

# Unresolved Attachment Status and Trauma-Related Symptomatology in Maltreated Adolescents: An Examination of Cognitive Mediators

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**Abstract** Attachment Theory has received increasing interest as a framework allowing for a more refined understanding of the potential consequences of early relational trauma on psychological and social adjustment. Research has provided support for the role of disorganized attachment, both as a sequela of traumatic experiences and as a risk factor for subsequent maladjustment. This study investigated the associations between unresolved/disorganized attachment, cognitive functioning, and dissociative symptomatology in a sample of 60 adolescents with a history of maltreatment. A model with cognitive efficiency as a mediator variable was tested using hierarchical multiple regression analysis, with a bootstrapping procedure to examine indirect effects. Results provided support for the association between unresolved attachment, cognitive efficiency (but not verbal or thinking ability), and dissociation. Working memory was a strong mediator of the link between attachment and dissociation. These results highlight the importance of assessing attachment status and cognitive functioning in the context of clinical work with maltreated youth. In addition, it is proposed that greater attention be paid to internal models of attachment relationships and how they impact psychosocial functioning at different levels in maltreated populations.

**Keywords** Attachment · Child abuse · Child maltreatment · Adolescent development · Trauma · Dissociation

## Introduction

The impact of traumatic experiences on psychological adjustment and mental health is a well-researched topic. In recent years, proposals for the revision of the diagnostic criteria

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for post-traumatic stress disorder and acute stress disorder [1–3] have contributed to a renewed interest in trauma-related problems in the professional and academic communities. In child and adolescent populations specifically, much of the recent research on trauma has sought to integrate insights from developmental, biological, cognitive and social science into a coherent heuristic framework [4].

Among different perspectives considered, Attachment Theory [5] occupies a prominent place in modern conceptualizations of trauma-related problems. Such prominence is not unexpected, given the importance of primary caregivers for children's psychological and social development [6], as well as the high prevalence of dysfunctions in the family-of-origin in the background of children experiencing trauma-related symptoms [7]. Bowlby originally predicted that early attachment experiences and the representations of those experiences affect core aspects of personality functioning, as well as interpersonal relationships, self-esteem, and self-regulation of emotion and behavior. Under optimal conditions of responsive and sensitive caregiving, the attachment system is flexibly integrated and organized in such a way that allows the infant to seek comfort when he or she needs it, and pursue exploration of the environment when perceived threats are minimal. Under conditions associated with neglect, rejection, and abuse, the child develops defensive processes that serve to keep painful feelings and thoughts from consciousness. Of primary interest is Bowlby's [8] postulate about the existence of segregated systems that were produced as a form of defensive process to keep trauma-related attachment memories and emotions in separate mental models. The purpose of this defense is to keep attachment-related intrapsychic conflict outside consciousness in order to prevent interference with self-regulation. However, when the individual's attachment behavioral system is intensely activated due to stress or relational conflict, the segregated system is at risk of failing and the individual's thinking and behavior may show signs of disorganization, which may be expressed in the form of symptoms usually associated with trauma-related conditions, such as dissociation, derealization or depersonalization [2, 9].

### Unresolved Attachment

Main and Goldwyn [10] define lack of resolution, or an unresolved state of mind, as a form of psychological disorganization involving multiple (segregated) internal working models of attachment which are kept completely outside the individual's awareness. In general, internal working models can be thought of as cognitive-affective internal representations of the self in relation to significant others. Unresolved/Disorganized attachment involves multiple incompatible internal working models that are created as a form of extreme defensive process in response to conditions of severe perceived threats to the self, usually involving present or recall of past situations of loss or abuse. By segregating threatening or highly conflictual attachment-related thoughts, fantasies or affects into multiple representational structures remaining outside consciousness, the individual can maintain a facade of self-cohesion and adaptation while avoiding severe disruptions to psychological functioning [8]. Such an extreme form of defensive process is difficult to sustain, however, and the segregated attachment-related material is at risk of resurfacing and disrupting the individual's thinking and behavior in conditions where attachment-related needs, thoughts or feelings are strongly activated. Research looking at developmental correlates of disorganized-unresolved attachment has uncovered significant associations between unresolved segregated systems and disruptions in specific cognitive functions, particularly in the areas of metacognitive knowledge and the self-regulation of cognitive activity [8, 9]. This

