

# Attachment, Social Cognition, and Posttraumatic Stress Symptoms in a Traumatized, Urban Population: Evidence for the Mediating Role of Object Relations

Kile M. Ortigo,<sup>1,2</sup> Drew Westen,<sup>2,4</sup> Jared A. DeFife,<sup>2,4</sup> and Bekh Bradley<sup>3,4</sup>

<sup>1</sup>VA Palo Alto Health Care System, Palo Alto, California, USA

<sup>2</sup>Department of Psychology, Emory University, Atlanta, Georgia, USA

<sup>3</sup>Atlanta VA Medical Center, Atlanta, Georgia, USA

<sup>4</sup>Department of Psychiatry and Behavioral Sciences, Emory University, Atlanta, Georgia, USA

Research has linked multiple risk and resiliency factors to developing posttraumatic stress disorder (PTSD). One potentially important construct for understanding connections between trauma and PTSD is attachment. Although relationships between attachment and risk for PTSD have been described theoretically, limited research has addressed these relationships empirically. Furthermore, aspects of object relations overlap with attachment and PTSD, but have not been adequately incorporated in empirical research. One proposed pathway between attachment and PTSD involves the mediating role of object relations, particularly views of self and others. Present data were from a larger study investigating environmental and genetic risk factors for PTSD in an impoverished, primarily African American sample seeking care at a public urban hospital. Correlations indicated that adult attachment (with the exception of dismissing) and object relations relate to childhood traumas ( $|r|s = .19-.29$ ), adult traumas ( $|r|s = .14-.20$ ), and self-reported PTSD symptoms ( $|r|s = .20-.36$ ). Analyses also found support for mediational roles of object relations in relationships between attachment and PTSD symptoms (Model  $R^2$  range =  $.136-.160$ ). These data have theoretical, clinical, and research implications for understanding how particular aspects of attachment, specifically its effects on object relations, may protect against or predispose one to develop PTSD.

A range of pretrauma, peritrauma, and posttrauma factors have been identified as promoting risk for posttraumatic stress disorder (PTSD; Brewin, Andrews, & Valentine, 2000; Keane, Marshall, & Taft, 2006; Ozer, Best, Lipsey, & Weiss, 2003). Social support, in particular, has predicted in cross-sectional and longitudinal studies less likelihood of developing PTSD and greater likelihood for recovery from PTSD (Charuvastra & Cloitre, 2008). Nevertheless, we know little about the mechanisms by which these factors affect risk for PTSD. One mechanism through which trauma may lead to PTSD is changing or reinforcing beliefs about oneself, others, and the world, and current treatments targeting these beliefs have shown efficacy

in treating PTSD (Resick, Monson, & Chard, 2008). Developmental theories of attachment and object relations also address how these beliefs form in infancy and early childhood and then affect social, cognitive processing across the lifespan. As such, they may provide clues as to how prior beliefs and experiences can affect an individual's processing of trauma.

Attachment theory (Bowlby, 1969) posits that relationships with primary caregivers during early development influence emotional and behavioral responses across the lifespan through a behavioral system that influences expectations of both self and others in close relationships. Individual attachment histories, beginning in infancy, color each person's expectations of close relationships. Attachment expectations are generally stable from infancy to adulthood and can be more or less secure, that is, consisting of positive expectations of self and others and a willingness to trust and seek out mature relationships (Fraley, 2002). Object relations theory focuses on the development of the self in relation to the continuing influence of early social environments and internalization of early experiences in relationships (Westen, 1991). For example, Fairbairn (1952) emphasized a primary need for relatedness that progresses developmentally from immature to mature forms of dependency, with potential maladaptations along that developmental path. Sullivan (1953) focused on how early social interactions help

This research was supported by the National Institute of Mental Health (NIMH) grants MH071537 and MH78100. Data analysis and writing were also partially funded by a George W. Woodruff Fellowship from Emory University. The authors would like to thank Nancy Bliwise, PhD, and Elizabeth Wilson, PhD, for their help in early drafts of this manuscript.

Correspondence concerning this article should be addressed to Kile M. Ortigo, Department of Psychology, Emory University, 36 Eagle Row, Atlanta, GA 30322. E-mail: Kile.Ortigo@va.gov

Copyright © 2013 International Society for Traumatic Stress Studies. View this article online at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)  
DOI: 10.1002/jts.21815

construct one's self-concept in relation to interpersonal anxiety. These internal views of self and others are deeply imbedded in the individual and thus less conscious than more cognitive conceptualizations of self-esteem and beliefs about others. Both attachment and object relations frameworks focus on mental representations of self, others, and relationships; the role of early relational experiences; and how one does or does not make use of social support (Charuvastra & Cloitre, 2008).

Theoretical distinctions between attachment and object relations also exist. One distinction is that object relations theories place greater emphasis on the role of implicit, internal reworkings of interpersonal experiences (i.e., fantasies). Additionally, object relations theories focus on more generalized representations of self and others than attachment theory, which focuses more on close and intimate relationships. For attachment to explain even partially the development of PTSD, it must account for how these specific expectations about close relationships transform to broader generalizations about self and others often present in PTSD. One pathway is through the influence of attachment-related experiences and expectations on the more generalized beliefs of object relations.

