

# Adult attachment as a predictor and moderator of psychotherapy outcome: A meta-analysis

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## Abstract

Bowlby's attachment theory describes characteristic patterns of relating to close others and has important implications for psychotherapy. Attachment patterns have been characterized as *secure* (healthy interdependence with others), *anxious* (overdependence on others), and *avoidant* (difficulty relying on others). We update a previous meta-analysis to determine the association of patient attachment with psychotherapy outcome. Meta-analysis of 36 studies (3,158 patients) suggested that patients with secure attachment pretreatment show better psychotherapy outcome than insecurely attached patients. Further, improvements in attachment security during therapy may coincide with better treatment outcome. Finally, preliminary moderator analyses suggest that those who experience low pretreatment attachment security may find better treatment outcome in therapy that incorporates a focus on interpersonal interactions and close relationships. The article closes with research limitations, diversity considerations, and therapeutic practices.

## KEYWORDS

attachment style, meta-analysis, psychotherapy outcome, psychotherapy relationship

## 1 | INTRODUCTION

Attachment theory, originally developed by John Bowlby to explain human bonding, has profound implications for conducting and adapting psychotherapy. The concept of attachment style refers to a person's characteristic ways of relating in intimate relationships with "attachment figures." Attachment style involves one's confidence in the

availability of the attachment figure so as to use that person as a *secure base* from which one can freely explore the world when not in distress, and a *safe haven* from which one seeks protection and comfort in times of distress.

Attachment theory has become one of the most influential frameworks in psychology. From the theory's inception, Bowlby conceptualized attachment theory as a clinical guide. Bowlby integrated his clinical observations with principles from other disciplines to explain affectional bonding between infants and their caregivers and the long-term effects of early attachment experiences on personality development, interpersonal functioning, and psychopathology. Bowlby postulated that the attachment system was operative across a wide variety of relationships, including the therapeutic relationship (Bowlby, 1977).

Bowlby suggested that the chief role of the psychotherapist is "to provide the patient with a temporary attachment figure" (1975, p. 191). He thought that doing so would "provide the patient with a secure base from which to explore both himself and also his relations with all those with whom he has made or might make, an affectional bond" (1977, p. 421). In this spirit, Bowlby (1988) formulated five key tasks for psychotherapy: (a) establishing a secure base, which involves providing patients with a strong internal felt sense of trust, care, and support, and which allows patients to more fully and safely explore the world and the contents of their mind; (b) exploring past attachment experiences; (c) exploring the therapeutic relationship and its relation to real-world relationships; (d) linking past experiences to present ones; and (e) revising "internal working models," which involves helping patients to feel, think, and act in new ways. We have also elaborated on a sixth (f) function: to provide a safe haven, a place the patient can "go" or "envision" in times of distress (Levy, 2013).

Adult attachment has been examined in psychotherapy research as both an outcome variable and a moderator of treatment outcome. Early findings suggest that patient attachment status is relevant to the course and outcome of psychotherapy and may also change as a result of psychotherapy. A review of this literature (Berant & Obegi, 2009) concluded that securely attached clients tend to benefit more from psychotherapy than insecurely attached clients. However, the findings across these studies have been inconsistent, with some studies suggesting that securely attached clients may not show more improvement than insecurely attached clients (Fonagy et al., 1996).

In addition, the strength of the relation between attachment security and treatment outcome remains unclear. Our previous meta-analysis determined a small-to-moderate effect of attachment security on psychotherapy outcome (Levy, Ellison, Scott, & Bernecker, 2011), although the results of this study were mixed depending on attachment style. However, given the small number of studies included in this meta-analysis ( $k = 14$ ), changing trends in attachment styles over the past decades, and recent statistical advances, an update to this study is warranted.

We examine the relation between clients' attachment and psychotherapy outcome and whether certain attachment styles prove more effective with certain types of psychotherapy. First, we review definitions and measures of attachment and provide clinical examples of attachment patterns in psychotherapy. Second, we present a meta-analysis of the research on the association between clients' pretreatment attachment style, change in attachment, and psychotherapy outcome, and any differences by type of treatment. We conclude with limitations of the extant research, diversity considerations, and therapeutic practices.

## 2 | DEFINITIONS AND MEASURES

Attachment style is a term used to describe one's characteristic way of viewing, relating to, and interacting with significant others such as parents, children, and romantic partners. Bowlby described three main attachment patterns: secure, anxious-ambivalent, and avoidant. Later, Ainsworth renamed the anxious-ambivalent pattern anxious-resistant and later identified a fourth pattern—disorganized. Over the years, a number of researchers and theorists have referred to these basic patterns using similar but slightly different names, for example, dismissing for avoidant and preoccupied for anxious-ambivalent.

The caregiver's reliable, sensitive provision of loving care is believed to result in what Bowlby called a *secure bond* between infant and caregiver. Based on Bowlby's attachment theory, Ainsworth (1978) developed a laboratory method called the Strange Situation to evaluate individual differences in attachment security. The Strange Situation involves a series of short laboratory episodes staged in a playroom through which the infant, the caregiver, and a stranger interact. Ainsworth and colleagues paid special attention to the infant's behavior upon reunion with the caregiver after a brief separation. Ainsworth (1978) identified three distinct patterns or styles of attachment which have since been termed (a) *secure* (63% of the dyads tested): infants who are upset at separating from the caregiver but are easily soothed upon reunion; (b) *anxious-resistant* or *ambivalent* (16%): infants who are extremely distressed upon the caregiver's departure and both cry and cling to the caregiver upon reunion but resist efforts to be soothed; and (c) *avoidant* (21%): infants who appear unfazed by the caregiver's departure (although physiologically are as distressed as anxious-resistant infants) and who avoid the caregiver upon reunion. Ainsworth's original work has been replicated and extended in hundreds of studies with thousands of infants and toddlers (Fraley, 2002).

Despite the obvious resemblance of these patterns to temperament types, these attachment behaviors in the Strange Situation experiment are not simply a result of infant temperament (Levy, 2005). Temperament may affect the manner in which attachment security is expressed, but temperament does not affect the security of the attachment itself.