association can presumably be explained by the fact that unresolved individuals have to devote considerable energy maintaining highly conflictual representations segregated from consciousness, a defensive process which proves to be disruptive to the efficient processing of information between the individual and the environment. Unresolved states of mind are thought to reflect the degree to which trauma or loss has [not] been integrated by the individual. By comparison, individuals who are considered “resolved,” whether secure or insecure, are able to evoke mental or behavioral strategies that integrate or contain segregated material, thus protecting the individual from becoming overwhelmed, disorganized, dysregulated, or disoriented.

Bowlby [8] linked segregated systems to pathological mourning and risk for psychopathology. Studies involving a range of populations, both adolescent and adult, have provided support for the association between unresolved states of mind and a variety of adjustment or mental health problems [11, 12]. The level of affective dysregulation assumed in unresolved states of mind may be particularly problematic in interpersonal relationships and may play a key role in the development of psychopathology. Empirical studies using clinical and community samples have thus uncovered significant links between disorganized attachment status and a variety of psychological disorders. In a recent study, Borelli et al. [13] used a semi-structured interview to assess attachment disorganization in a community sample of children between the age of 8 and 12. In their study, disorganized attachment status was associated with self-reported perceptions of social alienation and parent report of social anxiety, inattention and thought problems. In her review of several studies looking at attachment status and aggressive behaviors in children, Lyons-Ruth [14] found a relatively high prevalence of the disorganized pattern in children identified as presenting significant externalizing conduct problems. Finally, Fonagy et al. [15] administered the Adult Attachment Interview to a sample of 82 adult inpatients as well as case-matched controls. The researchers found a strong association between disorganized (unresolved) status and psychiatric diagnoses of Borderline Personality Disorder and Eating Disorder.

### Attachment Disorganization and Trauma-Related Symptoms

Several theoretical frameworks now exist pertaining to the development and etiology of dissociative disorders, many of which incorporate factors related to traumatic early relational experiences, particularly those involving primary caregivers, as significant risk factors [16–19]. Studies have pointed to disorganized attachment as a potential consequence as well as a significant predictor of psychological problems associated with maltreatment in childhood [20]. In their prospective study of 168 children into early adulthood, Ogawa et al. [17] found that both disorganized and avoidant patterns of attachment predicted dissociative symptoms in their sample, although the disorganized pattern showed more consistent association with dissociation, one of the core features of Post-Traumatic Stress Disorder, particularly in late adolescence/early adulthood. Another longitudinal study, by McDonald and co-authors [21], examined the association between attachment status at 12 months and post-traumatic stress disorder symptoms roughly 7 years later. The authors found that disorganized attachment uniquely predicted avoidance-related post-traumatic symptoms in their sample. A significant but smaller association was also found between disorganized attachment and the “re-experiencing” type of symptoms.

Liotti [22] proposed a conceptually elegant framework linking disorganized attachment and dissociation. According to this formulation, dissociation is best conceptualized as a

breakdown involving the psychological functions of memory, consciousness and identity. The author notes the striking similarities between the classic manifestations of disorganized attachment in the Strange Situation or the Adult Attachment Interview, for example freezing, confusion, temporal-spatial disorientation, or contradictory verbal or non-verbal behaviors, and dissociative phenomena. Dissociation, from an attachment perspective, thus involves the development of multiple contradictory internal representations of the self in relationship with the attachment figure [23]. Under conditions of intense stress or relational conflict, perceptual and emotional experience related to early trauma disrupts the integrative cognitive functions of the individual's consciousness, memory and identity [9].