Some researchers, considering attachment theory's psychodynamic roots, have studied attachment's connection to object relations and social cognition (e.g., Fonagy, Gergely, Jurist, & Target, 2002; Shaver & Mikulincer, 2005). Calabrese, Farber, and Westen (2005) found that self-reported attachment-related scales of feared loss, perceived unavailability, and lack of use of attachment figures correlated with various narrative-based object relations ratings. The strongest relationships, all negative and moderate in magnitude, were of feared loss with sense of values; perceived unavailability with aggression and self-esteem/self-representations; and lack of use with complexity of representations, emotional investment, understanding of social causality, and overall object relations quality. Consistent with the pathway of attachment influencing object relations, some evidence suggests object relations mediates some effects of attachment. For example, Priel and Besser (2001) found object relations (e.g., complexity and benevolence of representations) almost completely mediated how mothers' personal attachment styles affected their sense of attachment to their prenatal offspring. This study also confirmed through factor analysis that despite theoretical similarities, object relations and attachment variables are distinct and do not load on a single overarching factor.

Theoretically, attachment, object relations, and PTSD all deal with one's views of self and others, but empirical research has rarely addressed all three constructs simultaneously. Several studies have found relationships between PTSD and insecure attachment styles (e.g., Besser & Neria, 2010; Declercq & Willemsen, 2006; Mikulincer, Horesh, Eilati, & Kotler, 1999; Muller, Sicoli, & Lemieux, 2000). For example, Scott and Babcock (2010) found that women with high attachment anxiety displayed the strongest associations between intimate partner

violence and PTSD. Other studies (Cloitre, Stovall-McClough, Zorbas, & Charuvastra, 2008; Twaite & Rodriguez-Srednicki, 2004) found that insecure attachment mediated relationships between childhood maltreatment and adult functioning including symptoms of PTSD.

Although less extensive than attachment research, some studies testing connections between object relations and trauma also exist. Individuals abused as children have more negative affective expectations of relationships, poorer understanding of social causality, and lower capacity for emotional investment in relationships and morals (e.g., Freedenfeld, Ornduff, & Kelsey, 1995; Nigg et al., 1991; Ornduff & Kelsey, 1996; Westen, Ludolph, Block, Wixom, & Wiss, 1990). For example, two studies used object relations subscales (often labeled *alienation*, *insecurity*, *egocentricity*, *social incompetence*) from the self-report Bell Object Relations & Reality Testing Inventory (BORRTI; Bell, Billington, & Becker, 1986). Regehr and Marziali (1999) found all four subscales positively correlated with PTSD in female rape victims; Regehr, Hill, and Glancy (2000) found insecurity and alienation accounted for 22% of variance in traumatic stress levels in firefighters. Despite limited research, connections between object relations, trauma, and PTSD appear evident.

Knowing attachment and object relations independently relate to PTSD provides only an initial understanding of their potential roles in PTSD development. The role of models of self, others, and the world cuts across theoretical orientations and phenomena related to attachment, object relations, and PTSD; thus, further explication of their connections may provide clues about processes involved in attachment's role in making one vulnerable or resilient to the onset of PTSD. This study's purpose is to explore interrelationships of attachment, object relations, and PTSD symptoms with validated measures in a highly traumatized sample. Particularly important is testing mediational models to explore which aspects of object relations might help explain attachment's connections with PTSD and thus help identify potential points of intervention or even prevention.

Based on theoretical predictions and previous research, we hypothesize that object relations will partially mediate relationships between attachment and PTSD. Given that attachment, object relations, and PTSD all deal to some degree with one's views of self and others, we expect that object relations variables related to internalized, implicit representations of self (here labeled *self-esteem*) and views of others (here labeled *affective quality of representations of others*) will be consistently and strongly associated with both attachment and PTSD symptoms. Furthermore, we hypothesize these variables will mediate relationships between attachment and PTSD. Whereas secure attachment ratings will positively correlate with the proposed object relations mediators, the dismissing, preoccupied, and disorganized/unresolved attachment ratings will negatively correlate with the proposed mediators.

## Method

### Participants and Procedure

We collected these data as part of a larger study investigating genetic and environmental factors in predicting PTSD in a low socioeconomic status, primarily African American adult population present in primary care and obstetrical–gynecological clinic waiting rooms of an urban, public hospital. Research participants were approached while waiting for their own or others' medical appointments. Eligibility included ability to give informed consent (i.e., no overt active psychosis or severe cognitive impairment), which was then provided verbally and in written form. All study procedures were approved by Emory University's Institutional Review Board and the Grady Health Care System Research Oversight Committee. We first conducted a screening interview in the hospital waiting rooms for recruited participants. This evaluation involved completion of a 45- to 75-minute battery of self-report measures in a sample of 2,708 participants. The length of the screening was mostly dependent on the extent of the participant's trauma history. In all evaluations, we read measures to participants because of relatively poor literacy levels. The 263 participants whose data are presented here were also scheduled for more comprehensive assessments involving extensive interview-based assessments of trauma exposure, PTSD symptoms, personality, attachment, and other biological and psychiatric variables. Further details are described in prior studies (e.g., [Gillespie et al., 2009](#)). Very high lifespan trauma exposure characterized the sample with 84.1% having at least one trauma (average adult traumas were 2.3,  $SD = 1.8$ ); most common traumas were serious accidents or injuries (48.1%) and being attacked with a weapon by someone other than an intimate partner (41.3%); for larger sample characteristics, see [Gillespie et al., 2009](#).