A growing body of research (e.g., Grossmann, Grossmann, & Waters, 2005) examining attachment continuity suggests that patterns of attachment are both relatively stable over long periods of time *and* subject to change, influenced by a variety of factors including ongoing relationships with family members, new romantic relationships, traumatic life events, and possibly psychotherapy (e.g., Fraley, 2002). These findings are consistent with Bowlby's idea that attachment theory was not limited to infant–parent relationships.

## 2.1 | Attachment measures used in our meta-analysis

The numerous measures of attachment style tend to have the same underlying dimensions: attachment anxiety and attachment avoidance. Attachment security can generally be considered low scores on both of these dimensions. The measures described below are those used in the studies included in the current meta-analysis and are presented in chronological order of their development.

*The Adult Attachment Interview* (AAI) is a semistructured interview consisting of 18 questions that probe an individual's mental representations of early attachment relationships and their effect on one's adulthood. Main et al. identified three major patterns of adult attachment—secure/autonomous, dismissing, and enmeshed/preoccupied—and two additional codes of unresolved/disorganized, and cannot classify.

*Adult Attachment Prototype Rating* (AAPR) is a set of 88 items that can be applied to interview data or to rate an individual's attachment style. The rating system focuses on two dimensions with multiple facets. The excessive dependency dimension, corresponding to attachment anxiety, subsumes excessive dependency, borderline features, and compulsive care-giving prototypes. The excessive autonomy dimension, corresponding to attachment avoidance, subsumes defensive separation, antisocial features, and obsessive–compulsive features. A secure prototype was later added to the system.

*Adult Attachment Scale* (AAS) is a self-report instrument developed by breaking Hazan and Shaver's (1987) prototype statements into 21 items, later shortened to 18 (AAS-R). Individuals rate these statements on a 5-point, Likert-type scale. The subscales include comfort with closeness and intimacy, comfort depending on others, and anxiety about abandonment, which can be combined to produce scores for secure, anxious, and avoidant styles. There is strong evidence for the scale's reliability and validity.

*Perceptions of Adult Attachment Questionnaire* (PAAQ) is a 60-item self-report measure designed to parallel the AAI. As such, the instrument was designed to assess both current mental states with regard to caregivers and perceptions of childhood attachment relationships. The PAAQ has shown good psychometric properties.

*Relationship Questionnaire* (RQ) is a self-report questionnaire based on Bartholomew's (1990) four-category model of attachment. The RQ consists of four paragraphs describing each of the attachment prototypes—secure, fearful, preoccupied, and dismissing. Participants rate how well each corresponds to their romantic relationship pattern. Participants then select the one paragraph that best describes them.

*Relationship Style Questionnaire* (RSQ) contains 30 short statements on a 5-point Likert scale indicating one's characteristic style in close relationships. Five statements contribute to the secure and dismissing attachment patterns, and four statements contribute to the fearful and preoccupied attachment patterns. Two underlying dimensions can be derived by using the scores from the four prototype items to create linear combinations representing the self- and other-model attachment dimensions.

*Attachment Style Questionnaire* (ASQ) is a 40-item self-report questionnaire rated on a 6-point Likert-type scale. Its subscales include: Self-Confidence, Discomfort with Closeness, Need for Approval, Preoccupation, and Relationships as Secondary. The instrument has adequate reliability and predictive validity, converging with other attachment measures.

*Reciprocal Attachment Questionnaire* (RAQ) is a 43-item 5-point Likert-type self-report questionnaire designed to assess nine dimensions of adult attachment patterns with significant others. Four subscales—Compulsive Self-Reliance, Compulsive Care-Giving, Compulsive Care-Seeking, and Angry Withdrawal—assess dysfunctional patterns of adult attachment. The validity and reliability of the RAQ have been established in both clinical and nonclinical adult populations.

*Experiences in Close Relationships* (ECR) is a 36-item, self-report questionnaire that measures anxious and avoidant attachment domains. Participants rate the extent to which each item is descriptive of their feelings in close relationships on a 7-point scale. The reliability and validity of the scales have been demonstrated. Since the development of the original ECR, there have been a number of revised versions, including a short form (ECR-S).

*Psychosis Attachment Measure* (PAM) is a 16-item self-report measure that assesses the attachment dimensions of anxiety and avoidance. Participants rate how characteristic each item is of them on a 4-point scale. The measure has shown good reliability and validity in both clinical and nonclinical samples.

### 3 | CLINICAL EXAMPLES

Below we provide clinical examples for adults with secure, preoccupied (anxious), and dismissing (avoidant) attachment styles. Although we discuss clinical examples through the lens of attachment categories, which provide memorable, clinically relevant prototypes, research suggests that attachment is better conceptualized dimensionally as a function of level of attachment anxiety and level of attachment avoidance.

The attachment categories described below can be captured by arraying an individual in a quadrant based on his or her level on the dimensions. Thus, those low in attachment anxiety and low in attachment avoidance would fall into a quadrant representing secure attachment and tend to be more collaborative, receptive, and better able to utilize treatment (Mikulincer & Shaver, 2007). In contrast, those who score high on attachment avoidance but low on attachment anxiety would be placed in a quadrant characterized by dismissing attachment, and are often less engaged in treatment. Those high in attachment anxiety but low in attachment avoidance are considered preoccupied with attachment (also referred to as anxious-ambivalent attachment), and tend to present as more needy in therapy but not necessarily compliant with treatment (e.g., Dozier, 1990).

#### 3.1 | Secure attachment

Sandy, who was securely attached, entered treatment due to feelings of depression following the birth of her daughter. She had considered her marriage happy but with the birth of her daughter there had been increasing stress and fights with her husband. Additionally, she was anxious about parenting and while thrilled to be a mother, she also felt a sense of disappointment and concern about her marriage. At times she cried and although clearly distressed, she related easily with the therapist and showed trust in the therapist. At times she would become quiet

in session but when the therapist asked her about it, she shared her concerns, even when it was about the therapist or what the therapist might think of her. She tolerated discussing difficult topics, was relatively nondefensive, had access to her thoughts and feelings, and most importantly, tended to be able to integrate and utilize the therapist's comments. Sandy spoke openly about her ambivalence toward herself, the baby, her husband, and the therapist when such feelings arose. As the therapy proceeded, she tolerated her ambivalence better and felt more positive. Consistent with those with secure attachment, Sandy showed gratitude toward the therapist for providing treatment and was tolerant of the therapist's moments of empathic failure.

