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Adult attachment interviews of women from low-risk, poverty, and maltreatment risk samples: comparisons between the hostile/helpless and traditional AAI coding systems

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The main aim of this study was to investigate the correlates of a Hostile-Helpless (HH) state of mind among 67 women belonging to a community sample and two different at-risk samples matched on socio-economic indicators, including 20 women from low-SES population (poverty sample) and 15 women at risk for maltreatment being monitored by the social services for the protection of juveniles (maltreatment risk sample). The Adult Attachment Interview (AAI) protocols were reliably coded blind to the samples' group status. The rates of HH classification increased in relation to the risk status of the three samples, ranging from 9% for the low-risk sample to 60% for the maltreatment risk sample to 75% for mothers in the maltreatment risk sample who actually maltreated their infants. In terms of the traditional AAI classification system, 88% of the interviews from the maltreating mothers were classified Unresolved/Cannot Classify (38%) or Preoccupied (50%). Partial overlapping between the 2 AAI coding systems was found, and discussion concerns the relevant contributions of each AAI coding system to understanding of the intergenerational transmission of maltreatment.

Keywords: Hostile-Helpless state of mind; Adult Attachment Interview; trauma; disorganization; unresolved state of mind

Introduction

A new category of disorganized states of mind for the classification of the Adult Attachment Interview (AAI), namely Hostile-Helpless (HH), has been proposed by Lyons-Ruth and her group (Lyons-Ruth, Melnick, Yellin & Atwood, 1995–2005). This new category is aimed at operationalizing the states of mind that might present on the AAI secondary to chronic relational trauma, including sexual, physical, or emotional abuse; however, in contrast with the criteria for judging Unresolved (U) classification (Main, Goldwin, & Hesse, 2002), HH coding does not depend on the reporting of a specific experience of loss or abuse. The HH system belongs to a stream in the AAI literature that has drawn attention to the potential limits of the original approach that was validated initially in normative community samples before it came to be widely applied in clinical settings (Bakermans-Kranenburg & van IJzendoorn, 2009). This stream has included comments on how the traditional AAI system may benefit from being extended, or used together with other approaches, in order to capture the peculiar states of mind common in

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non-normative, clinical, forensic, and often chronically traumatized samples (Hesse, 1996; Steele, 2003; Turton, McGauley, Marin-Avellan, & Hughes, 2001).

The AAI protocols of individuals with a HH state of mind are characterized by unintegrated mental contents that become evident through opposing and globalized evaluations of the caregiver and the self without any attempts to resolve such contradictions. Within the overall category, two general subtypes of the HH state of mind are present: a predominantly Hostile subtype and a predominantly Helpless subtype. The first subtype refers to individuals who tend to have a more hostile stance and are identified with a malevolent attachment figure, while the second subtype refers to individuals who are fearful and helpless and who may be identified with an overwhelmed or helpless caregiver. Most individuals with a hostile state of mind describe openly their negative attachment experiences in childhood, failing to acknowledge their painful feelings and the consequences associated with these experiences, while others are vague and evasive about the past. Individuals with a helpless state of mind can be pervasively fearful or passive and are identified with a caregiver who is often devalued for being impotent or abdicating his/her parental role. These individuals are more able to acknowledge vulnerable feelings, such as fear and guilt, than individuals with a hostile state of mind but they are not able to provide a coherent overview of their past experiences with the attachment figures. Although these two subtypes are described separately because their AAI protocols appear distinctly different, a mixed subtype is also possible as seen in an interview containing characteristics of both hostile and helpless subtypes. The HH coding system is based on a number of indicators that combine to an overall scaled score (1–9) for the level of HH state of mind. The overall level of HH state of mind incorporates considerations of both frequency and intensity of identifiable indicators, and high overall scores are assigned only when intensity is marked.

The potential usefulness of this new coding system of the AAI concerns its ability to detect pervasively unintegrated states of mind associated with trauma among high-risk and clinical populations involving individuals with severe psychopathology, interpersonal trauma history, and disturbances in early attachment. Unlike the conventional AAI coding system, these features are not limited to discussions of trauma and loss (U classification) or to "contradictory states of mind" (CC classification) but also capture additional indexes of adulthood attachment disorganization, including splitting and dissociation. These features may be particularly useful given the inconsistent findings concerning lower than expected rates of U and CC categories in clinical populations with a childhood history of loss or trauma. In fact, whereas some studies showed high rates of U and CC attachment classifications in these samples (e.g. Allen, Hauser, & Borman-Spurrell, 1996; Patrick, Hobson, Castle, Howard, & Maughan, 1994; Stovall-McClough & Cloitre, 2006), others did not (Barone, Fossati, & Guiducci, 2011; Boulet, Ethier, & Couture, 2004; Holtzworth-Munroe, Stuart, & Hutchinson, 1997). Specifically, relatively low rates of U and CC classifications, ranging from 33% to 53%, have been found in persons with a diagnosis of borderline personality disorder (Barone et al., 2011), maritally violent men (Holtzworth-Munroe et al., 1997), personality-disordered violent criminal offenders (van IJzendoorn et al., 1997), and negligent mothers with histories of childhood abuse (Boulet et al., 2004). Moreover, it could also help to identify maternal state of mind features most relevant to caregiving behaviors contributing to the child's attachment disorganization (e.g. Solomon & George, 2011). Specifically, this new AAI category might have significant implications for examining the intergenerational transmission of maltreatment in high-risk samples.