While attachment disorganization provides a useful heuristic framework to conceptualize and understand dissociation and trauma-related symptoms as clinical phenomena, the specific mechanisms through which disorganized attachment contributes to disturbances in the experience of self require empirical validation. The investigation of areas of linkage between disorganized attachment and specific psychological functions is particularly important from a clinical standpoint, because it allows for the formulation or refinement of targets for therapeutic intervention. Consistent with this objective, the current study sought to investigate the relationship between unresolved attachment, cognitive functioning and trauma-related symptomatology in a sample of adolescents with a history of maltreatment. The domain of cognitive functioning is seen as a potentially rich area for investigation, given the popularity of cognitive and neuropsychological formulations, as well as associated treatment programs, for the disorder [24–26]. Studies conducted to date have indicated the presence of deficits with attention, executive functions and working memory in individuals showing dissociative symptomatology, suggesting that domains of cognitive functioning that are vulnerable to the impact of emotional disturbance are the most affected in this population [27].

It was hypothesized that adolescents classified as 'unresolved' would present with increased levels of both specific types of cognitive dysfunction and self-reported trauma symptoms than adolescents classified as 'resolved'. In particular, we anticipated that the association between disorganized attachment and trauma symptoms would be at least partly mediated by aspects of cognitive functioning that are known to be vulnerable to interference by emotional stimulation [4], specifically the areas of thinking ability and cognitive efficiency, but not verbal abilities which have been shown to be more resistant to this type of influence.

## Method

### Participants

Participants were 60 adolescents with a history of maltreatment who were referred to a mental health clinic for a psychological evaluation, for diagnostic, placement or treatment planning purposes. All evaluations were conducted by the secondary investigator over a 6-year period. All relevant permissions were obtained, and the data included in this study were approved for use by an Institutional Review Board. The average age of participants was 14.4 years ( $SD = 1.6$  years) with a range of 11.7–17.9 years. Thirty-eight (63.3%) adolescents were female and 28 (36.7%) were male. The sample consisted of 31 African American (51.7%), 17 Caucasian (28.3%), seven Hispanic (11.7%), two Asian (3.3%), and three Bi-racial (5%) individuals. The majority of the adolescents had experienced neglect ( $n = 44$ ; 73.3%), four had experienced physical abuse (6.7%), nine had experienced

neglect and physical abuse (15%), and one had experienced neglect and sexual abuse (1.7%), as documented in reports by Child Protection Services. Information on reason for removal from caregiver's custody was not documented for two of the participants. Thirty-nine of the adolescents were currently placed in regular foster homes (65%), five were placed in designated therapeutic foster homes (8.3%), another ten were placed in group home placements (16.7%), two were placed in residential treatment (3.3%), and the remaining four were placed in adoptive homes (6.7%). The average age at time of removal from the biological parents was 7.5 years ( $SD = 4.8$  years), and the mean number of placements was 3.3 ( $SD = 2.8$  placements), with a range of 1–15 placements at the time of testing. The average length of time that these adolescents had been in their current placement was 28.4 months ( $SD = 43.7$  months), with a range from 1 month to 13.6 years.

## Procedure

Both caregivers and children were informed about the study during their first appointment at the clinic. Following a brief introduction to the general objectives of the project, they were provided a consent form for the caregivers to sign. The children provided assent. All measures used were part of the typical assessment battery used at the clinic; therefore the evaluations were conducted as usual. Measures were typically administered at different meetings, in order to avoid problems associated with fatigue. Background data were collected from the original referral and ancillary material, for example report from Child Protection Services.

## Attachment Classification Procedure

Attachment status was assessed using the Adult Attachment Projective Picture System (AAP), an instrument developed by George et al. [28]. The Adult Attachment Projective Picture System is an apperceptive assessment technique that was designed to capture the essential features of attachment from the standpoint of Bowlby's original theory, as well as contributions by Main and others [8, 29]. Similar to the Adult Attachment Interview, the AAP seeks to preserve the emphasis on internal representational structures of attachment relationships and on processes of defensive exclusion. The instrument itself is comprised of a set of 8 pictures that are designed to elicit attachment-related states of mind, including fantasies, thoughts, memories, or affects. During the procedure, the participant is asked to create stories based on the pictures, including a temporal sequence from beginning to outcome. Scoring is based on an analysis of each story according to the dimensions of Content, Discourse, and Defensive Processes. The formal scoring leads to a classification of the individual's attachment organization, consistent with the criteria outlined by Main [29]. Validation studies conducted to date have provided support for the use of the AAP as a measure of attachment organization in adolescents and adults [30–34].