### 3.2 | Preoccupied (anxious) attachment

Penny, who was preoccupied in her attachment, entered psychotherapy after the breakup with a boyfriend and subsequent complaints of anxiety and depression. Because preoccupied individuals can be so interpersonally engaged, they often initially appear easy to treat. Penny was frequently distressed and eager to discuss her worries and relationship difficulties. She often lamented her own role in these problems. However, other times Penny presented in sessions with a friendly, cavalier demeanor toward the issues that brought her to therapy, frequently chatting about trivial matters. Other times she came into session very upset and angry about interpersonal slights for which she actively sought the therapist's agreement. Like many preoccupied patients, Penny presented with chaotic and contradictory representations of herself and others. Although Penny readily shared her internal experience with the therapist, it often felt confusing and entangled. Most of the time, Penny presented as compliant, dependent, and even needy of the therapist's approval but other times she was testy with the therapist and lashed out at her.

Both clinical and empirical evidence suggests that these individuals are difficult to treat (Dozier, 1990). Those classified as preoccupied, as compared with those classified as dismissing, tend to show less improvement (Fonagy et al., 1996). It is hypothesized that preoccupied patients are more difficult to treat because their representational systems are intricately linked with emotions that are entrenched in a preoccupation with difficult events in their lives (Slade, 2004); thus, behavior change tends to occur over a long period of time, resulting from the therapist's long-term emotional availability and tolerance for chaos.

### 3.3 | Dismissing (avoidant) attachment

Dismissing patients are often resistant to treatment, have difficulty asking for help, and retreat from help when it is offered (Dozier, 1990). Indeed, dismissing patients often evoke feelings in therapists of being excluded from their patients' lives (Diamond et al., 2003). A patient classified as dismissing came into session one morning and announced, to her therapist's surprise, that she was getting married that afternoon. Although he had known of her engagement, it had been many months since she had brought up any aspect of her upcoming marriage.

Psychotherapists working with dismissing patients may be pulled into enactments, where they find themselves in a situation analogous to a "chase and dodge" sequence with mothers and infants (Beebe & Lachmann, 1988). That leaves the patient feeling intruded upon only to withdraw further. Conversely, those with dismissing attachment may effectively curtail the therapist's capacity to engage with, visualize, or evoke the individual's representational world, or identify with the patient.

## 4 | META-ANALYTIC REVIEW

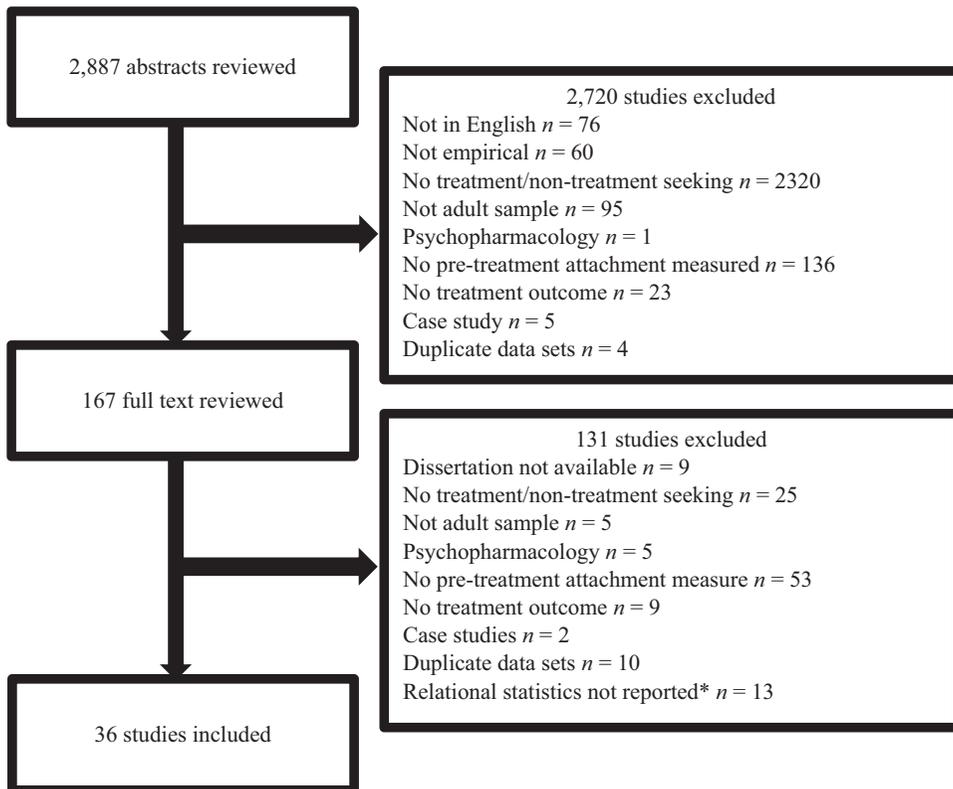
To characterize the relation between adult attachment and psychotherapy outcome, we conducted several meta-analyses of attachment anxiety and avoidance, the most established and prevalent dimensions of attachment in research to date. In addition, we also examined attachment security, which can be conceptualized as a blend of low avoidance and low anxiety dimensions.

To examine whether treatment adaptation may moderate these relations, we examined treatment type as a possible moderator. We focused on whether the treatment had an interpersonal component (vs. not) as a proxy for a possible adaptation, under the assumption that an interpersonal component better addresses the attachment and therapeutic needs of patients with insecure attachment.