Initial evidence of the validity of the HH coding system has been shown in three recently conducted independent studies (Finger, 2006; Lyons-Ruth, Melnick, Patrick, & Hobson, 2007; Lyons-Ruth, Yellin, Melnick, & Atwood, 2005). In the first study (Lyons-Ruth et al., 2005), the authors have shown that the HH state of mind predicted significantly disorganized attachment in 18-month-old infants of high-risk mothers, while U did not. Specifically, among mothers of disorganized-insecure children, 75% were classified as HH whereas only 23% were classified as U or CC. Moreover, the HH category was also related to the severity of traumatic histories of the mothers as well as to disturbances in mother–child affective communication. A second study (Finger, 2006) involving a high-risk sample of drug addicted mothers and their 12–18-month-old children also revealed that HH states of mind predicted infant disorganization above and beyond the U classification. Furthermore, in line with the previous study, the HH category was more prevalent among mothers of disorganized-insecure infants in comparison with mothers of disorganized-secure infants. Finally, the third study (Lyons-Ruth et al., 2007) reported that women with borderline personality disorder are more likely to show an HH state of mind in comparison with women with a diagnosis of dysthymia.

Furthermore, these previous studies have investigated the association between the HH coding system and the traditional AAI coding system in order to explore the independence of this new attachment classification from the conventional one. Interestingly, the HH category was not associated with any single one of the four traditional categories (F, Ds, E, U), being represented in each of them: in fact, taking into account the total number ($N = 217$) of participants in the three studies, the percentage of women classified as HH was 41% among women classified as having a F state of mind ($N = 39$), 39% among women classified as having a Ds state of mind ($N = 57$), 61% among women classified as having a E state of mind ($N = 25$), 60% among women classified as having a U state of mind ($N = 90$), and 50% among women classified as having a CC state of mind ($N = 6$) (this latter category was coded only in the first study; Lyons-Ruth et al., 2005).

In addition to this research, two recent Italian studies (Barone & Frigerio, 2009; Guarino, Vismara, & Lucarelli, 2011) have investigated the HH state of mind in high-risk samples. Specifically, in a pilot study Barone and Frigerio (2009) found higher rates of HH state of mind (70%) in comparison with U state of mind (40%) in a small sample of mothers monitored by the public social services for the protection of juveniles who also had a past history of traumatic events. However, Guarino and colleagues (2011) found similar rates of women classified as HH (40%) and U/CC (35%) in a sample of 20 mothers monitored by protective services, most of whom had a history of trauma. It is very likely that this divergent finding may be due to methodological issues related to the small size of both samples and differences in samples' characteristics (e.g. number and severity of past traumatic experiences), thus raising the need for further studies to better understand this issue. However, it is worth noting that in both of these Italian studies, the hostile subtype was the most common subtype among mothers classified as HH in both samples.

To our knowledge, no studies have investigated the HH state of mind in low-risk samples, one aim of the current work. The present study is aimed at testing the construct validity of the HH category in a low risk sample, as well as in two different at risk samples. Specifically, the objectives of the study are as follows:

(1) To analyze the distribution of the HH states of mind in a low risk sample, where a high rate was not expected, and in two different high-risk samples; the first high-risk sample was composed by women from a low SES population (poverty

sample) and the second sample was composed by women monitored by social services for the protection of juveniles (maltreatment risk sample) where higher rates of HH were expected.

(2) To explore a possible link between HH and the actual maltreatment of the infant in the maltreatment risk group.

(3) To analyze the ability of the HH frequency and intensity codes or indicators to discriminate between HH and non-HH states of mind, in order to evaluate the specific contribution of each code to the final HH classification.

(4) To analyze the association between HH and traditional adult attachment categories, with a specific focus on the degree of correspondence between HH and U/CC, each being theoretically linked to trauma and dissociation phenomena. Furthermore, all of the Probable Past Experience scales and Current State of Mind scales from the traditional AAI coding system will be correlated with both HH global scale and frequency/intensity codes.

Method

Participants

The sample is composed of 102 participants including 67 women who came from community population (low-risk sample), 20 women who came from a poverty population (poverty sample), and 15 women with a history of trauma who were monitored by the social services for the protection of juveniles (maltreatment sample). Each of these groups is composed of mothers who took part, together with their children, in independent studies described elsewhere (see Barone & Frigerio, 2009; Costantino, Barone, & Cassibba, 2011; Frigerio et al., 2009). Sample characteristics pertinent to the aim of this study are described below.

Low risk sample

The sample consists of 67 women who participated in a study on the role played by genetics and attachment in the stress response of infants (Frigerio et al., 2009). The majority of the sample was recruited through poster advertisements in day care centers and other services for young families, while the remaining participants were recruited through a list of families who had previously taken part in another research project at the "Eugenio Medea" Scientific Institute and had indicated willingness to participate in additional studies on child development. The majority of participating women were Italian ($N = 66$), married ($N = 61$), well-educated (mean = 14.8, $SD = 2.9$ years of school) and of middle-high socio-economic status ($N = 63$, mean = 64.8, $SD = 18.1$) as assessed by the Hollingshead scale for parental occupation (1975). Mothers' mean age was 35.5 years ($SD = 4.5$).

Poverty sample

The sample consists of 20 women drawn from a larger at-risk sample of 43 low-SES mothers who participated in an intervention study promoting positive parenting (Costantino et al., 2011). Women were recruited from the gynecology units of three hospitals in the South of Italy. Following the criteria suggested by Belsky and Fearon

(2002), the low SES condition was established on the basis of low monthly income (less than 1290 Euros for a family with three components; ISTAT, 2007) and low education (less than 8 years of education). A total of 43 women were administered the Adult Attachment Interview; however, only 20 women matched by age, maternal education level, and SES with women from the maltreatment risk sample were included in the study.

