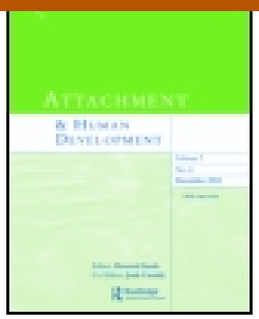

Attachment & Human Development

ISSN: 1461-6734 (Print) 1469-2988 (Online) Journal homepage: http://www.tandfonline.com/loi/rahd20

Comparing Main, Goldwyn, and Hesse (Berkeley) and Crittenden (DMM) coding systems for classifying Adult Attachment Interview transcripts: an empirical report

Franco Baldoni, Mattia Minghetti, Giuseppe Craparo, Elisa Facondini, Loredana Cena & Adriano Schimmenti

To cite this article: Franco Baldoni, Mattia Minghetti, Giuseppe Craparo, Elisa Facondini, Loredana Cena & Adriano Schimmenti (2018): Comparing Main, Goldwyn, and Hesse (Berkeley) and Crittenden (DMM) coding systems for classifying Adult Attachment Interview transcripts: an empirical report, Attachment & Human Development, DOI: 10.1080/14616734.2017.1421979

To link to this article: https://doi.org/10.1080/14616734.2017.1421979

Published online: 08 Jan 2018.

ATTACHMENT & HUMAN DEVELOPMENT, 2018
https://doi.org/10.1080/14616734.2017.1421979

Routledge
Taylor & Francis Group

Comparing Main, Goldwyn, and Hesse (Berkeley) and Crittenden (DMM) coding systems for classifying Adult Attachment Interview transcripts: an empirical report

Franco Baldoni [a], Mattia Minghetti [a], Giuseppe Craparo [b], Elisa Facondini[c], Loredana Cena [d] and Adriano Schimmenti [b]

[a]Attachment Assessment Lab, Department of Psychology, University of Bologna, Bologna, Italy; [b]Faculty of Human and Social Sciences, UKE - Kore University of Enna, Enna, Italy; [c]Obstetrics and Gynecology Unit and Neonatal Intensive Care Unit, Infermi Hospital, Rimini, Italy; [d]Department of Clinical and Experimental Sciences, University of Brescia, Brescia, Italy

ABSTRACT

Few studies have compared different systems in classifying Adult Attachment Interview (AAI) transcripts. In this study, the AAI was administered to 90 Italian parents (45 couples), and the AAI transcripts were independently classified according to Main, Goldwyn, and Hesse's (Berkeley) and Crittenden's (Dynamic-Maturational Model [DMM]) criteria. The two classification systems were not significantly associated, with some limited convergent results only when the interviews resulted in organized (Berkeley) and normative (DMM) attachment classifications. Otherwise, the Berkeley system identified more secure individuals than the DMM system, and many texts judged secure on the Berkeley system were identified as insecure on the DMM system. Since the Berkeley and the DMM systems rest on remarkably different conceptualizations of the nature and functioning of the attachment behavioral system (e.g. fear is conceived as organizing in the DMM and as potentially disorganizing in the Berkeley), the attachment classifications resulting from their applications should not be considered measurements of the same phenomena.

ARTICLE HISTORY
Received 3 March 2017
Accepted 22 December 2017

KEYWORDS
Adult Attachment Interview; attachment; Berkeley system; Dynamic-Maturational Model; psychological assessment

Background

The first measure developed for the assessment of attachment in adult age was the *Adult Attachment Interview* (AAI), a semi-structured interview concerning the relationship with attachment figures from childhood, which George, Kaplan, and Main (1984–1996) developed at the University of California, Berkeley. Mary Main and Ruth Goldwyn proposed the first AAI scoring and classification system, and Erik Hesse later helped to refine it (Main, Goldwyn, & Hesse, 1984–2003). This system uses analysis of discourse (Grice, 1975), i.e. how the respondent answered the AAI questions in terms of quality, quantity, relevance, and manner of responses, to infer the interviewee's mental representations of attachment with caregivers during childhood. This model for classifying states of mind with respect to attachment in adults, identified here as the Main, Goldwyn, and Hesse or (hereafter) "Berkeley"

CONTACT Franco Baldoni franco.baldoni@unibo.it

system, identifies five principal categories: Free/autonomous (F), Dismissing (Ds), Entangled/preoccupied (E), Unresolved with respect to trauma or loss (Unresolved/disorganized, U/d), and Cannot Classify (CC). F individuals exhibit an internally consistent and non-defensive discourse, offer a balanced view of their childhood experiences, and value attachment relationships; Ds individuals may appear to either idealize or derogate/devalue their childhood attachment relationships; E individuals continue to show ongoing anger and/or preoccupation with their relationships with parents. The U/d category can be applied along with any of the F, Ds, or E categories, when the individual shows severe lapses in the monitoring of discourse or beliefs resulting from past loss or abuse. A fifth category, Cannot Classify (CC), is applied in the Berkeley system when, in the same interview, the interviewee shows competitive states of mind with respect to attachment, with a very uncommon mixture of Ds and E characteristics that produces a highly incoherent discourse (Schimmenti et al., 2014).

Rigorous psychometric testing and meta-analyses of AAI classifications based on the Berkeley criteria have demonstrated high inter-rater reliability and stability over time, as well as good predictive and discriminant validity of this classification system in both clinical and nonclinical populations (Bakermans-Kranenburg & van IJzendoorn, 1993, 2009; Benoit & Parker, 1994; Hesse, 2016; Sagi et al., 1994; van IJzendoorn & Bakermans-Kranenburg, 2008). However, when the Berkeley system is used to score the AAI in clinical samples, many participants tend to be classified as U/d and/or CC (Fonagy et al., 1996; Stovall-McClough & Cloitre, 2006; Tyrrell, Dozier, Teague, & Fallot, 1999). For example, individuals who suffer from borderline personality disorder are often classified as U/E, i.e. as unresolved with respect to abuse or loss and at the same time preoccupied with current and/or past trauma in their attachment relationships (Barone, 2003; Patrick, Hobson, Castle, Howard, & Maughan, 1994). Therefore, the use of the individual AAI scales on states of mind and/or on inferred childhood experiences in the Berkeley system might better inform psychotherapy work than classifications alone (Ammaniti, Dazzi, & Muscetta, 2008; Barone, 2003; Steele, Steele, & Murphy, 2009).