### Measures

The Childhood Trauma Questionnaire (CTQ) is a 28-item validated, reliable self-report measure of frequency of child maltreatment, including physical, sexual, and emotional abuse and physical and emotional neglect (Bernstein & Fink, 1998; Scher, Stein, Asmundson, McCreary, & Forde, 2001). The internal consistency was low-to-moderate in this sample (Cronbach's  $\alpha = .67$ ).

The Traumatic Events Inventory (TEI) is a 13-item structured interview that assesses lifetime history of experiencing, witnessing, and being confronted with traumatic stressors (Rothbaum & Davidson, 2005; Schwartz, Bradley, Sexton, Sherry, & Ressler, 2005). Consistent with other research using the TEI (e.g., [Gillespie et al., 2009](#)), we used the total score for traumatic events experienced, not witnessed, in adulthood.

The PTSD Symptom Scale (PSS) is a 17-item self-report scale assessing frequency of PTSD symptomatology over the prior 2 weeks (Falsetti, Resnick, Resick, & Kilpatrick, 1993). The internal consistency of this measure was high in this sample (Cronbach's  $\alpha = .92$ ).

The Clinical Diagnostic Interview (CDI) is a 2- to 3-hour systematic clinical interview designed to standardize typical interviewing approaches used by experienced clinicians (Westen, 2011; Westen & Muderrisoglu, 2006). Following initial questions about the nature and history of current symptoms, interviewers ask participants about significant past and present interpersonal relationships, work history, particularly stressful or difficult times, moods, emotions, and characteristic ways of thinking. For each domain, interviewers follow general questions with instructions to describe specific examples. Although including direct questions, the CDI does not ask participants to describe their personalities, but rather to tell narratives about their lives that allow interviewers to make judgments about their characteristic ways of thinking, feeling, regulating emotions, and experiencing themselves and others.

The Social Cognition and Object Relations Scale–Global Rating Version (SCORS-G; Hilsenroth, Stein, & Pinsker, 2004) was used by clinical interviewers after completing the CDI to rate participants' quality of object relations. The SCORS-G is a simplified version of the original SCORS, which was first developed to rate responses from projective data and later adapted for other narratives (Westen, 1995). The SCORS-G consists of eight ratings on a 7-point scale with lower scores indicating less psychological health. The two pertinent scales for this study were affective quality of representations of others (affective quality) and views and feelings towards self (self-esteem; Ackerman, Clemence, Weatherill, & Hilsenroth, 1999). Ratings for the affective quality scale ranged from scores of 1 = *Views of self as loathsome, evil, rotten, contaminating, or globally bad* to 7 = *Tends to have realistically positive feelings about him/herself*. Ratings for self-esteem were also from scores of 1 = *Tends to have malevolent expectations of relationships, often experiences people as abusive or intentionally destructive* to 7 = *Has genuinely positive expectations of relationships, but not "pollyannish"* (i.e., can see people for what they are). Multiple studies have found acceptable convergent validity and interrater reliability when using data from projectives, therapy content, dream narratives, and interviews (e.g., Ackerman et al., 1999; Eudell-Simmons, Stein, DeFife, & Hilsenroth, 2005; Huprich & Greenberg, 2003; Porcerelli et al., 2006).

Also after completing the CDI, interviewers used the Adult Attachment Prototype Questionnaire (AAPQ) to give participants 5-point ratings of degree of match to four attachment prototypes (Westen & Nakash, 2005; Westen, Nakash, Thomas, & Bradley, 2006). The four prototypes included secure (rely on the availability and sensitivity of the people they love), dismissing (minimize or dismiss the importance of close relationships), preoccupied (seek intense emotional intimacy with others, but constantly feel ambivalent about them), and disorganized/unresolved (respond to intimate relationships in ways that appear inconsistent, contradictory, or dissociative). Data from our research confirmed strong interrater reliability for this measure (intra-class  $r = .76$ ).

## Data Analysis

Initial analyses included bivariate correlations. Because results did not vary significantly based on subscale scores for the CTQ and TEI, we present only composite scores in this study. To examine the role of object relations (specifically, affective quality of representations and self-esteem) as potential mediators of the relationship between attachment and current PTSD symptoms, we planned multiple mediation analysis with bootstrapping techniques following methods described by Preacher and Hayes (2008). This approach allows for concurrent evaluation of multiple potential mediator variables and does not assume normally distributed indirect effects (Buffardi & Campbell, 2008; Preacher & Hayes, 2004, 2008). Multiple mediation analysis allows researchers to estimate direct effects of mediators on an outcome variable, as well as indirect relationships of predictors to a dependent variable through the mediated path. Our hypotheses required four mediation analyses (one for each attachment style) using current PTSD symptoms as the target dependent variable and object relations variables of affective quality of representations and self-esteem as potential mediators. Importantly, these mediational analyses cannot confirm causality due to data being cross sectional (Kraemer, Kiernan, Essex, & Kupfer, 2008). Missing data were handled for each analysis by excluding cases without complete data on the relevant variables.

## Results

As expected, attachment and object relations generally showed moderate-to-strong correlations (see Table 1). The two proposed object relations mediators, affective quality of representations and self-esteem, correlated with all four attachment constructs and were themselves positively correlated,  $r(256) = .61$ . Both affective quality and self-esteem's strongest

positive correlations were with secure ratings and their strongest negative ones were with disorganized/unresolved ratings.