#### 4.1 | Inclusion criteria and search strategy

Eligible studies were reports of psychotherapy outcome in samples of psychotherapy-seeking adults (Figure 1). These studies were found first through articles reviewing the literature (e.g., Berant & Obegi, 2009) and PsycINFO searches. These searches, conducted in May 2015 and July 2016, used the intersections of the terms attachment, interpersonal style, relation\* style, or the name of an adult attachment measure (see Ravitz, Maunder, Hunter, Sthankiya, & Lancee [2010], for a list of adult attachment measures) with either therap\* outcome, psychotherap\* outcome, or outcome. The search also specified either treatment outcome/clinical trial or empirical study methodology.

The combination of these literature searches returned 2,887 results. We used the following inclusion criteria: (a) presented in English; (b) published report of individual, group, couples, and/or family psychotherapy outcome; (c) measures both patients' pretreatment attachment security, anxiety, and/or avoidance as well as outcome posttreatment; (d) not a case study; (e) not a dissertation. These criteria resulted in 49 studies, although only 36 studies provided suitable statistics for at least one analysis (after contacting corresponding authors), containing 48 separate therapy samples with a combined  $N$  of 3,158 patients (Table 1).



**FIGURE 1** Flowchart for screening and inclusion of studies in the meta-analyses. \*In these cases, authors were contacted for data, but either did not respond or no longer had access to the data

**TABLE 1** Summary of studies included in meta-analysis of patient attachment and treatment outcome

Study	Psychotherapy				Patients				Attachment			Outcome	
	Type	IP	Duration	N	% F	Age	Diagnosis	Measure	Styles	Timepoints	Domains	Timepoints	
Bélanger et al. (2011)	PS	IP	14	44	66	40	PDA	RQ	Sec	Pre	Sym/Fun	Post	
Benson et al. (2013)	ICBT (male)	IP	22	44	0	43	Marital	AAS	Anx/Avo	Pre	Sym/Fun	Pre/post	
	ICBT (female)	IP	22	45	100	42	Marital	AAS	Anx/Avo	Pre	Sym/Fun	Pre/post	
	TCBT (male)	IP	24	41	0	43	Marital	AAS	Anx/Avo	Pre	Sym/Fun	Pre/post	
	TCBT (female)	IP	24	42	100	42	Marital	AAS	Anx/Avo	Pre	Sym/Fun	Pre/post	
Bernecker et al. (2015)	CBT	NIP	16	26	73	34	MDD	ECR	Anx/Avo	Pre/post	Sym/Dro	Pre/post	
	IPT	IP	16	27	78	43	MDD	ECR	Anx/Avo	Pre/post	Sym/Dro	Pre/post	
Berry et al. (2015)	MI + CBT	NIP	52	72	87	38	Psych. + SU	PAM	Anx/Avo	Pre	Sym/Fun	Pre/post	
Byrd et al. (2010)	Mixed	N/A	12	66	59	23	Mixed	AAS-R	Anx/Avo	Pre	Sym	Pre/post	
Daniel et al. (2016)	CBT	NIP	20	32	99	26	BN	AAI	Sec/Anx/Avo	Pre	Sym/Dro/Per	Pre/post	
	PDT	IP	20	24	99	26	BN	AAI	Sec/Anx/Avo	Pre	Sym/Dro/Per	Pre/post	
Diamond et al. (2016)	ABFT	IP	11	16	61	25	UA	ECR-RS	Anx/Avo	Pre/post	Sym	Pre/post	
	EFT	IP	11	16	61	26	UA	ECR-RS	Anx/Avo	Pre/post	Sym	Pre/post	
Forbes et al. (2010)	CBT	NIP	12	103	0	53	PTSD	RSQ	Sec/Anx/Avo	Pre	Sym	Pre/post	
Gois et al. (2014)	IPT	IP	26	11	100	57	MDD	AAS-R	Sec/Anx/Avo	Pre/post	Sym/Fun	Pre/post	
Hoyer et al. (2016)	CT	NIP	39	244	54	35	SAD	ECR-R	Anx/Avo	Pre	Sym/Dro	Post	
Illing et al. (2010)	Int.	IP	12	147	100	27	ED	ASQ	Sec/Anx/Avo	Pre	Sym/Dro	Pre/post	
Joyce et al. (2009)	PDT	IP	18	133	64	37	Mixed	RAQ	Sec/Anx/Avo	Pre	Sym/Dro/Fun/Per	Pre/post	
Joyce et al. (2013)	PDT	IP	18	48	67	41	Mixed	ECR	Anx/Avo	Pre	Sym/Dro/Fun/Per	Pre/post	
Kowal et al. (2015)	CBT	NIP	4	235	61	48	Pain	ECR	Anx/Avo	Pre	Sym/Fun	Post	
Lawson and Brossart (2009)	Int. CBT-PDT	IP	17	49	0	32	IPV	AAS	Anx/Avo	Pre	Sym	Post	
Levy et al. (2006)	DBT	NIP	52	29	96	32	BPD	AAI, ECR	Sec/Anx/Avo	Pre/post	Sym/Dro/Fun	Pre/post	

(Continues)

TABLE 1 (Continued)