The Dynamic-Maturational Model (DMM) of attachment and adaptation, originally proposed by Patricia Crittenden (1992, 2000, 2015a, 2015b), is another well-known model for the classification of the AAI (Crittenden & Landini, 2011). According to this model, attachment strategies develop in a dynamic interaction with ongoing experience (Crittenden & Ainsworth, 1989) and with the maturation of the brain. In this context, patterns of attachment are considered self-protective strategies that vary dimensionally in different uses of cognitive-contingent information and affect-arousing information to organize behavior. For the analysis and classification of AAI transcripts, the DMM considers several self-protective attachment strategies, unresolved psychological trauma and loss, and modifiers (Crittenden & Heller, 2017; Crittenden & Landini, 2011). The three basic groups of self-protective attachment strategies (Types A, B, and C), each subdivided into specific subcategories, are defined in terms of the degree of integration of cognitive and affective information. Cognitive information refers to temporal contingencies between events, while affective information refers to the intensity of contextual stimulation. The higher prevalence of cognitive information (Type A) or affective information (Type C) characterizes these basic insecure attachment strategies, respectively, whereas type B strategy (Balanced) uses a balance of cognitive and affective information. Each pattern is identified by discourse markers that are presumed to reflect specific memory systems

(Crittenden & Landini, 2011). In addition, A and C attachment strategies in the DMM may appear in mixed combinations (i.e. A/C or AC): Type A/C reflects an alternation of unintegrated A and C strategies and transformation of information; Type AC refers to an integration of distorted information. Types B1–B5 and low-index A (A1–A2) and C (C1–C2) indicate little or no transformation of information and are considered low-risk patterns. Adults maltreated or neglected in childhood may show high-risk attachment strategies that reflect high-index Type A+ (A3–A8) or Type C+ (C3–C8) patterns, sometimes organized as mixed patterns (A+/C+, A+C+). Such high-index patterns refer to A and/or C strategies with increasingly distorted levels of affect and cognition, respectively, and are often associated with clinical disorders (Crittenden & Heller, 2017; Crittenden & Newman, 2010; Landini, Crittenden, & Landi, 2016; Zachrisson, Sommerfeldt, & Skårderud, 2011).

Table 1 summarizes the Berkeley and the DMM classification systems.

Descriptors of the attachment classifications in the two systems could suggest a correspondence between Ds (Dismissing) and Type A strategy, F (Secure) and Type B strategy, and E (Preoccupied) and Type C strategy. However, previous comparisons of the two methods with high-risk and clinical samples seem to support the view that the U/d classification in the Berkeley system might correspond to the Type A/C strategies (Crittenden & Newman, 2010) or to the high-index patterns in the DMM (Crittenden, Claussen, & Kozlowska, 2007; Crittenden & Spieker, 2009; Shah, Fonagy, & Strathearn, 2010; Zachrisson et al., 2011). In fact, even though the DMM includes specific coding guidelines for Unresolved trauma (U/tr) and Unresolved loss (U/l), it does not have a disorganized category and conceives fear in attachment relationships to be "a powerful organising affect" (Shah & Strathearn, 2014, p. 80). The core of the DMM is the information-processing model, originally introduced in attachment theory by John Bowlby in a chapter of *Loss* (1980), the third volume of his trilogy, and presented by Mary Ainsworth to her students as the "chapter 4 of the bible" (Landa & Duschinsky, 2013a). Following the DMM, when parents themselves are a source of threat, or when they fail to provide comfort, children may rely on psychological "shortcuts" (omitting or transforming cognitive and affective information) that enable specific protective strategies to be organized to reduce the perception of vulnerability and/or to increase their vigilance to threat (Crittenden & Heller, 2017, pp. 2–3). Therefore, according to the DMM, "a very great majority of infants, especially those who experience dangerous circumstances, have organized strategies for relating to their attachment figures" (Crittenden & Landini, 2011, p. 34). The reduced integration of cognitive and affective information and the information-processing shortcuts typical of these strategies could be considered adaptive in the short term (adapting to the specific type of threat that the subject has experienced), but "when carried forward over time and combined with reduced integrative correction, these can be considered psychological traumas and yield vulnerability to Post-Traumatic Stress Disorder (PTSD)" and other psychiatric disorders in adulthood (Crittenden & Heller, 2017, p. 3).

This differs from the Berkeley model, which considers fear to be a disorganizing mechanism when the attachment figure is at the same time the haven of safety and the source of fear (Main & Hesse, 1990). With this unsolvable dilemma of "fright without solution" (Hesse & Main, 1999, p. 484), the child's impulse to turn toward the very source of the terror from which he or she is at the same time attempting to escape is thought to foster a disorganization of the attachment system (Duschinsky, Main, & Hesse, in press). In fact, in Main's perspective, the attachment system leads the child to seek contact and proximity with his or her attachment

Table 1. Comparison of the Berkeley and the DMM classifications for the AAI.

Berkeley system	DMM system
Ds *(Dismissing of attachment)*	**Type A**
Ds1. Dismissing of attachment	**Low-index patterns**:
Ds2. Devaluing of attachment	A1-2. Inhibited/Socially Facile
Ds3. Restricted in feeling	(A1. Idealizing; A2. Distancing)
(Ds3a. prototypic; DS3b. Absent, inconsistent, or contradicted indices of valuing attachment at an emotional level)	**High-index patterns (Compulsive A+)**:
	A3-4. Compulsively Caregiving/Compliant
	A5-6. Compulsively Promiscuous/Self-reliant
Ds4. Cutoff from source of fear of death of the child	A7-8. Delusional Idealization/Externally assembled self
F *(Free, Secure-autonomous)*	**Type B**
F1. Some setting aside of attachment	B1. Distanced from past
(F1a. Re-evaluation and redirection of personal life as the successor to a harsh childhood; F1b. Limited involvement with attachment)	B2. Accepting
	B3. Comfortably balanced
	B4. Sentimental
F2. Somewhat dismissing or restricting of attachment	B5. Complaining acceptance
	BO. Balanced Other (meet the general criteria for a balanced strategy, but do not fit the criteria for any of the particular Type B strategies)
F3. Prototypically secure/autonomous	
(F3a. continuous secure; F3b. earned secure)	
F4. Strong expressed valuing of relationship, accompanied by some manifestations of preoccupation with attachment figures, or past trauma (F4a. Sentimental reading attachment; F4b. Mild preoccupation with unfortunate parenting experiences)	
F5. Somewhat resentful/conflicted while accepting of continuing involvement	
E *(Entangled, Preoccupied with or by early attachment or attachment-related experiences)*	**Type C**
E1. Passive	**Low-index patterns**:
E2. Angry/conflicted	C1-2. Threatening/Disarming
E3. Fearfully preoccupied by traumatic events (E3a. Confused fearful and overwhelmed by traumatic/ frightening experiences; E3b. Distressing loss of memory in apparent relation to traumatic experiences)	(C1. Threateningly angry; C2. Disarmingly desirous of comfort)
	High-index patterns (Obsessive C+):
	C3-4. Aggressive/Feigned helpless
	C5-6. Punitive/Seductive
	C7-8. Menacing/Paranoid
U/d *(unresolved, disorganized/disoriented states of mind with respect to experiences of loss or abuse)*	**U/tr – U/I** *(Dismissed or preoccupying unresolved psychological trauma or loss)*
	Dismissed forms:
	Dismissed, Displaced, Vicarious, Blocked, Denied, Delusional repair
	Preoccupied forms:
	Preoccupied, Anticipated, Imagined, Suggested, Hinted, Delusional revenge
CC *(Cannot Classify)*	**Type A/C** *(Combination of unintegrated A and C patterns)*
	Type AC *(Integration of distorted information)*
	Modifiers
	Depression, Disorientation, Intrusions of forbidden negative affect, Expressed somatic signs, Triangulation, Reorganizing