All protocols in the study were scored by the second author, who completed training and a reliability trial with one of the developers of the AAP, Carol George. For the purpose of documenting inter-rater reliability for this sample, a subset of 22 protocols (36.7%) was scored by the first author, who is also a certified user of the measure. The classification agreement was  $\kappa = 0.90$  ( $p < .0001$ ) for the 'resolved' versus 'unresolved' classification.

In the final classification, twenty-one adolescents were judged to be 'unresolved' (35%), fifteen were 'preoccupied' (25%), fourteen were 'dismissing' (25%), and ten were judged to be 'secure' (16.7%). Because the research questions address the link between unresolved

attachment and cognitive functioning, and given the small sample size, we contrasted the 21 ‘unresolved’ versus the remaining 39 ‘resolved’ (i.e., ‘dismissing’, ‘preoccupied’, or ‘secure’ status).

## Outcome Measures

The Adolescent Psychopathology Scale (APS) [35] was completed by the adolescents themselves; thus, the data are self-reported. The APS is a broad measure of adolescent psychopathology, personality, and socio-emotional problems which includes 346 items and yields 20, 5, and 11 scale scores, respectively, in these areas. Items were developed to maintain a close match with DSM-IV diagnostic criteria. Psychometric properties for the APS were found to be satisfactory for the majority of the subscales, and are detailed in the Technical Manual [35]. Current norms for the APS are based on a community sample of 1,837 adolescents. Reliability (internal consistency and test–retest) estimates were generally found to be in the 0.80–0.90 range. The instrument has shown strong associations with other broad-band measures of psychopathology, and can discriminate between non-clinical and clinical groups across a range of syndromes.

For the purpose of the current study, subscales of the APS related to post-traumatic symptoms were used, including the Post-Traumatic Stress Disorder, Depersonalization and Disorientation subscales. Due to high correlation coefficients (above 0.80) between these subscales, their individual scores were factored into a single variable (Trauma Symptoms), with factor loadings of 0.88 for PTSD, 0.93 for Depersonalization, and 0.97 for Disorientation.

Cognitive performance was assessed using three broad areas of functioning as measured in the Woodcock-Johnson Tests of Cognitive Abilities—III (WJ-III) [36]. The domains considered were: Verbal Ability, Thinking Ability, and Cognitive Efficiency. The Verbal Ability domain is represented by the examinee’s comprehension of verbal material. Thinking Ability is measured through tasks assessing long-term retrieval, visual-spatial thinking, auditory processing, and fluid reasoning. Cognitive Efficiency is conceptualized as a combination of a subject’s processing speed and short-term memory. The WJ-III is based on the Cattell-Horn-Carroll theory of cognitive abilities. Its use has received considerable support in the research literature, with well-documented reliability and validity [37, 38]. Normative data was gathered from a representative sample of 4,783 children and adolescents from the community. Validation data for the scales employed in this study shows median reliability estimates above 0.90. Confirmatory factor analyses have documented the relative independence of domains of cognitive functioning as measured by the WJ-III. Finally, substantial associations in the expected direction were found with other measures of intellectual functioning.

## Results

### Preliminary Analyses

All statistical analyses were performed using *SPSS 18.0*. The first stage in the analysis consisted of examining associations between background and outcome variables (cognitive functioning and trauma symptoms), in order to identify potential covariates for subsequent analyses. For this purpose, *t* tests were used for categorical background indicators (ethnicity, gender, reason for removal) while Pearson correlations were employed for

interval-level background variables (current age, age at removal, length of current placement, number of placements). Results from correlational analyses are presented in Table 1. None of the interval-level background indicators showed a statistically significant association with the outcome variables.