Maltreatment risk sample

The sample consists of 15 women recruited from residential communities for mothers and children receiving protective and educational services for issues related to child maltreatment, and it includes 10 women from a previous study (Barone & Frigerio, 2009). All mothers were monitored by the public social services for the protection of juveniles because they were considered unable to independently take care of the physical and psychological needs of their infants. Further, all had a history of childhood trauma (N = 14), with the exception of one woman who had been emotionally maltreated (rejected) in adulthood by her mother. The occurrence of maltreatment in the mother's childhood was recorded from social registers and the AAI, and classified in four types of maltreatment (i.e. emotional maltreatment, physical maltreatment, neglect, and sexual abuse) on the basis of criteria established by the WHO Consultation on Child Abuse Prevention (1999). Specifically, most women (N = 8) had experienced more than one form of maltreatment in their childhood: two (14%) women had experienced emotional maltreatment and neglect in their families, four (29%) women had been physically and emotionally maltreated by their caregivers, and two women (14%) had been sexually abused (by father and brother) and had experienced neglect. Further, four (35%) women had experienced one type of maltreatment in childhood (three women had been emotionally maltreated and one woman had been sexually abused). Finally, two women had been physically and emotionally maltreated both in childhood and adulthood. Eight (53%) out of the 15 women had maltreated (in two cases jointly with the father) their 1-year-old infant, including one subject where the father was the abusive parent but the mother failed to protect her child against the perpetrator. According to the Maltreatment Classification System (Barnett, Manly & Cicchetti, 1993), three infants had been neglected, two infants had been emotionally maltreated, and three infants experienced both types of maltreatment. According to this system, physical neglect involves failure to provide for children's basic physical needs and lack of supervision (i.e. leaving a child unattended or in the care of an inadequate caregiver) and emotional maltreatment involves extreme thwarting of children's basic emotional needs for psychological safety and security, acceptance and self-esteem, and age-appropriate autonomy. The remaining mothers (N = 7) had no documented experience of having maltreated their infant but they were considered at high risk of maltreating by the protective social services for reasons related to maternal mental illness or highly conflicting and violent marital relationship; moreover, they all lived under at least two socio-economic risk conditions such as extreme poverty (as indicated by an annual income ranging from 0 to 10,000 Euros), low maternal age at child birth (less than 20 years old), ethnic minority, low maternal education (less than 8 years), and single parenthood.

Mothers from the maltreatment risk and poverty samples did not differ significantly with respect to age (F = 3.24, p = .08), maternal education (F = 3.64, p = .07), or socio-economic status (F = .56, p = .46), as assessed by the Hollingshead (1975) classification. The study was approved by the Ethics Committees of the Scientific Institute Medea and the University of Bari and all mothers signed an informed written consent to participate.

Instruments

The Adult Attachment Interview (George, Kaplan & Main, 1996)

The AAI is a semi-structured interview, lasting approximately 1 hour, aimed at eliciting a participant's present state of mind regarding early attachment experiences with caregivers. The questions of the AAI explore qualities of participants' experiences with caregivers during childhood, the reactions of participants to experiences of upset, physical hurt, illness, separation, rejection, loss, and trauma in childhood, and how participants reflect on the impact of these experiences on their adult personalities. The interviews were audio-recorded, transcribed, and coded according to both the standard Main, Goldwin and Hesse (2002) and the Hostile-Helpless (Lyons-Ruth et al., 1995–2005) coding systems by fully qualified coders.

According to the Main et al. (2002) classification, individuals whose AAIs are classified as Autonomous (F) show a coherent evaluation of their attachment experiences with their caregivers and are able to freely evaluate the effects of these experiences on their adult personalities; individuals whose AAIs are classified as Dismissing (Ds) show an attempt to devaluate or idealize the relation with their caregivers, trying to limit the influence of attachment experiences on the present; individuals whose AAIs are classified as Preoccupied (E) show a confused, angry, or passive preoccupation with attachment figures with feelings and experiences in childhood attachment experiences frequently being spoken about in the present tense; individuals whose AAIs are classified as Unresolved (U) show a lack of resolution of loss or abuse experiences, evident from lapses in the monitoring of speech or reason, excessive attention to detail, and a clear sense of absorption regarding past loss or trauma events; finally, individuals whose AAIs are primarily classified as Cannot Classify (CC) present with markedly different states of mind regarding attachment figures, or otherwise asynchronous narratives combining core elements of one of the three singular states of mind, i.e. Ds, E, or F.

All transcripts from the community and maltreatment risk samples were scored blind to their status by one of the authors (LB) trained for reliability by Main and Hesse. A subsample of 21 (21%) AAIs were independently coded by another author (EC) who had also been trained to reliability by Dazzi and Jacobitz. The concordance between the two coders was 81% ($k = 0.74$, $p < .001$). The AAI protocols from the poverty sample were scored blind to socio-economic status by EC and a subsample of 10 AAIs was independently coded by LB; inter-rater agreement was 90% ($k = .86$, $p < .001$). In case of disagreement, AAI protocols were independently recoded by the two raters and, if differences still remained, they were jointly reviewed to reach a final consensus.

The Hostile-Helpless coding system (Lyons-Ruth et al., 1995–2005)

AAI protocols of individuals with an HH state of mind are characterized by the mental representation of one or both caregivers as Hostile or Helpless (in some cases both features are present) and by their efforts to cope with still overwhelming attachment and trauma-related affects. Individuals with a Hostile state of mind show signs of identification with a malevolently-represented attachment figure, whereas individuals with a Helpless state of mind appear to identify with a helpless-fearful caregiver, toward whom they attempted to adopt a caregiving role in childhood; lastly, some individuals may present characteristics of both hostile and helpless states of mind. The Hostile-Helpless state of mind is rated on a 9-point scale, with a score of five or above resulting in an HH classification. In order to link the qualitative classification to clearly specifiable features of the transcript, a set of 16 indicators or frequency codes are central to the

coding system (see below). Although no algorithm relating these frequencies to a particular scale score has been devised, some indicators (marked with an asterisk) are weighted particularly highly in assigning a rating on the HH scale.

"*Global Devaluation of a Hostile Caregiver*"* is scored whenever the individual refers to an attachment figure as globally malevolent (e.g. "She was awful", "He was the devil").

"*Identification with a Hostile Caregiver*"* is scored whenever the individual refers to having adopted the attitude and/or harmful behaviors of the hostile parent(s) or reports being close to or similar to a parent who is elsewhere devalued or described as damaging.

"*Denial of Abuse*" is scored whenever the individual refers to adverse experiences to deny their psychological and physical impact on the self.

