45, “The child is able to put himself/herself in someone else's shoes (see from another person's point of view)” or item 79, “The child is able to respect others opinions even when he/she does not agree.” Anticipation of consequences included questions such as item 60, “The child realizes that negative behaviors generally bring about unpleasant consequences.” Inhibition and modification of unsuccessful behavior included statements such as item 56, “The child seems to know what is right and wrong.” Thus, Executive Functioning seems to be an appropriate label for the final factor.

Rasch Analysis. Rasch analysis was used to further refine each factor and establish the unidimensionality of each factor (Bond & Fox, 2001). To determine unidimensionality of each factor, *MS* and *ZSTD* were assessed for each item on each factor. Only one item (41) was found to be misfitting using the previously established criterion ($MS \geq 1.30$ and $ZSTD \geq 2.00$; Linacre, 2002; Pomeranz, et al., 2008; Wright & Linacre, 1994). This item was removed for the remainder of analyses.

Confirmatory Factor Analysis. The refined factors were then subjected to confirmatory factor analysis. The results revealed that the five factor solution was a better fit to the data than the original two factor solution. In addition, the five factor structure provides more detailed information regarding the child's behavior than the original two factor scale. As a result, researchers and professionals using the BBADC will better be able to target interventions and therapy to the individual needs of the child. Take for example two children who both scored low on the Positive Attachment subscale and high on the Negative Attachment subscale. When only looking at the two factors, a counselor may be tempted to approach these children in the same way. However, this same counselor may approach a child that scores low on the Attachment/Affection factor and high on the Machiavellianism factor very differently than a child that is low in Executive Functioning and high on Aggression. By being able to look at the factors in conjunction, we hope to provide researchers and counselors alike a more complete understanding of the child's behaviors and how these factors interact.

Intercorrelations. BBADC factors were intercorrelated. Factors that captured behavior that distanced the child from the caregiver (Aggression, Anxiety, and Machiavellianism) had the same valence, and factors that brought the child and the caregiver closer together (Affection/Attachment and Executive Functioning) also had the same valence. This finding suggests that high levels of executive functioning are related to attachment and affection. This relationship is a well established finding in the developmental literature (Carlson, 2003; Erickson, et al. 1985; Gunnar, 2001; Sroufe, Fox, & Pancake, 1983; van Bakel & Riksen-Walraven, 2004). The correlations between Machiavellianism, Aggression, and Anxiety on the BBADC aggression and manipulation and unemotional

behavior (Machiavellinaistic) also co-occur. Again, previous research has found that aggression is strongly related to instrumental proactive prosocial behavior (Bjorkqvist, Lagerspetz, & Kauklainen, 1991; Boxer, Tisak, & Goldstein, 2004; Crick & Grotpeter, 1995). As both of these behaviors, aggression and Machiavellianism, would be considered adaptive in a maltreatment situation, it is not surprising that they continue to exist after adoption into a consistent care giving environment. The current study also found that Machiavellianism, Aggression, and Anxity were inversely correlated with Attachment/Affection and Executive Functioning. The inverse relationship between attachment behavior and aggression (van Ijzendoorn, 1997; Simons, Paternite, & Schore, 2001) and anxiety (Papini & Roggman, 1992) is commonly found in the developmental literature. Attachment and manipulative behavior found in Machiavellianism had also been noted in previous research (Chisholm, 1998; Luke, Maio, & Carnelley, 2004). Further, the finding that executive functioning and aggression and anxiety are related is consistent with previous studies (Seguin, Boulerice, Harden, Tremblay, & Pihl, 1999).