Study	Psychotherapy			Patients			Attachment			Outcome		
	Type	IP	Duration	N	% F	Age	Diagnosis	Measure	Styles	Timepoints	Domains	Timepoints
	SPT	IP	52	30	93	33	BPD	AAI, ECR	Sec/Anx/Avo	Pre/post	Sym/Dro/Fun	Pre/post
	TFP	IP	52	30	96	28	BPD	AAI, ECR	Sec/Anx/Avo	Pre/post	Sym/Dro/Fun	Pre/post
Lindgren et al. (2008)	PDT	IP	12	32	73	44	Mixed	RSQ	Sec/Anx/Avo	Pre	Sym/Dro	Pre/post
Marmarosh et al. (2009)	Mixed	N/A	15	31	71	25	Unspec.	ECR	Anx/Avo	Pre	Sym	Post
McBride et al. (2006)	CBT	NIP	17	28	74	40	MDD	RSQ	Anx/Avo	Pre	Sym	Post
	IPT	IP	17	27	72	41	MDD	RSQ	Anx/Avo	Pre	Sym	Post
Meyer et al. (2001)	Mixed	N/A	52	10-4	57	35	PDNOS	AAPR	Anx/Avo	Pre	Sym/Fun	Post
Muller and Rosenkranz (2009)	Int.	IP	8	61	64	43	PTSD	RSQ	Sec/Anx/Avo	Pre/post	Sym/Dro	Pre/post
Newman et al. (2015)	CBT + IEP	IP	14	42	72	37	GAD	PAAQ	Anx/Avo	Pre/post	Sym/Dro	Pre/post
	CBT + SL	NIP	14	39	80	37	GAD	PAAQ	Anx/Avo	Pre/post	Sym/Dro	Pre/post
Parker et al. (2012)	MFT (female)	IP	4	59-4	100	-	Marital	ECR	Anx/Avo	Pre	Sym	Post
	MFT (male)	IP	4	59-4	0	-	Marital	ECR	Anx/Avo	Pre	Sym	Post
Reiner et al. (2016)	PDT	IP	8	41	100	30	MDD	AAI	Sec	Pre/post	Sym	Pre/post
Reis and Grenyer (2004)	PDT	IP	16	58	59	46	MDD	RQ	Sec/Anx/Avo	Pre	Sym	Pre/post
Sauer et al. (2010)	Mixed	N/A	7	50	68	28	Mixed	ECR	Anx/Avo	Pre	Sym	Pre/post
Smith et al. (2012)	IPT	IP	36	30	100	37	MDD + CSA	ECR	Anx/Avo	Pre	Sym/Dro	Pre/post
	TAU	N/A	36	20	100	37	MDD + CSA	ECR	Anx/Avo	Pre	Sym/Dro	Pre/post
Stalker et al. (2005)	Int.	IP	6	11-2	100	41	PTSD	RAQ	Anx/Avo	Pre/post	Sym/Dro	Pre/post
Strauss et al. (2006)	PDT	IP	10	50-4	70	34	Mixed	AAPR	Sec	Pre	Sym/Per	Post

(Continues)

**TABLE 1** (Continued)

Study	Psychotherapy			Patients		Attachment			Outcome			
	Type	IP	Duration	N	% F	Age	Diagnosis	Measure	Styles	Timepoints	Domains	Timepoints
4												
Strauss et al. (2011)	Int. PDT-PCT	IP	7	19	100	31	AVPD	AAPR	Sec/Anx/Avo	Pre/post	Sym/Fun/Per	Pre/post
Tasca et al. (2006)	Int. PDT-PCT	IP	7	21	100	31	BPD	AAPR	Sec/Anx/Avo	Pre/post	Sym/Fun/Per	Pre/post
	CBT	NIP	16	46	91	43	BED	ASQ	Sec/Anx/Avo	Pre/post	Sym/Dro/Per	Pre/post
	PDT	IP	16	47	91	43	BED	ASQ	Sec/Anx/Avo	Pre/post	Sym/Dro/Per	Pre/post
Tasca et al. (2013)	PDT	IP	16	83	100	42	BED	ASQ	Sec/Anx/Avo	Pre/post	Sym/Dro/Per	Pre/post
Taylor et al. (2015)	CBT	NIP	13	56	62	41	Mixed	ECR	Anx/Avo	Pre/post	Sym/Dro	Pre/post
Travis et al. (2001)	PDT	IP	21	32	77	41	Unspec.	BARS	Sec/Anx/Avo	Pre/post	Sym/Dro	Pre/post
Watson et al. (2014)	CBT	NIP	16	26	67	38	MDD	ASQ	Sec/Anx/Avo	Pre/post	Sym/Dro/Per	Pre/post
Zalaznik et al. (2017)	EFT	IP	16	29	67	38	MDD	ASQ	Sec/Anx/Avo	Pre/post	Sym/Dro/Per	Pre/post
	CBT	NIP	12	31	61	33	PDA	ECR	Anx/Avo	Pre/post	Sym/Dro	Pre/post

*Note.* Psychotherapy type: ABFT: attachment-based family therapy; CBT: cognitive-behavioral therapy; CT: cognitive therapy; DBT: dialectical behavior therapy; EFT: emotion-focused therapy; ICBT: integrative couples' behavior therapy; IEP: interpersonal and emotional processing; Int.: integrative; IPT: interpersonal therapy; MFT: marriage and family therapy; MI: motivational interviewing; PDT: psychodynamic therapy; PS: problem solving; SL: supportive listening; SPT: supportive-psychodynamic therapy; TAU: treatment-as-usual; TCBT: traditional couples' behavior therapy; TFP: transference-focused psychotherapy.

*Interpersonal psychotherapy type:* IP: interpersonal; NIP: noninterpersonal.

*Duration:* Psychotherapy duration in weeks.

*Patient variables:* %F: percent female; Age: mean age in years.

*Diagnosis:* AVPD: avoidant personality disorder; BED: binge eating disorder; BN: bulimia nervosa; BPD: borderline personality disorder; CSA: child sexual abuse; ED: eating disorder; GAD: generalized anxiety disorder; IPV: intimate partner violence; MDD: major depressive disorder; PDA: panic disorder and agoraphobia; PDNOS: personality disorder not-otherwise specified; Psych.: psychosis; PTSD: posttraumatic stress disorder; SAD: social anxiety disorder; SU: substance use; UA: unresolved anger; Unspec.: unspecified.

*Attachment measure:* AAI: Adult Attachment Interview; AAPR: Adult Attachment Prototype Rating; AAS/R: Adult Attachment Scale/-Revised; ASQ: Attachment Style Questionnaire; BARS: Bartholomew Attachment Rating Scale; ECR/R/-RS: Experiences in Close Relationships scale/-Revised/-Relationship Structures; PAAQ: Perceptions of Adult Attachment Questionnaire; PAM: Psychosis Attachment Measure; RAQ: Reciprocal Attachment Questionnaire; RQ: Relationship Questionnaire; RSQ: Relationship Scales Questionnaire.

*Attachment style:* Anx: anxiety; Avo: avoidance; Sec: security.