"*Controlling-Punitive Behaviors toward Caregiver in Childhood*"* is scored whenever the individual refers to controlling and punitive behavior shown towards a caregiver in childhood.

"*Indicators of an Invulnerable Stance*" is scored whenever the individual shows a defensive posture with regard to feeling or talking about vulnerabilities.

"*Representation of Caregiver as Helpless, Abdicating of Parental Role*"* is scored whenever the individual refers to the caregiver as helpless, pervasively anxious, frightened, or abdicating to the parental role.

"*Identification with a Helpless Caregiver*"* is scored whenever the individual describes herself/himself as acting similar to or having something in common with or being "very close to" the helpless caregiver.

"*Caregiving Behaviors toward a Caregiver in Childhood*"* is scored whenever the individual refers to having engaged in caregiving behaviors towards one or both attachment figures in childhood.

"*Caregiver Stance in Adulthood*" is scored whenever the individual refers to caregiving behaviors towards one or both attachment figures in adulthood.

"*Sense of Special Badness or Unworthiness*" is scored whenever the individual refers to an internalized sense of "badness" or "blameworthiness".

"*Laughter at Pain*"* is scored whenever the individual laughs when talking about other people's pain as well as talking about one's own.

"*Recurrent References to Fearful Affect*"* is scored whenever the individual explicitly identifies herself/himself as fearful or afraid, whether in the present or the past.

"*Vivid Unreflected-upon Imagery*" is scored whenever the individual describes a particularly vivid anecdote from the past, with specific detail, often of a sensory nature.

"*Affect-driven Confused Speech*" is scored whenever lapses in discourse, such as shifts from past to present tense, confused syntax, long pauses, incomprehensible or vague references, occur around themes of difficult experiences.

"*Blocking Out*" is scored whenever the individual attempts to suppress his/her memory/emotion related to fearful childhood experiences.

"*Ruptured Attachments in Adulthood*" is coded whenever the individual refers to intentionally breaking off a relationship with one or more members of his or her nuclear family.

A more detailed description of the HH coding system is reported elsewhere (Lyons-Ruth et al. 1995–2005, 2003, 2005, 2007).

All 102 transcripts were scored by one of the authors (AF), trained by and reliable with Karlen Lyons-Ruth and Sharon Melnick, naive to the status of the samples. A subsample of 32 (31%) AAIs, randomly selected among the three samples, were independently blind coded by another author (LB) who had also been trained by and reliable with Karlen Lyons-Ruth and Sharon Melnick. The concordance between the two coders was 91% ($k = .78$, $p < .001$). In case of disagreement, the HH classification assigned by the primary coder (AF) was retained.

Results

Preliminary analyses

Chi square analyses revealed no significant associations between socio-demographic variables (maternal age: below/above 25 years old; maternal education: below/above 10 years; and socio-economic status: low (0–30) medium (30–60) high (60–90)) and HH as well as traditional AAI classifications in each group. Controlling for the group (low-risk, poverty, maltreatment risk sample) variable, no significant correlations between socio-demographic variables (maternal age, maternal education, and socio-economic status) and HH ratings emerged; similarly, no significant correlations between socio-demographic variables and all AAI traditional scales were found.

The Hostile-Helpless state of mind in low-risk, poverty, and maltreatment risk samples

The first aim of the current study was to investigate the distribution of the HH states of mind in the three samples, hypothesizing the highest rate in the maltreatment risk sample. As shown in Table 1, the percentage of women having an HH state of mind were 9% ($N = 6$), 20% ($N = 4$), and 60% ($N = 9$) in the low-risk, poverty, and maltreatment risk samples, respectively. The three subtypes of the HH classification in each sample are also shown in Table 1.

Chi square analyses in Table 1 show a highly significant association ($\chi^2(2) = 21.10$, $p < .001$) between HH classification and group (low-risk, poverty, maltreatment risk sample). Specifically, women from the maltreatment risk sample were more likely to be classified as HH (standardized residuals = 3.7). Similarly, adopting a continuous approach, the ANOVA showed a significant effect of the group on the HH rating ($F(2101) = 22.73$, $p < .001$). Scheffé post-hoc test revealed that women from maltreatment

Table 1. Distribution of the Hostile-Helpless classification in the three samples.

	Low-risk sample	Poverty sample	Maltreatment risk sample	Maltreatment risk non-offending subsample	Maltreatment risk offending subsample
	($N = 67$)	($N = 20$)	($N = 15$)	($N = 7$)	($N = 8$)
HH subtypes	*N* (%)	*N* (%)	*N* (%)	*N* (%)	*N* (%)
No HH	61 (91)	16 (80)	6 (40)	4 (57)	2 (25)
HH	6 (9)	4 (20)	9 (60)	3 (43)	6 (75)
Hostile	2 (3)	2 (10)	7 (46)	3 (43)	4 (50)
Helpless	2 (3)	0 (0)	1 (7)	0	1 (12)
Hostile-Helpless	2 (3)	2 (10)	1 (7)	0	1 (12)

risk sample had a higher HH mean rating (mean = 5.53, *SD* = 1.46) than women from both the poverty (mean = 3.25, *SD* = 1.99) ($p < .001$) and the low-risk sample (mean = 2.49, *SD* = 1.48) ($p < .001$). The HH mean rating did not differ between women from the poverty sample and women from the low-risk sample ($p = .17$).

The second aim was to examine the relation between HH status and documented maltreatment of the infant during the first year. As shown in Table 1, among the eight maltreating mothers 75% ($N = 6$) were classified as HH compared to 43% ($N = 3$) of the remaining mothers in the maltreatment risk group. Put another way, six out of nine (66%) mothers who were classified as HH maltreated their infant, whereas two out of six (33%) mothers who were not classified as HH maltreated their infant. The Mann-Whitney U test also confirms that maltreating mothers tended to show higher HH mean rating than non-maltreating mothers ($U = 13$, $p = .07$). Given the small *N* contributing to the analysis, the effect did not reach significance; however, the effect size was medium ($r = .46$), indicating that this result should be followed up in a larger sample. In addition, when compared to the socio-economically matched women in the poverty group, maltreating mothers had significantly elevated HH ratings ($U = 23$, $p = .003$) while mothers at maltreatment risk

Table 2. Results of discriminant function analyses.