Relationships between attachment and object relations constructs and trauma-related variables were generally significant with small-to-moderate correlations (see Table 1). The primary exception was dismissing ratings' lack of relationships with childhood and adulthood trauma or current PTSD symptoms. All other attachment and object relations constructs correlated significantly with trauma-related variables. Comparing correlation coefficients of childhood and adulthood trauma revealed a general trend of childhood trauma being more strongly associated with object relations and attachment constructs, as would be predicted by theory;  $z$  tests, however, showed this trend was nonsignificant, all  $p > .05$ . All relationships between object relations and trauma-related variables were significant with small-to-moderate negative correlations.

As bivariate correlations confirmed object relations' association with both attachment and current PTSD symptoms, our analyses continued with the original hypothesized mediation models. All four models provided evidence supporting mediation effects of object relations on relationships between attachment and PTSD symptoms (see Table 2 and Figures 1–4). Together, the object relations variables of affective quality of representations and self-esteem combined with attachment accounted for 13%–16% of the variance in PTSD symptoms across models.

Higher quality of object relations contributed a complementary (additive) mediation of secure attachment and a competitive (dampening) mediation of preoccupied and disorganized attachments. Given the mediation for preoccupied and disorganized attachment is partial, our model suggests omitted mediators that future research may identify. Our analyses

Table 1  
*Correlations Among Attachment, Object Relations, and Trauma-Related Variables*

Variable	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. Secure attachment	263	2.14	1.10	–							
2. Dismissing attachment	260	2.01	1.26	–.34***	–						
3. Preoccupied attachment	263	1.63	1.08	–.22***	–.23***	–					
4. Disorganized/ unresolved attachment	262	1.47	0.95	–.29***	.04	.15*	–				
5. Affective quality (object relations)	264	3.78	1.43	.70***	–.25***	–.24***	–.35***	–			
6. Self-esteem (object relations)	258	3.99	1.47	.60***	–.14*	–.24***	–.32***	.61***	–		
7. CTQ Total	250	43.82	18.18	–.19**	–.02	.27***	.25***	–.29***	–.29***	–	
8. TEI adult total	251	1.63	0.70	–.20**	–.01	.14*	.17**	–.20**	–.17**	.32***	–
9. PSS total	244	11.81	12.16	–.20**	.01	.25***	.23***	–.29***	–.36***	.30***	.43***

Note. CTQ = Childhood Trauma Questionnaire; TEI = Traumatic Events Inventory; PSS = PTSD Symptom Scale.

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

Table 2

Mediation of the Effect of Attachment on Current PTSD Symptoms Through Social Cognition and Object Relations Scale–Global Rating Version Object Relations Variables

Variable	Indirect effect (ab) <sup>a</sup>	SE	Bootstrapping 95% CI <sup>b</sup>
Secure $R^2 = .139^{***}$			
Total	– 3.41***	0.77	[– 4.88, –1.89]
Affective quality	– 1.58*	0.71	[– 2.97, –0.16]
Self-esteem	– 1.83**	0.60	[– 3.09, –0.71]
Dismissing $R^2 = .136^{***}$			
Total	0.78**	0.26	[0.32, 1.33]
Affective quality	0.42	0.23	[0.06, 0.95]
Self-esteem	0.356	0.20	[0.08, 0.86]
Preoccupied $R^2 = .160^{***}$			
Total	0.98***	0.27	[0.51, 1.56]
Affective quality	0.34	0.24	[– 0.07, 0.89]
Self-esteem	0.64*	0.27	[0.22, 1.30]
Disorganized/unresolved $R^2 = .158^{***}$			
Total	1.44***	0.36	[0.81, 2.25]
Affective quality	0.51	0.36	[– 0.18, 1.23]
Self-esteem	0.93**	0.37	[0.34, 1.82]

Note. PTSD = posttraumatic stress disorder; CI = confidence interval.

<sup>a</sup>Values represent unstandardized coefficients.

<sup>b</sup>Bias corrected and accelerated 95% confidence intervals; 5,000 bootstrap samples.

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

suggested an indirect-only relationship of dismissing attachment with PTSD symptoms through object relations variables, consistent with a theoretical framework that places object relations in a mediating role between attachment and the development of PTSD symptoms (Zhao, Lynch, & Chen, 2010). Finally, with nonsignificant point estimates and bias corrected, accelerated 95% confidence intervals that approach or include zero (Efron, 1987), minimal support exists for the inclusion of the specific variable affective quality of representations in mediational models of insecure attachment configurations and PTSD symptoms.

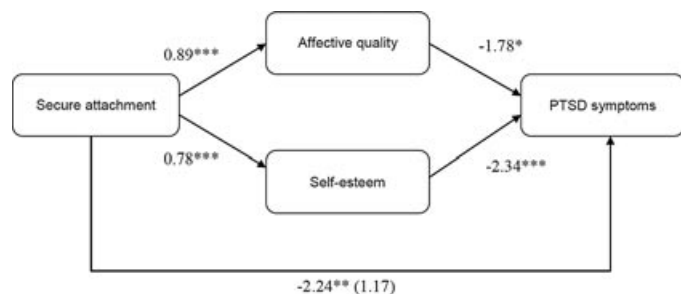


Figure 1. Object relations mediators of secure attachment and posttraumatic stress disorder (PTSD) symptom relationship. Path values represent unstandardized coefficients. Value in the parentheses reflects the estimate of the direct effect, from bootstrapping analyses, of attachment on PTSD symptoms after the mediators are included.  $N = 237$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

## Discussion

This study's findings support the hypotheses that both attachment and object relations are important risk factors for developing PTSD symptoms in adulthood. As expected, the two object relations variables examined as potential mediators in this study, self-esteem and affective quality of representations of others, consistently correlated with attachment constructs. These findings are consistent with Griffin and Bartholomew's (1994) latent construct analyses showing that models of self and others underlie attachment in adulthood, just as Bowlby (1969) originally theorized.