For the categorical background indicators, only ethnicity was significantly related to the outcomes, African-American participants showing a somewhat lower level of verbal ability compared with their peers from other ethnic groups,  $t(59) = -2.14$ ,  $p < .05$ . The  $t$  test values pertaining to the association between background indicators and the outcome variables (verbal ability, thinking ability, cognitive efficiency, and trauma symptoms) were 0.34, 0.11,  $-0.41$  and  $0.41$  for gender, and 1.49, 0.24, 0.21, and 0.69 for reason for removal, all non-significant.

### Association Between Attachment Status and Outcomes

The initial necessary condition in establishing mediation requires the presence of a significant association between the predictor and the dependent variable [39]. In the current study, the association between attachment status, dichotomized as 0 for “resolved” and 1 for “unresolved”, and trauma symptoms is  $rpb = 0.33$ ,  $p < .05$ , suggesting a link of moderate magnitude between the two variables.

The second condition, as outlined by Baron and Kenny [39], involves demonstrating a link between the predictor (attachment) and the mediator (cognitive functioning). Point-Biserial correlation coefficients ( $rpb$ ) between attachment and the three domains of cognitive functioning, were  $-0.25$  (n.s.) for Verbal Ability (controlling for ethnicity),  $-0.17$  (n.s.) for Thinking Ability, and  $-0.44$  ( $p = .001$ ) for Cognitive Efficiency. Therefore, results suggest that unresolved attachment status is moderately associated with the Cognitive Efficiency domain of cognitive functioning.

### Mediating Effect of Cognitive Efficiency

The final step in the analysis involves testing the impact of the mediator by examining its association with the dependent variable while controlling for the initial predictor. According to this rationale, if one observes a decrease in the relation between the predictor and the dependent variable once the mediator is entered into the equation, one can conclude to a mediating effect, whether partial or total [39].

Mediation was tested using hierarchical Ordinary Least Squares (OLS) regression, the results of which are presented in Table 2. Results suggest near complete mediation by the Cognitive Efficiency variable; the link between attachment status and trauma becomes almost null once cognitive functioning is entered into the equation. By contrast, there is a very substantial negative association between level of cognitive efficiency and trauma symptomatology in this sample.

### Supplementary Analyses

Because the hypothesized model linking attachment, cognitive functioning and trauma-related symptomatology was supported by the data, the validity of an alternative mediational model including individual components of the construct of cognitive efficiency, namely Processing Speed and Short-Term Memory, was tested on an exploratory basis. The analysis used for this purpose was hierarchical OLS regression, with attachment status

**Table 1** Correlation coefficients between sociodemographic variables, attachment status, cognitive indicators and trauma-related symptomatology (N = 60)

Variables	Age	Age removal	Time placements	Number placements	Unresolved attachment	Verbal	Thinking	Cognitive efficiency
Age removal	0.09							
Time placements	-0.01	-0.35**						
Number placements	0.22	-0.41**	-0.33*					
Unresolved attachment	-0.01	0.12	-0.14	0.04				
Verbal	-0.02	0.02	0.09	0.06	-0.25			
Thinking	0.07	0.10	0.00	0.05	-0.17	0.64***		
Cognitive efficiency	0.08	-0.20	-0.04	0.18	-0.44***	0.58***	0.69***	
Trauma	0.08	-0.04	0.04	0.12	-0.33*	0.86***	0.89***	0.88***