BBADC Descriptives

Attachment Disorder. Differences between children diagnosed with an attachment disorder and children not diagnosed with an attachment disorder were found for all BBADC factors. Children diagnosed with an attachment disorder scored significantly higher on negative scales (Machiavellianism, Aggression, and Anxiety) than children not diagnosed with an attachment disorder. Further, children diagnosed with an attachment disorder scored significantly lower on positive scales (Attachment/Affection and Executive functioning) than children not diagnosed with an attachment disorder. These findings are not surprising considering the measure's purpose is to investigate behavior related to attachment

disturbances. In fact, one would question the usefulness of the BBADC if children diagnosed with an attachment disorder and not diagnosed with an attachment disorder were scoring similarly on the subscales. Further, these findings add support for the usefulness of the BBADC factors.

Age Category. Differences between children preschool, middle childhood, and adolescent were found for the Attachment/Affection factor. Preschool children had significantly higher scores on the Attachment/Affection factor than children in middle childhood and children in adolescents. Further, children in middle childhood had significantly higher scores on the Attachment/Affection factor than children in adolescence These findings are not surprising. In fact, changes in the expression of attachment related behavior and affection as children become older is considered normal and is a common finding within the developmental literature (Stemmler & Pertersen, 1999). It is important to point out that this finding suggests that there are differences in scores on the Attachment/Affection factor for age groups, but not a difference in the factor structure itself.

Regression Analysis. The results from the regression analysis revealed that having a RAD diagnosis was a consistent predictor for all BBADC factors. This finding provides further support for the usefulness of the BBADC when working with children with attachment disturbances. As previously stated, the BBADC was designed for measuring attachment disturbances and, therefore, one would expect children diagnosed with an attachment disorder to have distinct scores on the subscales. One would expect a child diagnosed with an attachment disorder to have different scores on the BBADC than a child not diagnosed with an attachment disorder. Even though it appears the BBADC is able to differentiate between children with and without an attachment disorder diagnosis, we

caution researchers to avoid using the measure for this purpose. Attachment, and, therefore, disordered attachment, occurs on a continuum and by categorizing children as disordered or non-disorder one may risk creating a false dichotomy between these groups. Children can exhibit elements of disordered attachment, but may not necessarily be disturbed to the level of an attachment disorder diagnosis. Children that fall in this "borderline" range still warrant investigation and intervention.

Convergent and Divergent Validity

All CBCL subscales were correlated with all other subscales. This finding suggests that general childhood behavioral problems co-occur in adopted children. This is consistent with previous findings that children who have been maltreated or experienced maternal deprivation have multiple behavioral problems (Fisher, Ames, Chisholm, & Savoie, 1997; Hoksbergen, Rijk, & Van Dijkum, 2004; Marcovitch et al., 1997; Rosenthal & Groze, 1991).

CBCL subscales and the BBADC factors were strongly correlated and suggests that children with attachment disturbance are more likely to display general behavioral problem than children that do not have attachment disturbances (Erickson et al., 1985). The positive correlations between Machiavellianism, Aggression, and Anxiety and CBCL indicated that BBADC items are picking up general behavioral problems in addition to attachment related behavioral problems. Further, the relationship between Executive Functioning and the CBCL indicates that lower executive functioning is related to more behavioral problems. This is a common finding within the developmental literature (Fisher, Ames, Chisholm, & Savoie, 1997; Gunnar, 2001; Hoksbergen, Rijk, & Van Dijkum, 2004; Marcovitch et al., 1997; Rosenthal & Groze, 1991). The negative correlation between Affection/Attachment

and the Withdrawn subscale on the CBCL demonstrates that attachment, which is an approach behavior, in inversely related to non-social behavior such as being withdrawn. Further, when examining the correlations between Affection/Attachment factor and the other CBCL subscales one would notice that these are the least strongly related. This suggest that the Affection/Attachment factor is capturing something conceptually different than general childhood behavioral problems.

As expected, both empirical and conceptual relationships emerged between the BBADC factors and the CBCL subscales. Empirical relationships (e.g. the Anxiety factor and the CBCL Anxious/Depressed subscale) support the convergent validity of the BBADC. Conceptual (e.g. the Affection/Attachment factor and the Withdrawn subscale support the discriminant validity of the BBADC. The patterns of these findings lend great support to the validity and usefulness of the BBADC as an other-report measure of attachment for children.