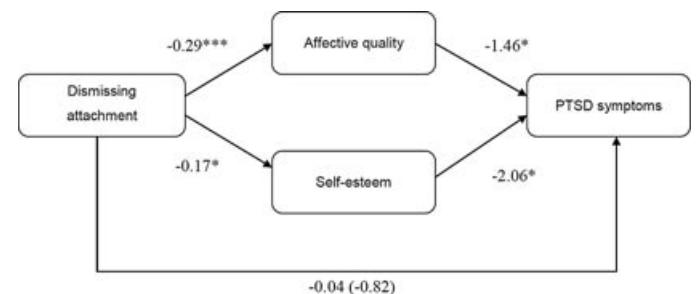


Figure 2. Object relations mediators of dismissing attachment and posttraumatic stress disorder (PTSD) symptom relationship. Path values represent unstandardized coefficients. Value in the parentheses reflects the estimate of the direct effect, from bootstrapping analyses, of attachment on PTSD symptoms after the mediators are included.  $N = 237$ . \* $p < .05$ . \*\*\* $p < .001$ .

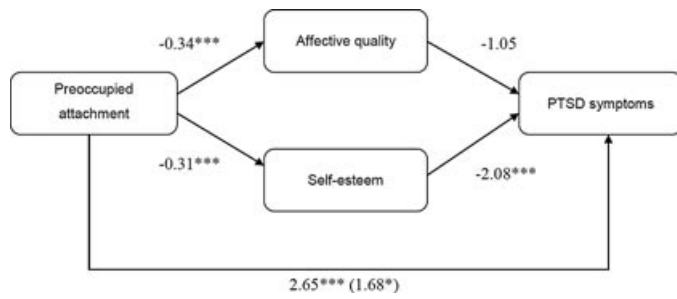


Figure 3. Object relations mediators of reoccupied attachment and posttraumatic stress disorder (PTSD) symptom relationship. Path values represent unstandardized coefficients. Value in the parentheses reflects the estimate of the direct effect, from bootstrapping analyses, of attachment on PTSD symptoms after the mediators are included.  $N = 237$ . \* $p < .05$ . \*\*\* $p < .001$ .

Both attachment and examined object relation constructs showed relationships with trauma-related variables. Attachment generally showed small-to-moderate correlations with childhood trauma, adult trauma, and PTSD symptoms. Dismissing attachment, however, did not correlate with any trauma variable. These results are somewhat surprising given the assumed similarity between avoidance in close relationships and avoidance as a hallmark of PTSD. Experimental data have confirmed attachment styles differ in their emotion regulation strategies (Mikulincer & Shaver, 2007). Whereas attachment anxiety is generally associated with intensifying negative emotional experience, attachment avoidance is more often associated with defensively downregulating negative affect. As such, those individuals with a defensively avoidant approach to interpersonal relationships (e.g., dismissing attachment) may not report as much negative affect (including PTSD symptoms) as individuals with less defensively avoidant attachment styles. In general, that both childhood and adulthood traumas correlated with self-esteem and affective quality of representations is consistent with the idea that trauma exposure impacts internal models of self and others (Foa & Jaycox, 1999).

Data analyses also supported hypotheses that two aspects of object relations, self-esteem and affective quality of represen-

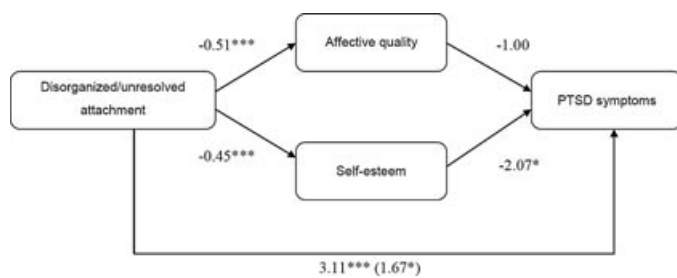


Figure 4. Object relations mediators of disorganized/unresolved attachment and posttraumatic stress disorder (PTSD) symptom relationship. Path values represent unstandardized coefficients. Value in the parentheses reflects the estimate of the direct effect, from bootstrapping analyses, of attachment on PTSD symptoms after the mediators are included.  $N = 237$ . \* $p < .05$ . \*\*\* $p < .001$ .

tations of others, partially account for the relationship between adult attachment and PTSD symptoms. Both self-esteem and affective quality partially demonstrated a complementary mediation of the relationship between secure attachment and PTSD symptoms. For preoccupied and disorganized attachment, partial mediation was observed primarily through self-esteem and was competitive or dampening. Both object relations variables provided a significant, indirect-only mediation between dismissing attachment and PTSD symptoms. Overall, findings support theoretical predictions relating attachment, object relations, and PTSD symptoms.