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

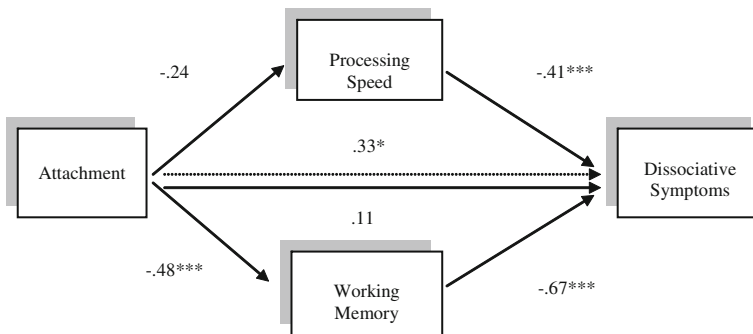


**Table 2** Mediation analysis: hierarchical multiple regression on trauma symptoms as a function of attachment status and cognitive efficiency (N = 60)

Predictor	B	SE B	$\beta$
Step 1			
Attachment status	0.69	0.30	.33 *
Step 2			
Attachment status	0.12	0.16	.06
Cognitive efficiency	-0.06	0.01	-.90 ***

Step 1:  $\Delta R^2 = .11$ ; Step 2:  $\Delta R^2 = .67$

\*  $p < .05$  \*\*\*  $p < .001$



**Fig. 1** Path model for attachment, components of cognitive efficiency, and trauma symptoms (N = 60). Note. \* $p < .05$  \*\*\* $p < .001$ . Values depicted are standardized path coefficients ( $\beta$ ). The dotted line indicates the association between attachment and dissociation prior to the inclusion of cognitive mediators. Total  $R^2$  for the model = .80

entered first in the equation, followed by cognitive mediators in the next step. A representation of the model is provided in Fig. 1.

As indicated in the model, the link between disorganized attachment and trauma appears to be primarily mediated by performance level on the measure of short-term memory. While processing speed was significantly associated with trauma symptomatology, its link with attachment status failed to reach statistical significance.

As a final step in the analysis, the resampling procedure described by Preacher and Hayes [40] was applied to the indirect ( $a \times b$ ) effects in the model, using 1,000 bootstrap samples. This procedure is considered more powerful than the conventional Sobel test, especially with small samples [41]. Indirect effects are supported for a mediation model if the confidence intervals of the unstandardized regression coefficients ( $B$ ) for the proposed mediators do not include 0. In the current sample, bootstrapping results support the indirect effect of unresolved attachment via impairments in short-term memory ( $B$  values between  $-1.16$  and  $-0.38$ ) but not processing speed ( $B$  values between  $-0.46$  and  $0.03$ ).

## Discussion

The study described here represented an attempt to document the validity of a specific pathway leading to the development of post-trauma symptomatology in a sample of

maltreated adolescents. Attachment Theory was used as a framework allowing for the formulation of hypotheses linking disorganized/unresolved attachment, disruptions in cognitive functioning, and trauma-related symptoms. It was expected that unresolved attachment, characterized by multiple, incompatible internal models, and lapses in behavioral and attentional strategies under conditions of stress, would constitute a significant risk factor for the development of trauma symptoms, by disrupting normal processes of attention, consciousness, and information retrieval.

Results were largely consistent with this hypothesis. Attachment disorganization, as represented by an AAP classification of “Unresolved”, showed a statistically significant, moderate association with symptomatology in this sample. This finding is consistent with previous research linking attachment disorganization and trauma-related symptoms in various samples [17, 21, 42]. Attachment status was also meaningfully linked to cognitive efficiency, with unresolved adolescents showing more impairment in working memory specifically than their organized counterparts. Attachment, however, was not linked to verbal or thinking ability. This is in line with empirical and theoretical work suggesting that one of the major consequences of attachment disorganization is a proneness to collapse of attentional capacities under conditions of stress or environmental demand [43]. This finding also supports the notion that impairments in affect regulation may strongly impact volitional deployment of attention [44].

A substantial association was also found between the domain of cognitive efficiency and trauma symptomatology in this sample. Both working memory and processing speed were significant predictors of symptomatology, although the link was stronger for the former. While the relation between short-term memory and trauma-related symptomatology is well-documented [45], recent studies suggest that this link is moderated by factors such as the type of material or the context of recall, with high “dissociators” having more difficulties recalling trauma-related words or in a negative context [46, 47]. Our results seem to provide support for the link between cognitive impairments in the area of selective attention and dissociative phenomena.