HH codes	No HH Mean (*SD*)	HH Mean (*SD*)	*p*
Global Dev Hostile Caregiver	.17 (.46)	2.05 (1.47)	.000
Global Dev Helpless Caregiver	.14 (.42)	.63 (1.01)	.001
Id with a Hostile Caregiver	.05 (.22)	1.21 (1.08)	.000
Id with a Helpless Caregiver	.02 (.15)	.58 (1.07)	.000
Special Sense of Unworthiness	.58 (1.13)	1.47 (1.74)	.006
Fear	7.64 (5.99)	11.58 (8.77)	.021
Laughter at Pain	2.73 (2.63)	6.00 (8.98)	.005
Cohercitive Beh in Childhood	.40 (.92)	1.26 (1.33)	.001
Caregiving Beh in Childhood	.25 (.62)	.47 (.61)	.165
Caregiving Beh in Adulthood	.17 (.44)	.05 (.23)	.265
Vivid Imagery	.07 (.26)	.16 (.50)	.292
Denial of Abuse	.05 (.27)	.42 (.69)	.000
Blocking Out	.00 (.00)	.16 (.50)	.036
Ruptured Attachments	.05 (.22)	.37 (.68)	.000
Invulnerable Stance	.06 (.24)	.63 (1.12)	.000
Affect Driven Confused Speech	.06 (.33)	.26 (.56)	.038
	Standardized Discriminant Coefficients		
Global Dev Hostile Caregiver		.64	
Id with a Hostile Caregiver		.55	
Id with a Helpless Caregiver		.86	
Ruptured Attachments		.27	
Affect Driven Confused Speech		.32	
Blocking Out		−.68	

Note: Global Dev Hostile Caregiver: Global Devaluation of a Hostile Caregiver; Global Dev Helpless Caregiver: Representation of Caregiver as Helpless, Abdicating of Parental Role; Id with a Hostile Caregiver: Identification with a Hostile Caregiver; Id with a Helpless Caregiver: Identification with a Helpless Caregiver; Special Sense of Unworthiness: Sense of Special Badness or Unworthiness; Fear: Recurrent References to Fearful Affect; Cohercitive Beh in Childhood: Controlling-Punitive Behaviors toward Caregiver in Childhood; Caregiving Beh in Childhood: Caregiving Behaviors toward a Caregiver in Childhood; Caregiving Beh in Adulthood: Caregiver Stance in Adulthood; Vivid Imagery: Vivid Unreflected-upon Imagery; Ruptured Attachments: Ruptured Attachments in Adulthood; Invulnerable Stance: Indicators of an Invulnerable Stance.

who did not maltreat showed only trended toward significantly elevated scores ($U = 38.5$, $p = .08$).

The third aim of the study was to evaluate the specific contribution of each frequency code to the final HH classification. To address this aim, a discriminant analysis was applied to the total number of women from the three samples. The "grouping variable" was the HH (no HH versus HH) classification, while the 16 HH codes, considered one at a time, were used as independent variables in a successive stepwise procedure. Table 2 shows the results of the discriminant analysis.

As Table 2 indicates, significant mean differences were observed for all the predictors on the grouping variable with the exception of the following "Caregiving Behaviors toward a Caregiver in Childhood", **"**Caregiver Stance in Adulthood", and "Vivid Unreflected-upon Imagery". Six HH codes best distinguished women with an HH state of mind from women without an HH state of mind, with 96% of original cases correctly classified (100% and 79% of women with respectively no HH and HH state of mind were correctly classified), a Wilks' Lambda of .29, and a canonical correlation of .84.

A comparison of the HH and the original AAI classification systems

The fourth aim of the study was to compare the distribution of the HH states of mind to the traditional AAI states of mind as shown in Table 3. Taking into account that only two women out of 102 were classified as CC (both from the maltreatment risk sample), this category was combined with the U category, following the strategy deployed by Bakermans-Kranenburg & van IJzendoorn (2009) in their meta-analytic study.

Descriptively, Table 3 reveals that the predominant classification was Fs (60%) among low-risk women, whereas a high percentage of women (50%) from the poverty sample were classified as Ds, and a high percentage of women from the maltreatment risk sample were classified as E (40%) and to a lesser extent as U (33%). Among the eight maltreating women, the predominant classification was E (50%), with three (38%) of the remaining four cases being U/CC, and the eighth case was Ds.

No significant association between U/CC classification and group (low-risk, poverty, maltreatment risk sample) emerged ($\chi^2(2) = 3.79$, $p = .15$). However, adopting a continuous approach, a significant effect of the group on the U total score ($F(2,101) = 6.32$, $p = .003$) was found. Scheffè post-hoc test revealed that women from maltreatment risk sample had a higher U total mean score (mean = 4.23, $SD = 1.69$) than women from the

Table 3. Distribution of the traditional AAI classifications in the three samples and in the two maltreatment risk (non-offending and offending) subsamples.

	Low-risk sample	Poverty sample	Maltreatment risk sample	Maltreatment risk non-offending subsample	Maltreatment risk offending subsample
	($N = 67$)	($N = 20$)	($N = 15$)	($N = 7$)	($N = 8$)
States of mind	*N* (%)	*N* (%)	*N* (%)	*N* (%)	*N* (%)
Autonomous	40 (60)	7 (35)	2 (13)	2 (29)	0 (0)
Dismissing	7 (10)	10 (50)	2 (13)	1 (14)	1 (13)
Preoccupied	10 (15)	1 (5)	6 (40)	2 (29)	4 (50)
Unresolved/Cannot Classify	10 (15)	2 (10)	5 (33)	2 (29)	3 (37)

Table 4. Distribution of the HH classification according to the traditional coding system in the three samples.