Bold characters indicate principal categories in the two systems.

figure, especially in time of distress; however, when the attachment figure, expected to provide safety, provides cues to danger instead, this might lead the child to confused and frightened behaviors that testifies to a breakdown at the level of attachment behavioral strategies (Schimmenti & Caretti, 2016).

Such breakdown of the attachment system in early childhood can be considered as a precursor of attachment disorganization in adult life, which has been linked to many clinical disorders (such as mood disorders, dissociative disorders, eating disorders, borderline personality disorder, and schizophrenia; see Stovall-McClough & Dozier,

2016 for a review). Moreover, attachment disorganization has been longitudinally linked to high avoidance and high reexperiencing PTSD symptoms in research (Macdonald et al., 2008). An intriguing hypothesis for these empirical findings on attachment disorganization according to the Berkeley model could be that experiences of loss or abuse in childhood may lead to a failure to integrate mental representations (Fearon & Mansell, 2001). Thus, the potential activation of unintegrated representations concerning the loss or the abusive experiences during the AAI may evoke the sudden intrusion of memories, cognitions, and emotions associated with such experiences that automatically captures attention and initiates mental processes that are incompatible with other mental processes directed at avoiding the perceived negative consequences of activating traumatic memories. This would likely generate the lapses in monitoring of reasoning and discourse (Main et al., 1984–2003) that are characteristic of people with unresolved states of mind according to the Berkeley system.

Actually, the differences between the Berkeley and DMM systems are rooted in the mid-1970s/early 1980s and long before the announcement of a new insecure disorganized/disoriented attachment pattern (Main & Solomon, 1986) and the first development of the DMM (Crittenden, 1992), when Mary Main (1968–1973) and Patricia Crittenden (1979–1983) were two doctorate students of Mary Ainsworth. Ainsworth appreciated both her pupils, and on different occasions endorsed their work, supporting them in their extensions of her model (Ainsworth & Eichberg, 1991; Crittenden & Ainsworth, 1989). However, Mary Ainsworth was also aware of their profound theoretical divergences regarding the understanding of atypical attachment behaviors in children and the effects of fear on child development, so that she expressed her concerns in a correspondence with John Bowlby (Fonagy, 2013; Landa & Duschinsky, 2013b). These different conceptualizations have led to deep divergences between the two theoretical models and heated questions about the extent of overlap between the two coding systems. Fonagy (2013) offered a meta-theoretical suggestion saying these differences may reflect different perspectives from which to observe attachment behaviors in children and attachment representations in adults, rather than actual differences in the accuracy of the observations. On this issue, Fonagy wrote that: "The A/C or D pattern, or rather the replacement of a coherent attachment strategy with a defensive strategy, can be readily conceptualised in terms of its function or in terms of the mechanism underpinning its phenomenological presentation. To my mind, in the same way that light can be seen as either waves or particles, the consequences of attachment trauma can be seen as an adaptation that also reflects the absence of an organised strategy. I see no loss of meaning coming from this admittedly heuristic or rather deeper integration of these models" (Fonagy, 2013, p. 179).

On the basis of these theoretical and historical considerations, the aim of our study was to test for the first time the association between the Berkeley and the DMM classifications of the AAI. In particular, we tested a number of specific hypotheses. F classifications in the Berkeley would correspond to B strategies in the DMM; Ds classifications in the Berkeley would correspond to A strategies in the DMM; E classifications in the Berkeley would correspond to C strategies in the DMM; and U/d and CC classifications in the Berkeley would correspond to mixed A/C and AC patterns or the presence of Unresolved trauma (U/Tr) and/or Unresolved loss (U/l) in the DMM. These

hypotheses were formulated to test for potential direct correspondences in classifications between the Berkeley and the DMM coding systems.

However, considering the theoretical differences between the Berkeley and the DMM systems, and the previous empirical literature examining the different classifications resulting from the application of the two coding systems (Shah et al., 2010; Shah & Strathearn, 2014; Crittenden & Spieker, 2009; Zachrisson et al., 2011), we also tested an alternative hypothesis that organized states of mind (Ds, F, and E) at the Berkeley system would correspond to normative strategies at the DMM (B, low-index A and low-index C), while disorganized states of mind (U and CC) at the Berkeley would correspond to non-normative attachment strategies at the DMM (high-index A, high-index C, high-index A/C or AC).

Method

Overview

This study was a part of the *Bologna Attachment Assessment Project*, developed by the Attachment Assessment Lab of the Department of Psychology, University of Bologna. The general aim of the project was to improve the assessment of attachment in infancy and adulthood and to promote the quality of the interactions between parents and their children.

Participants

The AAI was administered to 100 subjects (50 females and 50 males) aged from 23 to 61 years ($M = 35.77$, $SD = 5.85$). Participants were couples of Italian parents of newborns coming from Northern and Central Italy. They were originally recruited as a part of a research program exploring the influence of parental attachment and sensitivity on the psychomotor development of newborns, developed by the Department of Psychology of Bologna in collaboration with the Obstetrics and Gynecology Units and the Neonatal Intensive Care Units of the Infermi Hospital of Rimini and of the Civile Hospital of Brescia, Italy (Baldoni, 2013; Neri et al., 2017).

Measure

The AAI (George, Kaplan, & Main, 1984–1996) is a semi-structured interview based on a series of open questions regarding the relationship between the interviewee and his or her attachment figures during childhood. Its purpose is not to get a detailed history of the childhood but to identify the configuration of thoughts and feelings concerning the relationship with caregivers during childhood. The whole interview is audio-recorded and then transcribed *verbatim*, with verbal and non-verbal aspects, such as silence, pauses, and babbling, pointed out.