Finally, a mediation model linking unresolved attachment as a predictor, cognitive efficiency as a mediator, and trauma symptomatology as an outcome variable was supported by the data. Specifically, it was found that the association between attachment disorganization and trauma-related symptoms can be largely explained through disturbances in selective attention and working memory. This finding raises the possibility that, consistent with Bowlby’s original ideas, processes of defensive exclusion originally developed through relationships with early caregivers contribute to the development of distinctive patterns of perceiving, processing, and experiencing ourselves and the world around us. These patterns, in turn, may make one at greater risk of significant maladjustment or psychopathology, especially under conditions of stress or trauma. This, in turn, may point to some potentially useful intervention techniques designed to mitigate the impact of maltreatment and attachment disorganization on subsequent functioning. Examples of promising interventions in this area are cognitive bias modification tasks and attentional training, which involves the learning of strategies to refocus attention away from threatening towards more neutral or positive stimuli [48]. As these interventions appear to be helpful in alleviating anxiety in clinical populations, they could be adapted to focus on the type of “relational threats” that underlie both disorganized attachment and the experience of children having experienced maltreatment by caregivers. It is possible that by acting on intermediary cognitive functions, clinical interventions may contribute to lessening the impact of early trauma and attachment disorganization on subsequent adjustment.

## Study Limitations and Conclusion

The generalizability of the findings is constrained by the relatively small sample used. Another important limitation pertains to the use of convenience sampling, involving the recruitment of participants from a single outpatient clinic serving primarily low-income families in the community. In this context, our capacity to extrapolate findings and conclusions from the data beyond the immediate study sample is limited. Similarly, the use of a correlational framework precludes any definitive conclusion about the validity of the mediation model examined. Another limitation lies in the use of a unique, self-reported measure for the construct of interest (trauma symptoms). Finally, the outcome variable in this case was conceptualized as a continuous, unidimensional construct. However, some research provides support for multidimensional [49] or typological [50] frameworks in assessing trauma-related symptomatology.

Nevertheless, this study can be seen as providing support for the relevance of both Attachment Theory and cognition in the study of trauma-related problems and dissociative phenomena. The results presented here raise the possibility of targeting specific dimensions of cognitive functioning in the context of intervention programs aiming at decreasing the impact of child maltreatment and trauma. Future research, especially if using experimental, prospective designs, could allow for a better understanding of the intricate links between representational structures of early relational experiences, modes of information processing, and psychosocial adjustment.

## Summary

Disorganized attachment has been found to be significantly associated with negative psychosocial and mental health outcomes in children and adolescents. There is strong evidence that youth who are exposed to abuse and maltreatment by caregivers are at greater risk to show disorganized, poorly integrated internal models of attachment relationships, as well as trauma-related symptomatology. This study employed a correlational design to investigate the patterns of association between unresolved-disorganized attachment status, cognitive functioning, and trauma-related symptoms in a sample of 60 adolescents showing a history of maltreatment. It was hypothesized that disorganized attachment would be significantly associated with symptomatology, and that this association would be mediated by cognitive efficiency specifically. Measures included the Adult Attachment Projective Picture System, the Woodcock-Johnson -III test of cognitive ability, and the Post-Traumatic Stress Disorder, Depersonalization and Disorientation subscales of the Adolescent Psychopathology Scale. Significant associations were found between all variables, with impairment in cognitive efficiency serving as a strong mediator of the link between disorganized attachment and trauma symptoms. Additional analyses revealed that the mediating role of cognitive efficiency was explained primarily by a decrease in the individual's capacity for selective attention and recall of information stored in short-term memory. The link between extreme exclusion of earlier relational experience, impairment in attentional and retrieval capacities, and disturbances at the level of identity constitutes a promising avenue for future research and, if replicated, may lead to the development of successful intervention strategies designed to protect against the negative impact of childhood maltreatment.

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