Limitations and Future Research

In addition to being efficient and direct, caregiver-reports can provide unique information concerning the child's emotions and behaviors that otherwise may not be available. Regardless, insofar as caregivers are part of the attachment dynamic, using caregiver-reports alone is also, at least potentially, problematic (Minnis et al., 2002). This may be less of a problem in the current sample of adopted children than in other populations. For the adopted children, attachment problems were almost certainly present prior to the child entering the home. Therefore, the adoptive parents feel somewhat absolved of direct responsibility for behavioral problems. This is not the case for children still presiding with biological care-givers. For example, another population that often exhibits attachment

disturbances is abused children (e.g. Hanson & Spratt, 2000). Obtaining accurate parent-reports regarding the attachment relationships in this population is difficult. Therefore, although the BBADC may be quite useful for assessing attachment disturbances in adopted and fostered children, in cases where caregivers are unlikely to be the source of attachment disturbances; it may be of limited use in other populations.

Future research should focus on further refining the BBADC factors and simplifying the measure if possible. For example, although interesting, the anxiety factor may not be useful in its current form. As it only contains three items, one might question the factor's ability to accurately capture anxious behavior. If this is the case, two possible options for refining the scale exist. The first option is to remove this factor from the scale. Other measures of behavioral problems may be better able to capture anxious behavior in general (i.e. CBCL) and therefore the scale may not be a useful addition to the BBADC. However, the type of anxiety captured in the BBADC Anxiety factor is more specific to the attachment relationship (i.e. BBADC item 15) than the anxious behaviors captured by the CBCL (i.e. CBCL item 45). As a result, removing this factor may lead to the loss of useful information regarding the parent-child attachment relationship. The second option would be to add items that would potentially load onto the Anxiety factor and examine the usefulness of these items by conducting another evaluation similar to the current study.

APPENDIX A

BBADC

Please complete the questionnaire on the **first section** of the attached scantron. Read each of the items below and fill in the circle that **BEST** describes how often your child does that behavior. Please rate you child's behaviors over the past six months. If s/he does it very frequently (90% or more of the time), fill in E. If s/he usually does it frequently (75% of the time), fill in D. If s/he usually does it occasionally (50% of the time), fill in C. If s/he usually does it rarely (25% of the time), fill in B. If s/he usually does it almost never or never (10% or less of the time), fill in A.

Never	Rarely	Occasionally	Frequently	Very Frequently
A	B	C	D	E

1) The child seems to trust that his or her caretaker really cares for him or her.
2) The child seems to feel that his/her caretaker will continue to care for him/her no matter what.
3) The child typically hugs only when it is his/her idea, or when he/she has something to gain.
4) The child expresses affection, concern, or closeness to a family member or caretaker.
5) The child initiates positive interactions.
6) The child only acts affectionate if he/she is trying to avoid punishment.
7) The child holds back and/or seems awkward when hugging (e.g., uses one arm or holds body stiff).
8) The child naturally sits close to a family member, or shows signs of affection.
9) Child clings to caretaker.
10) No matter what caretaker does for the child it is never enough.
11) The child demands attention when the caretaker is paying attention to someone else.
12) The child steals outside the home.
13) The child asks for or accepts help or comfort from caretaker when ill, frightened, or upset.