Procedures

The research design involved the administration of various measures to the parents and their children, including the AAI to parents. Participants were contacted during a periodic

consultation in the hospital immediately after the births of their babies. They were informed about the topic of the study and completed a document stating that they agreed to participate in the research. Participants with medical or psychiatric disorders were excluded by means of a preliminary clinical consultation. Parents who did not speak Italian as their first language were also excluded from the study. The AAI was administered individually to the parents six months after the births of their children. Properly trained interviewers administered the AAI in a dedicated and quiet hospital room. Ten interviews were incomplete or impossible to transcribe due to the bad quality of the audio; therefore, they were excluded from the analysis. After the transcription, four different coders independently classified the remaining 90 interviews, with two following the Berkeley criteria and two following the DMM criteria. All coders were officially trained in their respective models and obtained full reliability for AAI analyses with follow-up test of AAI transcript classification after training. All coders were blind to the participants' histories and personal characteristics.

Statistical analysis

Descriptive statistics were computed for all of the variables in the study. The inter-rater agreement among coders was examined by means of Cohen's *k*. We then used the χ^2 test to examine the associations between the Berkeley and the DMM classifications in a manner that was consistent with other studies (Crittenden et al., 2007; Crittenden & Newman, 2010; Crittenden & Spieker, 2009). The inter-rater reliability was high for both Berkeley coders (k = .88, t = 12.71, p < .001) and DMM coders (k = .94, t = 14.40, p < .001).

Results

The 90 participants (45 females and 45 males) whose AAI transcripts were available ranged in age from 23 to 61 years (M = 36.00, SD = 5.80). Their average level of education was 13.50 years (SD = 3.78), and most of them were married (86.7%) and were full-time or part-time workers (95.4%). In most cases (62.2%), the newborn was the participant's first child.

In the Berkeley classification system, 57 (63.3%) of these participants were classified as Free (F), 12 (13.3%) as Dismissing (Ds), seven (7.8%) as Entangled (E), and 14 (15.5%) as Unresolved/disorganized (U/d, N = 11, 12.2%), Cannot Classify (CC, N = 2, 2.2%), or both (U/CC, N = 1, 1.1%). In the DMM system, 29 participants (32.2%) were classified as Type B (Balanced), 35 (38.9%) as Type A, 13 (14.4%) as Type C, and 13 (14.4%) as mixed (Type AC or A/C). At the DMM, high-index attachment patterns (A+, C+, mixed high-index AC and A/C) were present in 36 cases (40%), and Unresolved trauma or Unresolved loss (U/tr or U/l) were present in 40 cases (44.4%).

No significant associations were found between the Berkeley and the DMM classifications in four-way analyses ($\chi^2_{(9)}$ = 15.19, p = .09, n.s.; see Table 2).

Next, we explored whether the 11 U/d attachment classifications in the Berkeley were associated with the 40 DMM cases in which unresolved loss or trauma (U/Tr, U/l) was present. Notably, the analysis resulted in a lack of significant associations between U/d classifications according to the Berkeley system and the presence of U/Tr or U/l indicators in the DMM classifications ($\chi^2_{(1)}$ = .1.50, p = .22, n.s.). The weak contingency coefficient of

Table 2. Cross-tabulations of AAI attachment pattern distributions across Berkeley and DMM systems (N = 90).

DMM	Type B		Type A		Type C		Mixed A/C – AC	
Berkeley	*N*	%	*N*	%	*N*	%	*N*	%
F (Free)	20	(35.1)	24	(42.1)	7	(12.3)	6	(10.5)
Ds (Dismissing)	3	(25.0)	5	(41.7)	0	(0.00)	4	(33.3)
E (Entangled)	0	(0.00)	2	(28.6)	3	(42.9)	2	(28.6)
U/d (Unresolved) and/or CC (Cannot Classify)	6	(42.9)	4	(28.6)	3	(21.4)	1	(7.1)

Berkeley: Berkeley system; DMM: Dynamic-Maturational Model.

C = .13 suggested that the two classification systems attribute different meanings to trauma and its resolution. Moreover, when we examined if the U/d and CC classifications in the Berkeley system were associated with non-normative classifications (A+, C+, mixed high-index AC, or A/C) in the DMM, we found no significant association between these categories ($\chi^2(1)$ = .54, p = .46, n.s.). In detail, 21 AAIs out of 57 (36.8%) classified as F in the Berkeley system were non-normative in the DMM, six AAIs out of 14 (42.8%) classified as U/d or CC in the Berkeley system were B in the DMM, and nine AAIs out of 41 (21.9%) classified as normative in the DMM were U/d or CC in the Berkeley system.

The only significant association between the two classification systems emerged when we excluded from the analysis all of the cases involving disorganized and/or competitive attachment classifications (U/d and CC) in the Berkeley system and all of the cases involving non-normative classifications (A+, C+, mixed high-index AC, and A/C) in the DMM, which resulted in 41 comparable cases. In this analysis involving only subjects who displayed organized and normative attachment classifications in both models, the association between the two coding systems was significant ($\chi^2_{(4)}$ = 19.31, p = .001), with a moderate contingency coefficient for the association of C = .57. The pattern of associations between Berkeley and DMM attachment classifications resulting from this restricted analysis is displayed in Figure 1.

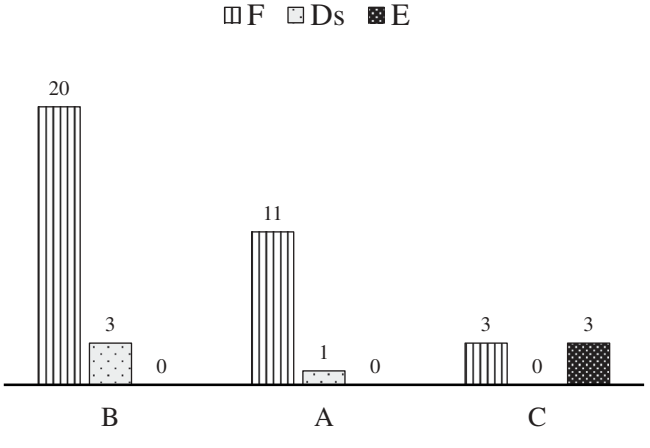

Figure 1. Distribution of organized (Berkeley) and normative (DMM) attachment classifications (N = 41).

Berkeley classification: F = Free, Ds = Dismissing, E = Entangled; DMM (Dynamic-Maturational Model) classification: A = Type A Strategy, B = Type B Strategy (Balanced), C = Type C Strategy.