Samples	HH classification	Traditional attachment categories			
		F	Ds	E	U/CC
		N (%)	*N* (%)	*N* (%)	*N* (%)
Poverty	No HH	6 (38)	8 (50)	1 (6)	1 (6)
	HH	1 (25)	2 (50)	0	1 (25)
Maltreatment	No HH	2 (33)	2 (33)	1 (17)	1 (17)
	HH	0	0	5 (56)	4 (44)
Low Risk	No HH	38 (62)	7 (12)	8 (13)	8 (13)
	HH	2 (33)	0	2 (33)	2 (33)
Total Sample	No HH	46 (55)	17 (21)	10 (12)	10 (12)
	HH	3 (16)	2 (11)	7 (37)	7 (37)

poverty sample (mean = 1.98, *SD* = 1.90) (p = .003). The U total mean score tended also to be higher in women from maltreatment risk sample in comparison with women from low-risk sample (mean = 2.98, *SD* = 1.88) (p = .07), while it did not statistically differ between women from the poverty sample and women from the low risk sample (p = .11).

Also, a similar rate of U/CC classification was found in the two maltreatment risk subsamples (offending = 38% versus non-offending = 29%), and no U total mean score differences between these two subsamples emerged (U = 19.5, p = .32). Finally, Table 4 shows the distribution of the HH state of mind according to the four Main, Goldwyn and Hesse attachment categories for the combined samples.

Table 4 indicates that HH was negatively related to the F classification (phi = −.31, p = .002), and positively related to both the E classification (phi = .26, p = .01) and the U classification (phi = .26, p = .01) in the combined sample. Thus, only a modest association was found between the AAI-HH and AAI-U categories.

To test the associations between HH frequency codes and the AAI rating scales, partial correlations were conducted, while controlling for the effects of the group (low-risk, poverty, maltreatment sample) variable. These correlations are shown in Table 5.

Given the high number of comparisons conducted (442), Table 5 shows in bold those correlations indicative of a large ($r \geq .50$) effect size according to Cohen's criteria (1988) with very high levels of significance ($p < .001$). According to these criteria, the HH total score significantly correlated negatively with "Loving Relation with Mother" (r = −.50), and positively with "Involving Anger Mother" (r = .51) and "U Related to Trauma" (r = .63) scales, whereas the "Indicators of an Invulnerable Stance" frequency code significantly and positively correlated with "Involving Anger Father" (r = .57) and "Overall Derogation" (r = .53) scales.

Discussion

This study has compared the HH classification system in a sample of women from a not-at-risk, high-SES population to two different at-risk populations characterized by poverty and by risk for maltreatment. The risk for maltreatment sample was further subdivided into mothers who did or did not abuse their infants. The study also explored the association between HH classification and the traditional AAI classification system.

Table 5. Correlations between HH and Probable Past Experience/Current State of Mind scales.

HH	Loving M	Loving F	Rejecting M	Rejecting F	Involv reversing M	Involv reversing F	Pressured to achieved M	Pressured to achieved F
Global Dev Hostile Caregiver	−.39***	−.35***	.33***	.35**				
Global Dev Helpless Caregiver					.23*	.26**		
Id with a Hostile Caregiver	−.35***	−.31**	.29**	.39***				
Id with a Helpless Caregiver								
Special Sense of Unworthiness	−.26**	−.26**		.20*				
Fear						.25*		
Laughter at Pain					.22*			.38***
Cohercitive Beh in Childhood	−.30**	−.22*						.29**
Caregiving Beh in Childhood								
Caregiving Beh in Adulthood								
Denial of Abuse	−.22*		.26*					
Blocking Out								
Vivid Unreflected-upon Imagery		−.21*		.25*				
Ruptured Attachments	−.21*	−.27**		.34*				
Invulnerable Stance	−.40***	−.30**	.35***	.40***				
Affect Driven Confused speech								
HH total score	**−.50****	−.42***	.42***	.43***	.22*	.30**		

(*continued*)

Table 5. (*Continued*).

HH	Neglecting M	Neglecting F	Idealizing M	Idealizing F	Involving anger M	Involving anger F	Derogation M	Derogation F	Overall derogation
Global Dev Hostile Caregiver	.28**	.35***			.42***	.43***	.25**	.44***	.47***
Global Dev Helpless Caregiver									
Id with a Hostile Caregiver	.24*	.35***			.29**	.46***			
Id with a Helpless Caregiver								.35***	.28**
Special Sense of Unworthiness	.29**	.34***			.33***	.42***	.24*	.35***	.36***
Fear									
Laughter at Pain									
Cohercitive Beh in Childhood				.25*	.32***				
Caregiving Beh in Childhood		.22*				.24*		.26**	.21*
Caregiving Beh in Adulthood									
Denial of Abuse				.35***					
Blocking Out						.21*		.43***	.37***
Vivid Unreflected-upon Imagery		.35***							
Ruptured Attachments	.25*	.35***			.28**		.30**	.24*	
Invulnerable Stance	.37***	.40***			.48***	**.57****	.47***	.45***	**.53****
Affect Driven Confused Speech	.22*	.27**						.24*	
HH total score	.46***	.48***			**.51****	.43***	.29**	.43***	.30**

(*continued*)

Table 5. (*Continued*).