Although strengths of this study include use of both self-report and interview-based measures, limitations revolve around methodology and specification of mediational models. First, this study included only interviewer-rated measures of attachment and object relations. Including self-report measures could further support the findings' robustness, but these constructs are deeply imbedded and thus not as amenable to self-report approaches (Westen, 1998).

Other limitations involve inherent difficulties in conducting mediational analyses. First, the number of analyses required to test each mediational model might have increased Type 1 experiment-wise error rate. Before conducting the analyses, though, we used a priori predictions to guide the process and limit excessive, exploratory analyses, but replication, as always, will be a necessary step for future research.

Second and more importantly, these cross-sectional data cannot speak directly to causality because they lack temporal sequencing of measurement. Based on theory (and supported by these data), attachment and object relations are separate, but related constructs. Both have their origins in infancy and early childhood, but are somewhat malleable throughout the lifespan. An even more complete mediational model would include independent effects of early parenting on both attachment and object relations, ideally before trauma exposure. Moreover, in adulthood, other "third" variables may also impact attachment, object relations, and PTSD symptoms. Chief among these possibilities would be trauma exposure. Controlling for trauma while conducting mediational analyses, however, would be too conservative of a test because trauma exposure rates would explain too large of a percentage of PTSD symptoms to allow for many other factors to maintain unique predictive abilities. Multicollinearity, already inherently higher in mediational analyses, would also increase if adding other factors, like trauma exposure. The best approach to confronting these limitations in future research would be longitudinal studies that measure attachment, object relations, and trauma-related variables. The earlier in the lifespan this study could begin the more complete a picture may be drawn, but the fluctuating patterns of attachment and object relations before and after trauma exposure would be most critical.

Implications of this study for trauma and PTSD range from basic science to clinical applications. First, this study has confirmed the importance of both attachment and object relations in the clinical presentation of PTSD after trauma exposure.

Evidence suggests that attachment can act as both a protective and a risk factor for developing PTSD. Healthier object relations, particularly in regards to representations of self and others, can also act as a buffer for the onset of PTSD. The finding of partial mediation suggests that attachment has both direct and indirect influences on current PTSD symptoms. Altogether, these findings support the notion that prior developmental and individual factors have an impact on how one reacts to trauma.

Clinically speaking, these data reinforce the need to assess developmental factors in conceptualizing cases dealing with trauma exposure and PTSD. As with cognitive processing therapy (Resick et al., 2008), therapeutic focus on how trauma has either reinforced or altered previous views of self and others will likely prove beneficial. Additionally, other therapy approaches such as interpersonal or psychodynamic ones that focus on interpersonal skills and patterns and on models of self in relationships with others may be important approaches to consider in the treatment of PTSD (e.g., Cloitre et al., 2010). What attachment and object relations theories provide is an additional, developmental framework for understanding complex processes involved throughout the lifespan as well as a way to think about any issues that may arise within the therapeutic alliance. Finally, the lack of a correlation between dismissing attachment and PTSD symptoms may suggest that not all forms of insecure attachment necessarily predispose someone to react to trauma with chronic psychopathology. Further research will need to address this possibility and how it may impact therapeutic approaches.

Overall, this study explored and confirmed the mediational role of object relations in adult attachment's association with PTSD symptoms. These data provide initial support for the centrality of views of self and others in connecting attachment theory to PTSD, and future longitudinal studies can help further disentangle the complex relationships among these constructs. Clinical and research implications include the incorporation of assessing developmental history and current attachment in close relationships and object relations as part of conceptualizing and treating PTSD. With this information and future treatment outcome research, the field may continue to identify those at greatest risk for developing PTSD and may clarify which treatments work best for particular individuals.