As Figure 1 illustrates, also in the case in which all disorganized, not classifiable, and non-normative transcripts were excluded from the analysis, the DMM classification system tended to classify more insecure patterns than the Berkeley system. More in detail, DMM coders found more A patterns of attachment than Berkeley coders did for the supposedly corresponding Ds classification. In fact, the vast majority of the A classifications (91.67%) in the DMM were classified as F in the Berkeley. Likewise, DMM coders identified six C cases, whereas Berkeley coders identified only three E cases. However, all of the three AAIs classified as E according to the Berkeley were classified as C according to the DMM.

Discussion

The main objective of this study was to compare the Berkeley and the DMM systems for classifying AAI transcripts. In our research, we did not find sufficient evidence that the two classification systems generate similar results. In particular, no significant associations between the Berkeley and the DMM emerged, using four-way analyses. Similarly, no significant association emerged between the two classification systems as regards the presence of unresolved loss or trauma.

Research based on the Berkeley classification system has a longstanding tradition and has generated consistent findings showing that this coding system is reliable (Bakermans-Kranenburg & van IJzendoorn, 1993), stable over time (Crowell, Treboux, & Waters, 2002; Sagi et al., 1994), and highly predictive of children's behaviors at the Strange Situation Procedure (SSP; Ainsworth & Eichberg, 1991; Fonagy, Steele, & Steele, 1991) and of parental responsiveness (Van IJzendoorn, 1995), among other positive indicators of predictive and discriminant validity (Hesse, 2016). However, as the current results suggest, the validation of one method is not transferable into the other, even though the observed behavior (speech) is the same.

Unfortunately, only limited research is currently available for the DMM coding system (Farnfield, Hautamäki, Nørbech, & Sahhar, 2010). Shah et al. (2010) applied the DMM to classify the AAI protocols of 47 women during pregnancy, and the offspring's attachment patterns were assessed at 14 months according to both the DMM (Crittenden, 2003) and Main and Solomon's (1990) systems for scoring the SSP (Ainsworth, Blehar, Waters, & Wall, 1978). Shah and colleagues found a significant match of attachment patterns for secure mothers and their babies (73.4%), but a frequent inversion of insecure attachment patterns using the DMM, with Type A mothers having more Type C infants and Type C mothers having more Type A infants. Moreover, they found only a modest association between the DMM and Main and Solomon's classifications of the children at the SSP, and the AAI classifications of mothers according to the DMM were not associated with the SSP classifications of their babies according to Main and Solomon's system. In another study (Hautamäki, Hautamäki, Neuvonen, & Maliniemi-Piispanen, 2010), a Finnish sample of mothers, fathers, and maternal grandmothers (32 families) was assessed using the AAI (classified according to the DMM), and the Preschool Assessment of Attachment (Crittenden, 1988–2005) was used to assess the attachment patterns of the couples' children at three years. This study showed some continuity of attachment patterns across the three generations, but also reversal of insecure attachment patterns was common in this sample. Also, Strathearn and colleagues (2009) examined a group of mothers viewing

their own infant's smiling and crying faces during Functional Magnetic Resonance Imaging (fMRI) scanning. Mothers with Type B attachment at the AAI (classified using the DMM system) showed greater activation of brain rewards regions and higher peripheral oxytocin response on viewing images of their own infant's facial expressions.

Therefore, some studies on the validity of the DMM system applied to the AAI transcripts have in fact been conducted. However, these are much fewer than those devoted to the Berkeley system, which is established as a valid and reliable method to assess states of mind with respect to attachment. Moreover, no systematic reviews or meta-analyses of DMM findings have been conducted to date, which indicates that the DMM needs more extensive validation.

Our findings suggest that a secure adult attachment classification is more frequently attributed by the Berkeley system. In fact, using the Berkeley criteria, 63% of the AAIs showed a Free/autonomous (F) classification, whereas only 32% of the AAIs were classified as Balanced (B) when applying the DMM criteria. Moreover, Dismissing (Ds) attachment classifications in the Berkeley system were detected less frequently than the Dismissing (A) patterns in the DMM (13% vs. 39%). Remarkably, the prevalence of AAI classifications according to the Berkeley system in our sample is in line with the Italian and international literature on the prevalence of adult attachment classifications in nonclinical samples (Cassibba, Sette, Bakermans-Kranenburg, & van IJzendoorn, 2013). For example, Bakermans-Kranenburg and van IJzendoorn (2009) reported that the four-way AAI distribution in European nonclinical samples was 18% Ds, 66% F, 4% E, and 12% U/CC, which is very similar to the classification of participants in our sample. In the same vein, the distribution of DMM classifications in our study is in line with DMM classifications in other nonclinical Italian samples (Landini et al., 2016). Therefore, it is unlikely that our sample of parents is dissimilar from other population samples.

An important finding of our study is that many AAI texts judged as secure on the Berkeley system are identified as insecure on the DMM system. This result with adults parallels research on attachment patterns in children, in which Shah et al. (2010) showed that Main and Solomon's (Berkeley) criteria tend to identify more Type B (i.e. secure) infants (67%) than the DMM criteria (41%). So, notable differences exist between the Berkeley and DMM classification systems that can explain their weak associations and different results in classifying AAI transcripts.

Therefore, it is critical for attachment research to understand the origin of the differences between the Berkeley and DMM classifications and to examine how different scoring criteria might lead to different AAI classifications. A possible explanation of our findings is that the two coding systems have different theoretical assumptions concerning the nature and functioning of the attachment behavioral system. Both models refer to mental representations of attachment, but in different ways. The Berkeley system refers more to the analysis of discourse to identify states of mind with respect to attachment, whereas the DMM is more focused on the function of the attachment strategies and how they are displayed in the use of cognitive and affective information. For Main, the infant's disorganized behavior in the SSP reflects a lack of a strategy to manage fear associated with a frightened or frightening parent and, in the Berkeley system, significant trauma and loss are considered to potentially foster dysregulated and painful feelings that may temporarily disorganize the individual and that may even prevent him or her from developing coherent mental states with respect to such

experiences (Main & Hesse, 1990). Conversely, fear is conceived in the DMM as an organizing affect (Shah & Strathearn, 2014) that fosters a self-protection strategy. For example, according to the DMM system, the child may develop a Type C self-protective strategy when relating with a predictable unresponsive and depressed Type A caregiver. His or her attachment behaviors would be then characterized by an overemphasis of affect display to reach the affectively distant parent. So, attachment behaviors will be organized around affective information, and the child will be worried about his or her own feelings, omitting or distorting the cognitive information coming from his or her memory systems. Also, in the case of unpredictable threats, such as physical abuse perpetrated by a drug-addicted parent, the child may inhibit any display of negative affect (Type A strategy) in order to prevent further abuse. This implies that in the DMM, even the presence of threatening or abusing attachment figures can produce a state of mind that, albeit insecure, is organized around self-protective strategies for maximizing the probability of survival and adaptation (Crittenden, 2015b).