Never	Rarely	Occasionally	Frequently	Very Frequently
A	B	C	D	E

14) The child is fearful in new or strange situations.
15) The child is usually worried when separated from the caretaker.
16) The child likes to be cuddled or hugged by caretaker or family members.
17) Caretaker feels "used" and is wary of the child's motives if affection is expressed.
18) The child has the "give and take" skills in a relationship (e.g., smiling in response to smiles, or matching mood, behavior, or rhythm to that of someone he/she is close to).
19) The child engages in persistent, meaningless chatter, or asks many nonsense questions, especially when the person he/she is talking to is busy.
20) The child makes eye contact during normal conversation.
21) The child tries to be the boss even when it may get him/her in trouble.
22) The child lies even when the truth is obvious; not just to get out of trouble.
23) The child seeks negative attention over positive.
24) The child steals from home or from household members.
25) The child sets fires.
26) The child openly destroys property of other household members.
27) The child hurts others.
28) The child seems unusually interested in themes of danger, violence, and death.
29) The child is cruel to animals.
30) The child can turn on the charm for strangers.
31) The child is friendly and affectionate with strangers.
32) The child creates special struggles over food.
33) The child threatens others.
34) The child makes eye contact when he/she is lying.
35) The child hurts himself/herself.
36) The child has an unusually high tolerance for pain.

Never	Rarely	Occasionally	Frequently	Very Frequently
A	B	C	D	E

37) Caretakers find themselves feeling more angry and frustrated with this child than other children.
38) The child seriously hurts or kills animals.
39) The child destroys his/her own things.
40) The child learns from his/her mistakes.
41) The child increases aggravating behavior until it is dangerous or cannot be ignored.
42) Caretaker finds that things that work with other children in the household don't work with this child.
43) Household members become worried when things are going well with this child, knowing it is the "calm before the storm."
44) The child destroys property of other household members secretly when no one is looking.
45) The child is able to put himself/herself in someone else's shoes (see from another person's point of view).
46) The child is learning at the expected level.
47) The child's speech is odd or immature.
48) The child gets excessively angry or has temper tantrums over seemingly small things.
49) The child goes from one extreme to another in his/her view of others, thinking they are good (perfect) to thinking that they are bad (hateful).
50) The child avoids being alone.
51) The child draws pictures or tells stories in which he/she is left out or seems alone.
52) The child is more upset by change than other children his/her age.
53) The child expresses normal feelings like other children his/her age (e.g., smiling, crying).
54) The child gets into physical fights.
55) The child follows the caretaker's reasonable rules and requests.
56) The child seems to know what is right and wrong.

Never	Rarely	Occasionally	Frequently	Very Frequently
A	B	C	D	E

57) The child gets very upset when he/she cannot do things his/her own way.

58) The child distances himself/herself from relationships where closeness is expected.

59) Ignoring negative or aggravating helps the child stop doing them.

60) The child realizes that negative behaviors generally bring about unpleasant consequences.

61) The child seems to know exactly the negative behaviors the caretaker cannot stand ("button pushing").

62) The child admits faults when he/she makes a mistake.

63) Intense emotional or physical reactions are generated between caretaker and child during negative interactions (e.g., yelling or spanking).

64) After a negative interaction, a period of emotional distance, non-communication or avoidance of contact occurs.

65) How often do well-laid plans about how to handle chronic problems go out of the window?

66) Patterns of difficult behavior are easily interrupted by improved communication or parenting techniques within the household.

67) Child blames the caretaker for a negative interaction rather than take responsibility for his/her behavior.

68) Negative behaviors by the child follow situations where people usually feel close (like family parties).

69) The child takes credit when he/she does something well.

70) The child expresses sorrow or guilt after he/she has damaged property or he/she has hurt people or animals.

71) Caretaker feels intensely rejected by this child.

72) The child can maintain friendships over time.

73) The child gets along with younger children better than children his/her own age.

74) The child is emotionally immature for his/her age.

Never	Rarely	Occasionally	Frequently	Very Frequently
A	B	C	D	E

75) The child engages in “worrying” behaviors (nail biting, finger tapping).
76) The child fears things (new situations, bugs, parties) to the point that it is irrational.
77) The child seems to think that the world revolves around him/her (self centered).
78) The child seems to be in his/her own world.
79) The child is able to respect others opinions even when he/she does not agree.
80) The child has difficulty learning new skills.
81) The child laughs when others are hurt or distressed.
82) The child has trouble sleeping.
83) The child is not invited to parties or social functions.
84) When a caregiver does not give the child his/her way the child seeks out someone else who will (the other caregiver, another adult).
85) The child seems to have low quality or unfulfilling play.
86) The child is able to sympathize with others.
87) The child acts out in public places (grocery store, mall, church).
88) The child must always be the center of attention.
89) The child is able to understand and regulate his/her emotions.