## References

- Ackerman, S. J., Clemence, A. J., Weatherill, R., & Hilsenroth, M. J. (1999). Use of the TAT in the assessment of DSM-IV Cluster B personality disorders. *Journal of Personality Assessment*, *73*, 422–442. doi:10.1207/S15327752JPA7303\_9
- Bell, M., Billington, R., & Becker, B. (1986). A scale for the assessment of object relations: Reliability, validity, and factorial invariance. *Journal of Clinical Psychology*, *42*, 733–741. doi:10.1002/1097-4679(198609)42:5<733::AID-JCLP2270420509>3.0.CO;2-C
- Bernstein, D., & Fink, L. (1998). *Childhood Trauma Questionnaire: A retrospective self-report*. San Antonio, TX: The Psychological Corp.
- Besser, A., & Neria, Y. (2010). The effects of insecure attachment orientations and perceived social support on posttraumatic stress and depressive symptoms among civilians exposed to the 2009 Israel-Gaza war: A follow-up
- Cross-Lagged panel design study. *Journal of Research in Personality*, *44*, 335–341. doi:10.1016/j.jrp.2010.03.004
- Bowlby, J. (1969). *Attachment* (Vol. 1). New York, NY: Hogarth.
- Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology*, *68*, 748–766. doi:10.1037/0022-006X.68.5.748
- Buffardi, L. E., & Campbell, W. K. (2008). Narcissism and social networking web sites. *Personality and Social Psychology Bulletin*, *34*, 1303–1314. doi:10.1177/0146167208320061
- Calabrese, M. L., Farber, B. A., & Westen, D. (2005). The relationship of adult attachment constructs to object relational patterns of representing self and others. *Journal of the American Academy of Psychoanalysis and Dynamic Psychiatry*, *33*, 513–530. doi:10.1521/jaap.2005.33.3.513
- Charuvastra, A., & Cloitre, M. (2008). Social bonds and posttraumatic stress disorder. *Annual Review of Psychology*, *59*, 301–328. doi:10.1146/annurev.psych.58.110405.085650
- Cloitre, M., Stovall-McClough, C., Zorbas, P., & Charuvastra, A. (2008). Attachment organization, emotion regulation, and expectations of support in a clinical sample of women with childhood abuse histories. *Journal of Traumatic Stress*, *21*, 282–289. doi:10.1002/jts.20339
- Cloitre, M., Stovall-McClough, K. C., Noonan, K., Zorbas, P., Cherry, S., Jackson, C. L., . . . Petkova, E. (2010). Treatment for PTSD related to childhood abuse: A randomized controlled trial. *American Journal of Psychiatry*, *167*, 915–924. doi:10.1176/appi.ajp.2010.09081247
- Declercq, F., & Willemsen, J. (2006). Distress and post-traumatic stress disorders in high risk professionals: adult attachment style and the dimensions of anxiety and avoidance. *Clinical Psychology and Psychotherapy*, *13*, 256–263. doi:10.1002/cpp.492
- Efron, B. (1987). Better bootstrap confidence intervals. *Journal of the American Statistical Association*, *82*, 171–185. doi:10.1080/01621459.1987.10478410
- Eudell-Simmons, E. M., Stein, M. B., DeFife, J. A., & Hilsenroth, M. J. (2005). Reliability and validity of the Social Cognition and Object Relations Scale (SCORS) in the assessment of dream narratives. *Journal of Personality Assessment*, *85*, 325–333. doi:10.1207/s15327752jpa8503\_09
- Fairbairn, W. R. D. (1952). *Psychoanalytic studies of the personality*. London, England: Tavistock.
- Falsetti, S. A., Resnick, H. S., Resick, P. A., & Kilpatrick, D. G. (1993). The Modified PTSD Symptom Scale: A brief self-report measure of posttraumatic stress disorder. *The Behavior Therapist*, *16*, 161–162.
- Foa, E. B., & Jaycox, L. H. (1999). Cognitive-behavioral theory and treatment of posttraumatic stress disorder. In D. Spiegel (Ed.), *Efficacy and cost-effectiveness of psychotherapy* (pp. 23–61). Washington, DC: American Psychiatric Press.
- Fonagy, P., Gergely, G., Jurist, E. L., & Target, M. (2002). *Affect regulation, mentalization, and the development of the self*. New York: Other Press.
- Fraley, R. C. (2002). Attachment stability from infancy to adulthood: Meta-analysis and dynamic modeling of developmental mechanisms. *Personality and Social Psychology Review*, *6*, 123–151. doi:10.1207/S15327957PSPR0602\_03
- Freedman, R. N., Ornduff, S. R., & Kelsey, R. M. (1995). Object relations and physical abuse: A TAT analysis. *Journal of Personality Assessment*, *64*, 552–568. doi:10.1207/s15327752jpa6403\_12
- Gillespie, C. F., Bradley, B., Mercer, K., Smith, A. K., Conneely, K., Gapen, M., . . . Ressler, K. J. (2009). Trauma exposure and stress-related disorders in