*Attachment/outcome measurement timepoints:* Pre: pretreatment; Post: posttreatment.

*Outcome domain:* Dro: dropout; Func: functioning; Per: personality; Sym: symptoms.

## 4.2 | Effect size estimates

Pearson's correlation coefficient was chosen as the principle measure of effect size because most studies utilized dimensional measures of attachment and outcome. Other effect size measures were converted to Pearson's correlation. Before analysis, all effect sizes were rescaled such that positive effects express greater attachment security (or lower anxiety/avoidance in attachment), predicting better treatment outcome/less dropout.

## 4.3 | Study coding

Several patient characteristics were coded by trained graduate and undergraduate students: percent female, mean age, proportion White, mean level of education, dropout rate, and diagnosis of personality disorder. The treatment characteristics coded included: individual and/or group therapy, inpatient treatment, and length of treatment in weeks. We also classified treatment arms as "interpersonal" (any component directly addressing interpersonal difficulties and concerns; for example, psychodynamic and interpersonal therapies) or "noninterpersonal" (e.g., CBT for bulimia nervosa). The classification of treatment type was done independently by the second and third authors ( $\kappa = 0.95$ ).

## 4.4 | Meta-analytic procedures

Data were analyzed in R Version 3.4.2 package "metafor" (Viechtbauer & R Core Team, 2017). Correlations were transformed to a Fisher's  $z$  scale to ensure normality of the underlying distribution (Borenstein, 2009) and transformed back to  $r$  values following analyses for ease of interpretation. We used the random-effects multivariate multilevel option for meta-analyses with multiple effect sizes nested within treatment groups, in turn nested within studies. A correlation of  $r = 0.50$  was assumed for the correlations among measures to adjust the weights of individual effect sizes (Borenstein, 2009).

Separate meta-analyses were conducted to test whether (a) pretreatment attachment predicted posttreatment outcome ("Pre-to-Post"); (b) pretreatment attachment predicted change in outcome, to take into account pretreatment severity ("Pre-to-Change"); (c) change in attachment predicted change in outcome ("Change-to-Change"); and (d) pretreatment attachment predicted dropout ("Pre-to-Dropout").

Publication biases were examined using funnel plots and fail-safe  $N$  calculations (i.e., the number of studies with an effect size of  $r = 0$  that would need to be added to the analysis to reduce the effect size to a trivial level of  $r = 0.05$ ). Heterogeneity of effects was examined by estimating the percent of variance attributed to real differences in effect sizes (a multilevel  $I^2$ ; Viechtbauer & R Core Team, 2017). We fitted separate models for effect sizes involving attachment anxiety/avoidance and for effect sizes involving attachment security (due to overlap in these constructs). An omnibus model in each category was followed up with subgroup analyses examining the effects of attachment dimension (anxiety vs. avoidance), outcome domain (symptoms, functioning, and personality), and treatment type (interpersonal vs. noninterpersonal) on the correlation between attachment and outcome/dropout. Finally, we examined whether treatment type or other study characteristics moderated these effect sizes.

## 5 | RESULTS

In total, 36 studies were included in the meta-analysis, totaling 3,158 patients ( $M = 88$  and  $SD = 104$ ) and 827 effect sizes. Pre-to-Post effect sizes were the most common (317 effects), followed by Pre-to-Change (277), Change-to-Change (169), and finally Pre-to-Dropout (64).

## 5.1 | Attachment as a predictor of treatment outcome

Pretreatment attachment was a small-to-moderate predictor of posttreatment outcome (Pre-to-Post), regardless of attachment style ( $r = 0.17$ ,  $d = 0.35$ ,  $p < 0.001$ , 95% CI = [0.13, 0.22],  $k = 32$ , fail-safe  $N = 550$ ,  $I^2 = 53\%$ ). Greater attachment security/less insecurity predicted better posttreatment outcome. However, controlling for pretreatment levels on outcome measures (Pre-to-Change) made this effect nonsignificant. Nevertheless, greater improvement in attachment security predicted greater improvement in outcome (Change-to-Change) ( $r = 0.16$ ,  $d = 0.32$ ,  $p < 0.001$ , 95% CI = [0.07, 0.25],  $k = 15$ , fail-safe  $N = 446$ ,  $I^2 = 52\%$ ). Finally, baseline attachment did not predict dropout. None of these effects appeared subject to publication bias.

## 5.2 | Specific dimensions

We next examined specific effects of attachment anxiety, avoidance, and security. All effects of pretreatment attachment security on outcome at posttreatment (Pre-to-Post) were significant, in the small-moderate range ( $r = 0.16$ – $0.23$ ,  $d = 0.32$ – $0.47$ ), and did not differ by outcome domain ( $\chi^2_2 = 1.31$ ;  $p = 0.52$ ). In addition, the effects of attachment anxiety and attachment avoidance combined on outcome at posttreatment did not differ by attachment style, outcome domain, or their interaction.

Next, we found that improvements in attachment security during treatment were positively correlated with improvements in symptoms with a small-medium significant effect ( $r = 0.19$ ,  $d = 0.39$ ), but not with improvements in personality or functioning (Change-to-Change).

Finally, treatment dropout was not predicted by pretreatment attachment security, anxiety, or avoidance.

## 5.3 | Effect size by attachment style and treatment type

We also examined potential differences in the effects of attachment style by treatment type (interpersonal vs. noninterpersonal; Table 2). First looking at attachment security (Pre-to-Post), we found that the effect of treatment type approached significance ( $\chi^2_1 = 3.34$ ;  $p = 0.07$ ). The effect of pretreatment attachment in noninterpersonal psychotherapies was in the medium-large range ( $r = .33$ ,  $d = 0.70$ ) compared to the effect in interpersonal psychotherapies, which was in the small-medium range ( $r = 0.15$ ,  $d = 0.30$ ). However, we found that the effect size of pretreatment attachment anxiety and avoidance combined on outcome at posttreatment did not differ by treatment type ( $\chi^2_1 = 0.06$ ;  $p = 0.81$ ), attachment style ( $\chi^2_1 = 2.16$ ;  $p = 0.14$ ), or their interaction ( $\chi^2_1 = 1.21$ ;  $p = 0.27$ ).