HH	Insistence of lack of Recall	Metacognitive Processes	Passivity of Thought Processes	Fear of Loss	U Trauma	U Loss	U Total	Coherence of T	Coherence of mind
Global Dev Hostile Caregiver			.35***		.41***		.24*	−.27**	−.24*
Global Dev Helpless Caregiver			.30**					−.24*	−.21*
Id with a Hostile Caregiver			.28**		.48***		.26**	−.21*	
Id with a Helpless Caregiver			.25**					−.20*	
Special Sense of Unworthiness			.21*		.34***		.21*	−20*	
Fear	−.26**	.21*	.20*	.31**					
Laughter at Pain						.25*			
Cohercitive Beh in Childhood			.29**		.29**	.24*	.24*	−.24*	−.23*
Caregiving Beh in Childhood		−.29**						−.24*	−.21*
Caregiving Beh in Adulthood									
Denial of Abuse					.36***			−.23*	
Blocking Out			.21*						
Vivid Unreflected-upon Imagery									
Ruptured Attachments					.38***				−.22*
Invulnerable Stance		−.23*			.45***		.22*	−.24*	−.24*
Affect Driven Confused Speech									-.20*
HH total score			.44***		**.63***		.37***	-.38***	-.33***

Notes: *$p < .05$; **$p < .01$; ***$p < .001$. Correlations indicative of a large ($r \geq .50$) effect size are shown in bold.
Global Dev Hostile Caregiver: Global Devaluation of a Hostile Caregiver; Global Dev Helpless Caregiver: Representation of Caregiver as Helpless, Abdicating of Parental Role; Id with a Hostile Caregiver: Identification with a Hostile Caregiver; Id with a Helpless Caregiver: Identification with a Helpless Caregiver; Special Sense of Unworthiness: Sense of Special Badness or Unworthiness; Fear: Recurrent References to Fearful Affect; Cohercitive Beh in Childhood: Controlling-Punitive Behaviors toward Caregiver in Childhood; Caregiving Beh in Childhood: Caregiving Behaviors toward a Caregiver in Childhood; Caregiving Beh in Adulthood: Caregiver Stance in Adulthood; Vivid Imagery: Vivid Unreflected-upon Imagery; Ruptured Attachments: Ruptured Attachments in Adulthood; Invulnerable Stance: Indicators of an Invulnerable Stance.

In line with our hypothesis, the distribution of the HH state of mind was very low in the low-risk sample, somewhat higher in the poverty sample, and greatly elevated among women who maltreated their infants. Although the antecedents and correlates of the HH state of mind in low-risk and poverty samples need to be investigated in further studies, our data crucially show a significant association between this attachment category and an intergenerational pattern of maltreatment, providing support to the validity of the HH construct. In fact, to our knowledge, this is the first study which has compared the rates of this relatively new HH AAI classification system among women coming from different conditions of risk, reporting the gradual and dramatic increase of interviews grouped as HH as a function of the severity of the risk condition. This finding was also supported by the adoption of a continuous approach according to which women at risk for maltreatment obtained the highest HH overall ratings amongst the three samples, whereas no HH mean differences were found between women from low-risk and poverty samples.

Looking descriptively at the distribution of the HH subtypes across the three samples, Hostile, Helpless, and Mixed subtypes were homogenously distributed in the low-risk sample as expected from a theoretical point of view, the hostile and mixed types were equally represented in the poverty sample, whereas the hostile type was overrepresented among women classified as HH with an intergenerational history of maltreatment. The high percentage of the hostile subtype among traumatized women is in line with previous studies (Barone & Frigerio, 2009; Guarino et al., 2011), and is likely to signify a link to abusive parenting behaviors. It can be speculated that most of these mothers subclassified as hostile in the HH system, many of whom reveal identification with a malevolent caregiver, would attempt to defend against unintegrated fear related to their past traumatic experience by enacting punitive and/or hostile behaviors towards their children (Lyons-Ruth & Block, 1996). However, the low prevalence of the helpless state of mind might depend on the specific characteristics of our sample, composed by mothers who were maltreating or at high-risk of being maltreating and who had a history of trauma. Thus, it can be speculated that the helpless subtype may be more prevalent among traumatized mothers (particularly those victims of sexual abuse; Lyons-Ruth & Block, 1996) who are not found to perpetuate the cycle of maltreatment. However, further studies based on larger samples, adequate control groups, and more detailed caregiver assessment measures are needed to support the initial findings from the current work.

Another aim of the current study was to investigate the internal consistency and intra-correlations of the HH system, asking what indicators of the HH system best discriminated between HH versus non-HH states of mind. This analysis should be considered exploratory given the lack of reliability statistics for the individual codes.

The theoretical assumptions informing the HH coding system consider “Global Devaluation of Caregiver”, “Identification with Hostile Caregiver”, “Global Devaluation of Helpless Caregiver”, and “Identification with Helpless Caregiver” especially central to the concept of an HH state of mind and require them to be heavily weighted in assigning an HH rating. All of these indicators turned out to be the best indicators of an HH state of mind in adulthood with the exception of the “Global Devaluation of Helpless Caregiver” code (whose mean score, however, was significantly higher in women with an HH state of mind than in women without an HH state of mind). Furthermore, two other HH codes, namely “Rupture of Attachments in Adulthood” and “Affect Driven Confused Speech”, which are considered to be indicators of unintegrated mental representations and marked disorientation, respectively, significantly discriminated (albeit to a lesser extent) an HH mental state. The current findings thus confirm assumed “central” as well as two “peripheral” codes as positively indicative of the Hostile-Helpless mental state. However, the

negative sign of the standardized discriminant coefficient related to "Blocking Memory" suggests that it can characterize the AAI transcripts of women *not classified* as having an HH state of mind and, therefore, it should not be taken into account in the classification. Prudence should also be used in considering the "Caregiving Behaviors toward a Caregiver in Childhood", "Caregiver Stance in Adulthood", and "Vivid Unreflected-upon Imagery" codes, as their mean values were not significantly different between women with and without an HH state of mind.

The distribution of the four attachment categories from the Main, Goldwin and Hesse coding system in women from low-risk and poverty samples was comparable to those reported by Bakermans-Kranenburg and van IJzendoorn (2009) in non-clinical and at-risk samples. A lower rate of women classified as Dismissing was found in our low-risk sample in comparison with non-clinical European samples, whereas a higher rate of Dismissing classifications and a lower rate of Unresolved classifications were found in our poverty sample comparable to Bakermans-Kranenburg and van IJzendoorn's (2009) large set of low-SES samples. With regard to this latter finding, it can be speculated that some specific characteristics of the families from the South of Italy (e.g. a tendency to have more social and community support buffering family life) may act as protective factors in preventing higher rates of Unresolved status on the AAI.