APPENDIX B

CBCL

Please complete this on the attached scantron. Below is a list of items that describe children and youth. For each item that describes your child ***now or with in the past six months,*** please fill in ***C*** if the item is ***very true*** of your child. Fill in ***B*** if the item is ***somewhat or sometimes true*** of your child. Fill in ***A*** if the item is ***not true*** of your child. Please answer all items as well as you can, even if some do not seem to apply to your child.

Not True (as far as you know)	Somewhat or Sometimes True	Very True or Often True
A	B	C

1) Acts too young for his/her age
2) Allergy
   (describe):_____
3) Argues a lot
4) Asthma
5) Behaves like opposite sex
6) Bowel movements outside toilet
7) Bragging, boasting
8) Can't concentrate, can't pay attention for long
9) Can't get his/her mind off certain thoughts; obsessions
   (describe):_____
10) Can't sit still, restless, or hyperactive
11) Clings to adults or too dependent
12) Complains of loneliness
13) Confused or seems to be in a fog
14) Cries a lot
15) Cruel to animals

Not True (as far as you know)	Somewhat or Sometimes True	Very True or Often True
A	B	C

16) Cruelty, bullying, or meanness to others

17) Day-dreams or gets lost in his/her thoughts

18) Deliberately harms self or attempts suicide

19) Demands a lot of attention

20) Destroys his/her own things

21) Destroys things belonging to his/her family or others

22) Disobedient at home

23) Doesn't eat well

24) Doesn't get along with other kids

25) Doesn't seem to feel guilty after misbehaving

26) Easily jealous

27) Eats or drinks things that are not food-**don't** include sweets

(describe)_____

28) Fears certain animals, situations, or places, other than school (describe):

29) _____

30) Fears going to school

31) Fears he/she might think or do something bad

32) Feels he/she has to be perfect

33) Feels or complains that no one loves him/her

34) Feels others are out to get him/her

35) Feels worthless or inferior

36) Gets hurt a lot, accident-prone

37) Gets in many fights

38) Gets teased a lot

39) Hangs around with others who get in trouble

Not True (as far as you know)	Somewhat or Sometimes True	Very True or Often True
A	B	C

40) Hears sounds or voices that aren't there (describe): _____
41) Impulsive or acts without thinking
42) Would rather be alone than with others
43) Lying or cheating
44) Bites fingernails
45) Nervous, high-strung, or tense
46) Nervous movements or twitching (describe): _____
47) Nightmares
48) Not liked by other kids
49) Constipated, doesn't move bowels
50) Too fearful or anxious
51) Feels dizzy
52) Feels too guilty
53) Overreacting
54) Overtired
55) Overweight
56) Physical problems **without known medical cause**: Aches or pains (**not** stomach or headaches)
57) Physical problems **without known medical cause**: Headaches
58) Physical problems **without known medical cause**: Nausea, feels sick
59) Physical problems **without known medical cause**: Problems with eyes (**not** if corrected by glasses) (describe): _____
60) Physical problems **without known medical cause**: Rashes or other skin problems
61) Physical problems **without known medical cause**: Stomachaches or cramps

Not True (as far as you know)	Somewhat or Sometimes True	Very True or Often True
A	B	C

62) Physical problems **without known medical cause**: Vomiting, throwing up

63) Physical problems **without known medical cause**: Other (describe):