The effect sizes of improvements in attachment security on improvements in outcome (Change-to-Change) were nonsignificant for both treatment types and did not differ by treatment type ( $\chi^2_1 = 0.00$ ;  $p = 0.95$ ). Finally, the nonsignificant effects of attachment security, anxiety, and avoidance on dropout did not differ by treatment type, attachment style, or their interaction.

## 6 | MODERATORS

We also examined the moderating effect of several study-level treatment and patient characteristics on all effects of attachment with significant heterogeneity (i.e.,  $I^2 > 25\%$ ). Five study-level moderation effects on the differential effect of attachment anxiety versus avoidance were significant. Only one significant main effect of a moderator on attachment effects averaged across both attachment anxiety and avoidance appeared. No moderation effects of the security-outcome relations were revealed (likely due to fewer studies reporting these data).

Year of publication predicted the difference between attachment anxiety and avoidance in Pre-to-Post effects ( $b = -0.01$ ,  $z = -2.74$ ,  $p < 0.01$ ), with anxiety being a stronger predictor than avoidance in older studies, with no difference by 2011. Treatment format also moderated these effects ( $\chi^2_3 = 14.20$ ,  $p < 0.01$ ), such that attachment

**TABLE 2** Mean estimated effect sizes of attachment dimensions on outcome by outcome domain (left half) and by treatment type (right half)

	Symptoms	Personality	Functioning	Interpersonal psychotherapy	Noninterpersonal psychotherapy
<i>Pre-to-Post</i>					
Security	0.16 [0.07, 0.25]**	0.23 [0.09, 0.35]**	0.19 [0.02, 0.34]*	0.15 [0.06, 0.23]**	0.33 [0.14, 0.50]**
Anxiety	0.19 [0.14, 0.24]**	0.22 [0.10, 0.34]**	0.20 [0.11, 0.30]**	0.18 [0.11, 0.24]**	0.22 [0.12, 0.31]**
Avoidance	0.16 [0.11, 0.21]**	0.25 [0.13, 0.37]**	0.08 [-0.02, 0.18]	0.17 [0.11, 0.23]**	0.15 [0.06, 0.24]**
<i>Pre-to-Change</i>					
Security	0.03 [-0.04, 0.11]	-0.07 [-0.21, 0.07]	0.04 [-0.14, 0.21]	-0.01 [-0.09, 0.07]	0.14 [-0.02, 0.27]
Anxiety	0.04 [-0.01, 0.09]	-0.07 [-0.18, 0.04]	0.08 [-0.02, 0.18]	0.03 [-0.03, 0.08]	0.09 [-0.01, 0.19]
Avoidance	0.05 [0.00, 0.10]	-0.08 [-0.19, 0.03]	-0.01 [-0.10, 0.09]	0.02 [-0.04, 0.07]	0.08 [-0.03, 0.17]
<i>Change-to-Change</i>					
Security	0.19 [0.03, 0.34]*	0.10 [-0.11, 0.30]	0.02 [-0.25, 0.29]	0.15 [-0.02, 0.31]	0.14 [-0.17, 0.43]
Anxiety	0.18 [0.08, 0.27]**	0.26 [0.09, 0.42]**	0.16 [-0.05, 0.36]	0.19 [0.09, 0.30]**	0.18 [0.01, 0.33]*
Avoidance	0.15 [0.05, 0.24]**	0.29 [0.12, 0.45]**	0.00 [-0.21, 0.21]	0.15 [0.03, 0.25]*	0.17 [0.01, 0.33]*
<i>Dropout</i>					
Security	-	-	-	0.06 [-0.03, 0.15]	-0.12 [-0.32, 0.09]
Anxiety	-	-	-	0.05 [-0.04, 0.14]	0.02 [-0.11, 0.15]
Avoidance	-	-	-	0.02 [-0.07, 0.11]	0.05 [-0.08, 0.17]

Note. Pre-to-Post: pretreatment level of attachment as a predictor of treatment outcome at posttreatment; Pre-to-Change: pretreatment level of attachment as a predictor of change in outcome during treatment; Change-to-Change: change in attachment during treatment as a predictor of change in outcome during treatment. All estimates in metric of Pearson's  $r$  statistic. Numbers in parentheses represent 95% confidence intervals. \*/\*\* significantly different from zero at the  $p < 0.05/0.01$  level.

anxiety ( $r = 0.34, p < 0.01$ ), but not avoidance ( $r = 0.07, p = 0.94$ ), predicted poor outcome in treatments combining individual and group therapy.

Mean patient age predicted the difference between anxiety and avoidance in Pre-to-Change effects ( $b = 0.01, z = 2.07, p = 0.04$ ), with avoidance being more predictive in younger samples ( $<31$ ) and anxiety in older samples ( $>49$ ).

Both treatment setting ( $b = 0.16, z = 2.01, p = 0.04$ ) and patient educational level ( $b = 0.21, z = 1.96, p < 0.05$ ) predicted the difference between attachment anxiety and avoidance in Change-to-Change effects, such that change in anxiety ( $r$ 's = 0.19,  $p$ 's  $< 0.01$ ), but not avoidance ( $r = 0.06\text{--}0.09, p = 0.10\text{--}0.52$ ), predicted change in outcome only in inpatient settings and among patients with a college degree.

Finally, educational level was a moderator of the effect of attachment insecurity in Pre-to-Change effects ( $z = 2.78, p < 0.01$ ), regardless of attachment dimension (anxiety or avoidance), such that those without a college degree ( $r = 0.15, p < 0.01$ ), but not those with ( $r = -0.03, p = 0.46$ ), showed a significant positive effect of attachment security (i.e., low anxiety and avoidance) on change in outcome.