Further, the proportions classified in the Autonomous (13%) and Unresolved (33%) categories in our maltreatment risk sample corresponded closely to those found by Guarino et al. (2011) and Boulet et al. (2004) in very similar samples of women monitored by social protective services. However, a lower rate of women classified as Dismissing and a higher rate of women classified as Preoccupied was found in our sample in comparison with samples from those two studies.

Unexpectedly, the distribution of the U/CC category was not statistically different among the three samples, although women from the maltreatment risk sample had higher U mean ratings than women from the poverty sample. Since it is likely that women from our maltreatment risk sample were asked to rehearse their history many times with social workers, psychologists, and lawyers, it can be hypothesized that a lower tendency to show lapses in monitoring of reasoning or discourse related to loss or traumatic events in their AAIs, and consequently a less than expected prevalence of the U classification (Turton et al., 2001). However, according to the traditional Main et al. classification system, there was no maltreating parent with an interview judged F or secure. The interviews from all of the maltreating parents in the highest risk group were insecure, and the vast majority were interviews judged Unresolved, Cannot Classify, or Preoccupied.

Finally, we were interested in comparing the HH classification system with the traditional coding system in order to investigate the specific features and overlapping areas of these two systems. This study focused on the associations between the HH state of mind and the F, Ds, E, and (particularly) U states of mind using both a categorical and dimensional approach. It was found that the HH classification was somewhat more prevalent than the U/CC classification among women from a maltreatment risk sample, and especially prevalent among the subgroup of maltreating mothers where in traditional AAI terms U/CC and E interviews predominated. The HH score was most strongly correlated with the traditional AAI rating scale for Unresolved Trauma, underlining the intended relevance of the HH system, i.e. as an attempt to extend knowledge in the domain of trauma, attachment behaviors, and attachment representation. In this respect, the current findings add to our understanding of the relational representations associated with difficulties in integrating abuse, as captured by the U-Trauma scale. In addition, the findings suggest that E-Preoccupied individuals in maltreatment risk samples may also

show additional HH features in their attachment representations, features that are associated with risk for maltreatment and for infant disorganization rather than with infant ambivalent attachment. These observations are in keeping with recent contributions highlighting the multiple levels implied, and various correlates to be found, in respect of attachment disorganization (Solomon & George, 2011). No doubt, some features of disorganized states of mind are captured by both the traditional AAI system and the HH system, and other features of disorganization may be captured uniquely by one system or the other.

Meaningful sub-themes in the current work can be seen in the finding that a few interviews judged autonomous-secure or F in the Main, Goldwyn and Hesse approach were independently judged Hostile-Helpless. This echoes the literature on how an identifiable measure of dissociative mental processes is evident, in low frequency, in the community. And, at the other end of the spectrum, a few of the maltreated sample nonetheless presented with autonomous-secure and non-HH interviews, pointing to resilience, earned security, and a break from the intergeneration pattern of maltreatment.

Some thought must be given to how these two AAI systems do not converge completely and how this is to be expected from the somewhat differing foci of each system. The conventional Main, Hesse and Goldwin (2008) approach is exclusively focused on language use, syntactical structures, and the use of words conveying agency, present tense, past tense, and future tense. The rater applying this traditional system is trained to attend to spoken (transcribed) language only as it pertains to probable past experience and current state of mind, rendered in terms of normative affect-regulatory terms, e.g. anger, idealization or derogation, and adherence to detailed criteria for judging coherence of the narrative, as well as discrete criteria for rating unresolved mourning regarding past loss or trauma. While this focus upon language is also evident in the HH system, coding for HH relies on the presence of indicators of a contradictory and pervasively unintegrated state of mind related to the representation of attachment relationships, theoretically derived from concepts in the trauma and attachment literature, which can be present throughout the whole transcript and do not depend on the identification of a specific episode of loss or abuse. In addition, applying the HH system depends on drawing into one set of HH criteria what are diverse elements in the conventional system, i.e. anger, derogation, references to fearful affect, more extreme dismissing indicators such as laughter at pain, absorption, and areas of confused speech not confined to loss or trauma. Thus, the HH system was not designed to replace any of the existing categories of the original AAI coding system and our findings concerning the association between the HH system and the Main, Goldwyn and Hesse system indicate only modest but significant areas of overlap, especially as concerns derogation and anger, between the two systems.

So what does the HH system offer beyond the traditional system? To partially address this crucial issue, our data (particularly from the maltreatment risk sample) contribute to evidence of the usefulness of the HH classification system in identifying additional unintegrated states of mind implicated in the disorganization of caregiving behavior and maltreatment transmission, in line with studies showing HH classification as a potent predictor of disorganized-insecure infants than U classification (Finger, 2006; Lyons-Ruth et al., 2005). Consequently, detecting an HH state of mind, particularly hostile subtype, in traumatized women may help clinicians and researchers to recognize who is at greatest risk of failure to care for their children, and is therefore in need of an adequate treatment.

Some limitations of the study should be kept in mind. First, the small size of the poverty and maltreatment samples limits the power of statistical analysis and suggests prudence in generalizing our findings. Second, for the same reason, a possible overlap

between the HH and the CC states of mind could not be tested. Third, similar to other studies, this study may have been unable to keep AAI coders completely blind to the group status of the samples because the life history of the participants is included in the AAI. However, this limitation should affect both coding systems. Fourth, the second HH coder was also involved in coding transcripts according to the traditional AAI coding system; though, this coder's data were used only to assess inter-rater reliability and were not used in the main data analyses. Finally, the data correlating individual scales in the Main, Goldwyn and Hesse system and the HH system should be considered quite exploratory, given the large number of correlations computed and given that reliability data were not available at the level of individual codes in either AAI coding system. Notwithstanding these limitations, our results confirm and strengthen previous findings on the relevance of HH classification in expanding our understanding of the multifaceted concept of disorganization in women at risk for child maltreatment.

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