_____

64) Physically attacks people

65) Picks nose, skin, or other parts of body (describe): _____

66) Plays with own sex parts in public

67) Plays with own sex parts too much

68) Poor school work

69) Poorly coordinated or clumsy

70) Prefers being with older kids

71) Prefers being with younger kids

72) Refuses to talk

73) Repeats certain acts over and over; compulsions (describe): _____

74) Runs away from home

75) Screams a lot

76) Secretive, keeps things to self

77) Sees things that aren't there (describe): _____

78) Self-conscious or easily embarrassed

79) Sets fires

80) Sexual problems (describe): _____

81) Showing off or clowning

82) Shy or timid

83) Sleeps less than most kids

84) Sleeps more than most kids during day and/or night (describe): _____

_____

85) Smears or plays with bowel movements

Not True (as far as you know)	Somewhat or Sometimes True	Very True or Often True
A	B	C

86) Speech problem (describe):

_____

87) Stares blankly

88) Steals at home

89) Steals outside the home

90) Stores up things he/she doesn't need (describe): _____

91) Strange behavior (describe): _____

92) Strange ideas (describe): _____

93) Stubborn, sullen, or irritable

94) Sudden changes in mood or feelings

95) Sulks a lot

96) Suspicious

97) Swearing or obscene language

98) Talks about killing self

99) Talks or walks in sleep (describe): _____

100) Talks too much

101) Teases a lot

102) Temper tantrums or hot temper

103) Thinks about sex too much

104) Threatens people

105) Thumb-sucking

106) Too concerned with neatness or cleanliness

107) Trouble sleeping (describe)_____

108) Truancy, skips school

109) Under active, slow moving, or lacks energy

110) Unhappy, sad, or depressed

Not True (as far as you know)	Somewhat or Sometimes True	Very True or Often True
A	B	C

111) Unusually loud

112) Uses alcohol or drugs for non-medical purposes

(describe)_____

113) Vandalism

114) Wets self during the day

115) Wets the bed

116) Whining

117) Wishes to be of opposite sex

118) Withdrawn, doesn't get involved with others

119) Worries

APPENDIX C

Brief Adoption History

Please complete the following on THIS sheet. We would like to know some things about your Child's history. To the best of your ability, please answer the following questions. Please keep in mind that only the assigned research number will identify your child and that all responses will be kept strictly confidential.

1. Child's birth date: _____
2. Child's gender: _____
3. Child's age at entry into foster/institutional care: _____
4. Child's age at adoption: _____
5. Child's country (if adopted outside US) or state (if adopted from US) of origin:

   _____
6. Child's current age: _____
7. Child's current diagnoses:

   _____

Dear Parent: Adoptive parents report that their children experience varying degrees of trauma prior to adoption. This section is a potentially difficult set of questions. If you prefer, or this section becomes too difficult, feel free to skip these questions.

8. Are you aware if your child was abused (physically, emotionally, or sexually) at any point in his/her life? _____
9. Are you aware if your child was neglected (physically or emotionally) at any point in his or her life? _____

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ABSTRACT

AN EVALUATION OF THE PSYCHOMETRIC PROPERTIES OF THE BEECH BROOK ATTACHMENT DISORDER CHECKLIST

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Although several measures that evaluate disturbance in childhood attachment exist, few have been designed to assess attachment disturbances. The Beech Brook Attachment Disorder Checklist (BBADC) is one of the most promising measures of childhood attachment disorder that has been specifically designed to assess attachment disturbances, but further validation of the BBADC is necessary. Confirmatory and exploratory factor analyses and Rasch analysis of the BBADC items were conducted using a sample of adopted children. Exploratory analysis revealed five factors. Items on these factors were then subjected to Rasch analysis to determine unidimensionality of each factor and further refine the factors. Next, confirmatory factor analysis revealed that the five factor solution was a better fit to the data than the original two factor solution. Individual differences in the BBADC factors were examined. Finally, Child Behavior Checklist (CBCL) subscales were correlated with the five factors to determine convergent and discriminant validity.