In addition, the Berkeley system and the DMM differ in their conceptualizations of the process that leads a child to become securely attached and to the organization of an attachment behavior. Main (2000; Main, Kaplan, & Cassidy, 1985), according to Ainsworth's early work (1967), maintained that secure infant attachment emerges in the context of maternal contingency and sensitive responsiveness to the infant's signals, which are manifested by the infant's organized ability to "seek proximity" to the mother when distressed and to engage in the exploration of the environment when not distressed. Crittenden (2015a, 2015b), in line with the later thought of Ainsworth (Landa & Duschinsky, 2013b), conceptualized that infants develop organized attachment strategies to maintain the "availability" of the attachment figure through the process of integration of cognitive and affective information and referred the term "organized" to any patterned behavior that aims to maintain the availability of the attachment figure as a source of protection. It is also possible that our findings reflect the different conceptualization of attachment insecurity in the two coding systems. The DMM is focused on the different ways cognition and emotion are distorted in the adaptation of the child to an unloving parent. The Berkeley system adopts a functional approach to emotion, in which attachment-related feelings and states of mind derive from the child's appraisal process of unloving parental behaviors.

These differences in the conceptualization about the organization and the functioning of attachment behaviors can be reflected in different attachment classifications. In fact, in our study, we found a significant association between the two classification systems only when we excluded from the analysis all of the interviews displaying the "Disorganized" and "Cannot Classify" states of mind with respect to attachment in the Berkeley system and non-normative and high-index mixed attachment patterns in the DMM. So, the two classification systems seem to converge to some degree only when individuals display normative and organized patterns of attachment. However, the two systems also generate extremely different classifications when individuals display other attachment patterns that are less functional and less adaptive on the psychological level, which often happens with people suffering from clinical disorders.

In addition, the higher number of A and C classifications in the DMM as compared to the Ds and E classifications in the Berkeley system should lead researchers and clinicians to exercise extreme caution when making any comparison of the two coding systems

and their classifications. This recommendation is the same as that of other studies comparing different measures of attachment, which have already highlighted the lack of convergence between the AAI classifications and self-reported questionnaires, which are only weakly associated with AAI classifications (Fraley & Waller, 1998; Mikulincer & Shaver, 2016; Roisman, Fraley, & Belsky, 2007; Roisman, Holland, et al., 2007; Shaver, Belsky, & Brennan, 2000).

The aim of our research was to compare how the Berkeley and DMM systems performed in the classification of the AAI transcripts and to test if their classifications were associated. Our intention was neither to validate one or both of the two methods, nor to demonstrate the superiority of one model with respect to the other. Our findings suggest that the two classification systems are barely comparable, likely because they are based on different theoretical assumptions. However, our study presents some limitations. The sample was not overly large, and the participants were from North and Central Italy only. In addition, the sample consisted of couples of parents assessed at six months after the birth of their newborn; thus, our findings concerning the observed differences in AAI classifications between the Berkeley and DMM systems cannot be immediately extended to other samples (although our data did not differ from other findings in the Italian and international literature on the prevalence of adult attachment classifications). Moreover, the reduced sample size prevented us from performing a more sophisticated statistical analysis and from comparing the single subcategories of attachment classifications. Thus, research on wider populations, on clinical samples, and in different cultural contexts is needed to extend our findings. Most importantly, research should examine how AAI classifications derived from different theoretical models and their related coding systems are associated with external variables linked to adult attachment, such as caregiver sensitivity or infant attachment. This can have critical implications for research and clinical practice, as it would allow for comparing the predictive validity of the two methods. In this respect, a quite extensive and convincing literature is already available showing that the Berkeley system is able to predict attachment-related variables, whereas for the DMM, this research is currently limited.

However, the results of our study raise the following question: the construct of attachment – the concept itself – could be similar, but ideas about the function of the attachment system and how it is thought to work differ in the Berkeley and DMM classification systems of text analysis, even when using the same instrument (in this case, the AAI). This means that the classifications and the information resulting from these different assessment methods might be different. Such consideration could be particularly relevant (Craparo, Gori, Petruccelli, Cannella, & Simonelli, 2014), especially when the assessment of adult attachment is used to draw conclusions from empirical studies or, even more important, to develop clinical interventions. Research with the Berkeley system has indicated that U/d and CC categories are linked with the most troublesome outcomes for the infants and for the speakers themselves (Holtzworth-Monroe, Stuart, & Hutchinson, 1997; Steele & Steele, 2008). However, in our study, we found that 43% of participants classified as U/d or CC in the Berkeley system were classified as B in the DMM system. This difference certainly poses serious questions on the comparability of the two methods and appears especially troubling from a clinical point of view, for example, in situations in which a clinician working in a team uses the

attachment classification resulting from an AAI coded by a colleague to plan the treatment of a patient.

In conclusion, different conceptualizations of attachment may attribute different meanings to crucial concepts such as safety, insecurity, fear, or disorganization. Therefore, researchers and clinicians should be aware of the conceptual model of attachment that they use in their practice and should consider its benefits and limitations in relation to specific research or clinical purposes.

Acknowledgements

The authors would like to thank some colleagues who made this research possible: Gina Ancora, Giuseppe Battagliarin, Vincenzo Caretti, Gaetano Chirico, Antonio Imbasciati, Andrea Landini and Nicola Romeo.

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

Franco Baldoni http://orcid.org/0000-0002-4547-749X
Mattia Minghetti http://orcid.org/0000-0001-9023-7623
Giuseppe Craparo http://orcid.org/0000-0001-5748-0592
Loredana Cena http://orcid.org/0000-0002-3162-9237
Adriano Schimmenti http://orcid.org/0000-0001-5181-2648

References

Ainsworth, M. D. S. (1967). *Infancy in Uganda: Infant care and the growth of love*. Baltimore: Johns Hopkins University Press.

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.

Ainsworth, M. D. S., & Eichberg, C. G. (1991). Effects on infant-mother attachment of mother's unresolved loss of an attachment figure or other traumatic experience. In C. M. Parkes, J. Stevenson-Hinde, & P. Marris (Eds), *Attachment across the life cycle* (pp. 160–183). New York, NY: Routledge.

Ammaniti, M., Dazzi, N., & Muscetta, S. (2008). The AAI in a clinical context: Some experiences and illustrations. In H. Steele & M. Steele (Eds.), *Clinical applications of the Adult Attachment Interview* (pp. 236–269). New York, NY: Guilford Press.