- inner city primary care patients. *General Hospital Psychiatry*, 31, 505–514. doi:10.1016/j.genhosppsych.2009.05.003
- Griffin, D. W., & Bartholomew, K. (1994). Models of the self and other: Fundamental dimensions underlying measures of adult attachment. *Journal of Personality and Social Psychology*, 67, 430–445. doi:10.1037//0022-3514.67.3.430
- Hilsenroth, M., Stein, M., & Pincus, J. (2004). *Social Cognition and Object Relations Scale: Global Rating Method (SCORS-G)*. Garden City, NY: Adelphi University, The Derner Institute of Advanced Psychological Studies.
- Huprich, S. K., & Greenberg, R. P. (2003). Advances in the assessment of object relations in the 1990s. *Clinical Psychology Review*, 23, 665–698. doi:10.1016/S0272-7358(03)00072-2
- Keane, T. M., Marshall, A. D., & Taft, C. T. (2006). Posttraumatic stress disorder: Etiology, epidemiology, and treatment outcome. *Annual Review of Clinical Psychology*, 2, 161–197. doi:10.1146/annurev.clinpsy.2.022305.095305
- Kraemer, H. C., Kiernan, M., Essex, M., & Kupfer, D. J. (2008). How and why criteria defining moderators and mediators differ between the Baron & Kenny and MacArthur approaches. *Health Psychology*, 27, S101–S108. doi:10.1037/0278-6133.27.2(Suppl.).S101
- Mikulincer, M., Horesh, N., Eilati, I., & Kotler, M. (1999). The association between adult attachment style and mental health in extreme life-endangering conditions. *Personality and Individual Differences*, 27, 831–842. doi:10.1016/S0191-8869(99)00032-X
- Mikulincer, M., & Shaver, P. R. (2007). Attachment processes and emotion regulation. *Attachment in adulthood: Structure, dynamics, and change* (pp. 188–218). New York, NY: Guilford Press.
- Muller, R. T., Sicoli, L. A., & Lemieux, K. E. (2000). Relationship between attachment style and posttraumatic stress symptomatology among adults who report the experience of childhood abuse. *Journal of Traumatic Stress*, 13, 321–332. doi:10.1023/A:1007752719557
- Nigg, J. T., Silk, K. R., Westen, D., Lohr, N. E., Gold, L. J., Goodrich, S., & Ogata, S. (1991). Object representations in the early memories of sexually abused borderline patients. *American Journal of Psychiatry*, 148, 864–869. Retrieved from <http://ajp.psychiatryonline.org>.
- Ornduff, S. R., & Kelsey, R. M. (1996). Object relations of sexually and physically abused female children: A TAT analysis. *Journal of Personality Assessment*, 66, 91–105. doi:10.1207/s15327752jpa6601\_7
- Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin*, 129, 52–73. doi:10.1037/0033-2909.129.1.52
- Porcerelli, J. H., Shahar, G., Blatt, S. J., Ford, R. Q., Mezza, J. A., & Greenlee, L. M. (2006). Social cognition and object relations scale: Convergent validity and changes following intensive inpatient treatment. *Personality and Individual Differences*, 41, 407–417. doi:10.1016/j.paid.2005.10.027
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods Instruments, & Computers: A Journal of the Psychonomic Society, Inc.*, 36, 717–731. doi:10.3758/BF03206553
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879–891. doi:10.3758/BRM.40.3.879
- Priel, B., & Besser, A. (2001). Bridging the gap between attachment and object relations theories: A study of the transition to motherhood. *British Journal of Medical Psychology*, 74, 85–100. doi:10.1348/000711201160821
- Regehr, C., Hill, J., & Glancy, G. D. (2000). Individual predictors of traumatic reactions in firefighters. *Journal of Nervous and Mental Disease*, 188, 333–339. doi:10.1097/00005053-200006000-00003
- Regehr, C., & Marziali, E. (1999). Response to sexual assault: A relational perspective. *Journal of Nervous and Mental Disease*, 187, 618–623. doi:10.1097/00005053-199910000-00005
- Resick, P. A., Monson, C. M., & Chard, K. M. (2008). *Cognitive processing therapy: Veteran/military version, therapist's manual*. Washington, DC: U.S. Department of Veterans Affairs.
- Rothbaum, B. O., & Davidson, J. R. (2005). *The Traumatic Events Inventory manual*. Atlanta, GA: Emory University.
- Scher, C. D., Stein, M. B., Asmundson, G. J. G., McCreary, D. R., & Forde, D. R. (2001). The Childhood Trauma Questionnaire in a community sample: Psychometric properties and normative data. *Journal of Traumatic Stress*, 14, 843–857. doi:10.1023/A:1013058625719
- Schwartz, A. C., Bradley, R., Sexton, M., Sherry, A., & Ressler, K. J. (2005). Posttraumatic stress disorder among African Americans in an inner city mental health clinic. *Psychiatric Services*, 56, 212–215. doi:10.1176/appi.ps.56.2.212
- Scott, S., & Babcock, J. C. (2010). Attachment as a moderator between intimate partner violence and PTSD symptoms. *Journal of Family Violence*, 25, 1–9. doi:10.1007/s10896-009-9264-1
- Shaver, P. R., & Mikulincer, M. (2005). Attachment theory and research: Reurrection of the psychodynamic approach to personality. *Journal of Research in Personality*, 39, 22–45. doi:10.1016/j.jrp.2004.09.002
- Sullivan, H. S. (1953). *The interpersonal theory of psychiatry*. New York, NY: Norton.
- Twaite, J. A., & Rodriguez-Srednicki, O. (2004). Childhood sexual and physical abuse and adult vulnerability to PTSD: The mediating effects of attachment and dissociation. *Journal of Child Sexual Abuse*, 13, 17–38. doi:10.1300/J070v13n01\_02
- Westen, D. (1991). Social cognition and object relations. *Psychological Bulletin*, 109, 429–455. doi:10.1037//0033-2909.109.3.429
- Westen, D. (1995). *Social Cognition and Object Relations Scale: Q-Sort for projective stories (SCORS-Q)*. Cambridge, MA: Cambridge Hospital and Harvard Medical School.
- Westen, D. (1998). Unconscious thought, feeling, and motivation: The end of a century-long debate. In R. F. Bornstein & J. M. Masling (Eds.), *Empirical perspectives on the psychoanalytic unconscious* (Vol. 7, pp. 1–43). Washington, DC: American Psychological Association.
- Westen, D. (2011). *Clinical Diagnostic Interview (CDI) manual*. Retrieved from <http://www.psychsystems.net/manuals>
- Westen, D., Ludolph, P., Block, M. J., Wixom, J., & Wiss, F. C. (1990). Developmental history and object relations in psychiatrically disturbed adolescent girls. *American Journal of Psychiatry*, 147, 1061–1068.
- Westen, D., & Muderrisoglu, S. (2006). Clinical assessment of pathological personality traits. *American Journal of Psychiatry*, 163, 1285–1287. doi:10.1176/appi.ajp.163.7.1285
- Westen, D., & Nakash, O. (2005). *Attachment Prototype Questionnaire manual*. Atlanta, GA: Emory University.
- Westen, D., Nakash, O., Thomas, C., & Bradley, R. (2006). Clinical assessment of attachment patterns and personality disorder in adolescents and adults. *Journal of Consulting and Clinical Psychology*, 74, 1065–1085. doi:10.1037/0022-006X.74.6.1065
- Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37, 197–206. doi:10.1086/651257