## 7 | PATIENT CONTRIBUTIONS

In sum, our results suggest that patients who present to treatment with secure attachment—who rely effectively but not exclusively on others and enjoy reciprocal and collaborative close relationships—may show better outcome after psychotherapy than insecurely attached patients. It is possible, given our findings, that it is not that secure attachment alone generates treatment gains but both that insecurely attached individuals may present to treatment with greater symptomatology (e.g., personality disorder; Levy, Johnson, Clouthier, Scala, & Temes, 2015), and that *improvements* in attachment security during therapy may coincide with improved treatment outcome. Optimistically, those who experience low pretreatment attachment security may find better treatment outcome in psychotherapy that incorporates a focus on interpersonal interactions and close relationships, subduing the limited treatment gains generally associated with low security; however, this finding is tentative as it was not supported by either attachment anxiety or avoidance dimensions, but only in the case of the direct assessment of security.

Our moderation analyses suggest that anxiously attached patients in treatment programs combining individual and group formats (e.g., hospital or partial hospital programs) may be those with the poorest outcome, but that improvements in these patients' attachment anxiety is linked to improved treatment gains if they are treated as an inpatient, suggesting the potential importance of targeting patients dependency in these settings (either as a mechanism of change or a proximal outcome). Therapists should be prepared that avoidantly attached younger patients and anxiously attached older patients may see less improvement in therapy. Furthermore, targeting the attachment anxiety of college graduates may produce treatment gains, although it is also possible that symptom change for these patients leads to increased healthy independence in relationships, as the direction of these effects is unclear. Finally, having a college degree appears to buffer patients against the negative effects of attachment insecurity on outcome.

## 8 | LIMITATIONS OF THE RESEARCH

There are still relatively few empirical studies that have examined how client attachment influences psychotherapy outcome. Although we report on the correlation between pre-to-post change in attachment and change in outcome, the correlational nature of these effects precludes evidence for a causal or mediational effect of attachment on outcome. The relative paucity of studies also reduces the power to detect moderation. In addition, no prospective investigations that we know of have matched patients to treatments or therapists based on attachment patterns. Additional findings are needed before conclusions regarding matching can be rendered.

When taking into account pretreatment levels of outcome measures, the correlation between pretreatment attachment and posttreatment outcome became statistically nonsignificant. This finding suggests that pretreatment attachment and pretreatment outcome measures share some of the variance that is predictive of treatment outcome. However, it is unclear whether this shared variance is a reflection of pretreatment attachment leading to higher levels of pretreatment severity, pretreatment severity leading to higher levels of pretreatment attachment, both being caused by a third variable, or some combination of these options. Thus, it is important for future studies to disentangle these possibilities by looking at the longitudinal associations among these variables before treatment.

Another limitation of our findings is that we excluded dissertations and publications reported in languages other than English. As a consequence, we may have missed important studies published in other languages or those that did not find their way into publication.

## 9 | DIVERSITY CONSIDERATIONS

The percentage of women in the analyzed studies averaged 71%, which reflects national numbers in patients receiving psychotherapy in the United States. The vast majority of the meta-analyzed studies were conducted in the United States and all were published in English, both possibly restricting generalizability of the results. Unfortunately, the results of the current meta-analysis are difficult to interpret with regard to patient diversity. We examined patient gender, race, and age as potential study-level moderators, and only age moderated the effect of pretreatment attachment anxiety versus avoidance predicting change in outcome (see above). In terms of therapist diversity, 68% of therapists were women, 28% were students, and 83% were in supervision.

Although developmental research on attachment has been carried out in diverse and crosscultural samples, finding considerable evidence for secure base and safe haven behavior, less work is available at the adult level. Although this study has been carried out in the United States, Canada, Germany, Denmark, and Australia among other nations, it has been carried out in predominantly Caucasian samples. Few psychotherapy studies regularly report their outcome analyses as a function of age, gender, ethnicity, race, sexual orientation, or other intersecting dimensions of cultural identity.

## 10 | THERAPEUTIC PRACTICES

We derive several practice implications from our meta-analyses:

- Assess the patient's attachment style. Attachment style or organization can influence the psychotherapy process, the responses of both patients and therapists, the quality of the therapeutic alliance, and the ultimate outcome of treatment. Thus, therapists should be attuned to indicators of a patient's attachment style. Formal interviewing or use of reliable self-report measures can be useful as part of the assessment process.
- Understand that a patient's attachment organization will provide important clues as to how the patient is likely to respond in treatment and to the therapist. Expect longer and more difficult treatment with anxiously attached patients but quicker and more positive outcome with securely attached patients.
- Beware that anxiously attached patients may be deceptively difficult to treat, despite initially appearing engaged and cooperative. These patients may be quick to anger or feel rejected by the therapist. Consider a stance designed to help the anxiously attached patient contain his or her emotional experience. This may include explicit articulations of the treatment frame, increased structure to compensate for the patient's tendency to feel muddled, and at times avoidance of emotional/experiential techniques that contribute to the patient feeling overwhelmed.

- Understand that avoidantly attached clients may require the therapist to walk a thin line between being active but not too active, engaged but with enough distance to provide space. Do not enact a chase-and-dodge dynamic with the avoidant patient.
- Avoid, at the same time, going too far in acting in contrast (complementarity) to patients' attachment styles. Practice and research suggest that therapists should titrate their interpersonal styles so as not to overwhelm dismissing patients or to appear aloof or uninterested to anxiously attached patients.
- Consider providing patients low in attachment security an interpersonally focused therapy to maximize outcome. Our preliminary evidence suggests individuals low in attachment security may have difficulties in treatments that do not include an interpersonal component, but may do better in interpersonal therapies.
- Know that attachment style can be modified during psychotherapy, even in brief treatments and for patients with severe attachment difficulties, such as those suffering from borderline personality disorder. Therefore, change in attachment can be conceptualized as a proximal outcome, not just a predictive patient characteristic, and could be considered a goal of treatment.
- Consider intervening with patients to change attachment style. Early findings suggest that the focus on the relationship between the therapist and patient and/or the use of interpretations may be efficacious change mechanisms, at least for personality disordered patients (Levy et al., 2006). However, other research also demonstrates that a range of treatments may be useful for achieving changes in attachment representations in less disturbed patients with neurotic-level difficulties (Levy et al., 2015).

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