Bakermans-Kranenburg, M. J., & Van IJzendoorn, M. H. (1993). A psychometric study of the Adult Attachment Interview: Reliability and discriminant validity. *Developmental Psychology*, *29*(5), 870–879.

Bakermans-Kranenburg, M. J., & Van IJzendoorn, M. H. (2009). The first 10,000 Adult Attachment Interviews: Distributions of adult attachment representations in clinical and non-clinical groups. *Attachment & Human Development*, *11*(3), 223–263.

Baldoni, F. (2013). Attachment, adaptation and psychopathology in perinatal period: The father's role. Paper presented at the XIII ESTSS Conference (Bologna, Italy – June, 5-9, 2013). *European Journal of Psychotraumatology*, *4*, 74.

Barone, L. (2003). Developmental protective and risk factors in borderline personality disorder: A study using the Adult Attachment Interview. *Attachment & Human Development*, *5*(1), 64–77.

Benoit, D., & Parker, K. C. H. (1994). Stability and transmission of attachment across three generations. *Child Development*, *65*(5), 1444–1456.
Bowlby, J. (1980). *Attachment and loss, vol. III: Loss: Sadness and depression*. London: Hogarth Press.
Cassibba, R., Sette, G., Bakermans-Kranenburg, M. J., & Van IJzendoorn, M. H. (2013). Attachment the Italian way. In search of specific patterns of infant and adult attachments in Italian typical and atypical samples. *European Psychologist*, *18*(1), 47–58.
Craparo, G., Gori, A., Petruccelli, I., Cannella, V., & Simonelli, C. (2014). Intimate partner violence: Relationships between alexithymia, depression, attachment styles, and coping strategies of battered women. *The Journal of Sexual Medicine*, *11*(6), 1484–1494.
Crittenden, P. M. (1988–2005). *Preschool Assessment of Attachment. Coding manual* (Unpublished manuscript). Miami, FL, USA.
Crittenden, P. M. (1992). Children's strategies for coping with adverse home environments. *Child Abuse & Neglect*, *16*, 329–343.
Crittenden, P. M. (2000). A Dynamic-Maturational approach to continuity and change in pattern of attachment. In P. M. Crittenden & A. H. Claussen (Eds.), *The organization of attachment relationships: Maturation, culture and context* (pp. 343–357). Cambridge, MA: Cambridge University Press.
Crittenden, P. M. (2003). *A guide to expansions and modifications of the Ainsworth Infant Strange Situation* (Unpublished manuscript). Miami, FL, USA.
Crittenden, P. M. (2015a). *Raising parents: Attachment, representation, and treatment (2nd edition)*. Portland, OR: William Publishing.
Crittenden, P. M. (2015b). *Danger, development and adaptation. Seminal papers on the Dynamic-Maturational Model of attachment and adaptation*. Sherfield-on-Loddon, Hook, Hampshire, UK: Waterside Press.
Crittenden, P. M., & Ainsworth, M. D. S. (1989). Child maltreatment and attachment theory. In D. Cicchetti & V. Carlson (Eds.), *Handbook of child maltreatment* (pp. 432–463). New York, NY: Cambridge University Press.
Crittenden, P. M., Claussen, A. H., & Kozlowska, K. (2007). Choosing a valid assessment of attachment for clinical use: A comparative study. *Australian and New Zealand Journal of Family Therapy*, *28*(2), 78–87.
Crittenden, P. M., & Heller, M. B. (2017). The roots of chronic posttraumatic stress disorder: Childhood trauma, information processing, and self-protective strategies. *Chronic Stress*, *1*, 1–13.
Crittenden, P. M., & Landini, A. (2011). *Assessing adult attachment: A Dynamic-Maturational method of discourse analysis*. New York, NY: Norton.
Crittenden, P. M., & Newman, L. (2010). Comparing models of borderline personality disorder: Mothers' experience, self-protective strategies, and dispositional representations. *Clinical Child Psychology and Psychiatry.*, *15*(3), 433–452.
Crittenden, P. M., & Spieker, S. (2009). Comparing two attachment classification methods applied to preschool strange situations. *Clinical Child Psychology and Psychiatry*, *15*(1), 97–120.
Crowell, J., Treboux, D., & Waters, E. (2002). Stability of attachment representations: The transition to marriage. *Developmental Psychology*, *38*, 467–479.
Duschinsky, R., Main, M., & Hesse, E. (in press). Respecifying 'fright without solution': Infant disorganized attachment, fear and regulation. *Infant Mental Health Journal*. doi:10.17863/CAM.11314
Farnfield, S., Hautamäki, A., Nørbech, P., & Sahhar, N. (2010). DMM assessment of attachment and adaptation: Procedures, validity and utility. *Clinical Child Psychology and Psychiatry*, *15*(3), 313–328.
Fearon, P. R. M., & Mansell, W. (2001). Cognitive perspectives on unresolved loss: Insights from the study of PTSD. *Bulletin of the Menninger Clinic*, *65*(3), 380–396.
Fonagy, P. (2013). Commentary on "Letters from Ainsworth: Contesting the 'organization' of attachment". *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, *22*(2), 178–179.
Fonagy, P., Leigh, T., Steele, M., Steele, H., Kennedy, R., Mattoon, G., … Gerber, A. (1996). The relation of attachment status, psychiatric classification, and response to psychotherapy. *Journal of Consulting and Clinical Psychology*, *64*(1), 22–31.
Fonagy, P., Steele, H., & Steele, M. (1991). Maternal representations of attachment during pregnancy predict the organization of infant-mother attachment at one year of age. *Child Development*, *62*(5), 891–905.

Fraley, R. C., & Waller, N. G. (1998). Adult attachment patterns: A test of the typological model. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 77–114). New York, NY: Guilford Press.

George, C., Kaplan, N., & Main, M. (1984–1996). *Adult Attachment Interview protocol* (Unpublished manuscript). Berkeley, CA: University of California, Berkeley.

Grice, H. P. (1975). Logic and conversation. In P. Cole & J. L. Moran (Eds.), *Syntax and semantic: Vol. 3. Speech acts* (pp. 41–58). New York: Academic Press.

Hautamäki, A., Hautamäki, L., Neuvonen, L., & Maliniemi-Piispanen, S. (2010). Transmission of attachment across three generations: Continuity and reversal. *Clinical Child Psychology and Psychiatry*, *15*(3), 347–354.

Hesse, E. (2016). The Adult Attachment Interview: Protocol, method of analysis, and selected empirical studies: 1985–2015. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 553–597). New York, NY: Guilford Press.

Hesse, E., & Main, M. (1999). Second-generation effects of unresolved trauma in nonmaltreating parents: Dissociated, frightened, and threatening parental behavior. *Psychoanalytic Inquiry*, *19*(4), 481–540.

Holtzworth-Munroe, A., Stuart, G. L., & Hutchinson, G. (1997). Violent versus nonviolent husbands: Differences in attachment patterns, dependency, and jealousy. *Journal of Family Psychology*, *11*(3), 314–331.

Landa, S., & Duschinsky, R. (2013a). Crittenden's Dynamic–Maturational Model of attachment and adaptation. *Review of General Psychology*, *17*(3), 326–338.

Landa, S., & Duschinsky, R. (2013b). Letters from Ainsworth: Contesting the 'organization' of attachment. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, *22*(2), 172–177.

Landini, A., Crittenden, P. M., & Landi, G. (2016). The parents of child psychiatric patients. *Annals of Psychiatry and Mental Health*, *4*(7), 1087.

Macdonald, Z. H., Beeghly, M., Grant-Knight, W., Augustyn, M., Woods, R. W., Cabral, H., … Frank, D. A. (2008). Longitudinal association between infant disorganized attachment and childhood posttraumatic stress symptoms. *Development and Psychopathology*, *20*(2), 493–508.

Main, M. (2000). The organized categories of infant, child, and adult attachment: Flexible vs. inflexible attention under attachment related stress. *Journal of the American Psychoanalytic Association*, *48*(4), 1055–1096.

Main, M., Goldwyn, R., & Hesse, E. (1984-2003). *Adult attachment rating and classification systems* (Unpublished manuscript). Berkeley, CA: University of California, Berkeley.

Main, M., & Hesse, E. (1990). Parent's unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightened parental behavior the linking mechanism? In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in preschool years: Theory, research, and intervention* (pp. 161–182). Chicago, IL: University of Chicago Press.

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the Society for Research in Child Development*, *50*(1/2), 66–104.

Main, M., & Solomon, J. (1986). Discovery of a new, insecure-disorganized/disoriented attachment pattern. In M. Yogman & T. B. Brazelton (Eds.), *Affective development in infancy* (pp. 195–224). Norwood, NJ: Ablex.

Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. In M. T. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research and intervention* (pp. 121–160). Chicago, IL: University of Chicago Press.

Mikulincer, M., & Shaver, P. R. (2016). *Attachment in adulthood: Structure, dynamics, and change*. New York, NY: Guilford Press.

Neri, E., Agostini, F., Baldoni, F., Facondini, E., Biasini, A., & Monti, F. (2017). Preterm infant development, maternal distress and sensitivity: The influence of severity of birth weight. *Early Human Development*, *106-107*, 19–24.

Patrick, M., Hobson, R. P., Castle, D., Howard, R., & Maughan, B. (1994). Personality disorder and the mental representation of early social experience. *Development and Psychopathology*, *6*(2), 375–388.
Roisman, G. I., Fraley, R. C., & Belsky, J. (2007). A taxometric study of the Adult Attachment Interview. *Developmental Psychology*, *43*(3), 675–686.
Roisman, G. I., Holland, A., Fortuna, K., Fraley, R. C., Clausell, E., & Clarke, A. (2007). The Adult Attachment Interview and self-reports of attachment style: An empirical rapprochement. *Journal of Personality and Social Psychology*, *92*(4), 678–697.
Sagi, A., Van IJzendoorn, M. H., Scharf, M., Koren-Karie, N., Joels, T., & Mayseless, O. (1994). Stability and discriminant validity of the Adult Attachment Interview: A psychometric study in young Israeli adults. *Developmental Psychology*, *30*(5), 771–777.
Schimmenti, A., & Caretti, V. (2016). Linking the overwhelming with the unbearable: Developmental trauma, dissociation, and the disconnected self. *Psychoanalytic Psychology*, *33* (1), 106–128.
Schimmenti, A., Passanisi, A., Pace, U., Manzella, S., di Carlo, G., & Caretti, V. (2014). The relationship between attachment and psychopathy: A study with a sample of violent offenders. *Current Psychology*, *33*(3), 256–270.
Shah, P. E., Fonagy, P., & Strathearn, L. (2010). Is attachment transmitted across generations? The plot thickens. *Clinical Child Psychology and Psychiatry*, *15*(3), 329–345.
Shah, P. E., & Strathearn, L. (2014). Similarities and differences between the ABC+D model and the DMM classification system of attachment. A practitioner's guide. In P. Holmes & S. Farnfield (Eds.), *The guidebook of attachment theory and interventions* (pp. 73–88). New York, NY: Routledge.
Shaver, P. R., Belsky, J., & Brennan, K. A. (2000). The adult attachment interview and self-reports of romantic attachment: Associations across domains and methods. *Personal Relationships*, *7*(1), 25–43.
Steele, H., & Steele, M. (Eds.). (2008). *Clinical applications of the Adult Attachment Interview*. New York, NY: Guilford Press.
Steele, H., Steele, M., & Murphy, A. (2009). Use of the Adult Attachment Interview to measure process and change in psychotherapy. *Psychotherapy Research*, *19*(6), 633–643.
Stovall-McClough, K. C., & Cloitre, M. J. (2006). Unresolved attachment, PTSD, and dissociation in women with childhood abuse histories. *Journal of Consulting and Clinical Psychology*, *74*(2), 219–228.
Stovall-McClough, K. C., & Dozier, M. (2016). Attachment states of mind and psychopathology in adulthood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 715–738). New York, NY: Guilford Press.
Strathearn, L., Fonagy, P., Amico, J., & Montague, P. R. (2009). Adult attachment predicts maternal brain and oxytocin response to infant cues. *Neuropsychopharmacology*, *34*(13), 2655–2666.
Tyrrell, C. L., Dozier, M., Teague, G. B., & Fallot, R. D. (1999). Effective treatment relationships for persons with serious psychiatric disorders: The importance of attachment states of mind. *Journal of Consulting and Clinical Psychology*, *67*(5), 725–733.
van IJzendoorn, M. H. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin*, *117*(3), 387–403.
van IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2008). The distribution of adult attachment representations in clinical groups: A meta-analytic search for patterns of attachment in 105 AAI studies. In H. Steele & M. Steele (Eds.), *Clinical applications of the Adult Attachment Interview* (pp. 69–96). New York, NY: Guilford Press.
Zachrisson, H. D., Sommerfeldt, B., & Skårderud, F. (2011). What you use decides what you get: Comparing classificatory procedures for the Adult Attachment Interview in eating disorder research. *Eating and Weight Disorders*, *16*(4), e285–e288.