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The Alliance in Adult Psychotherapy: A Meta-Analytic Synthesis

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The alliance continues to be one of the most investigated variables related to success in psychotherapy irrespective of theoretical orientation. We define and illustrate the alliance (also conceptualized as therapeutic alliance, helping alliance, or working alliance) and then present a meta-analysis of 295 independent studies that covered more than 30,000 patients (published between 1978 and 2017) for face-to-face and Internet-based psychotherapy. The relation of the alliance and treatment outcome was investigated using a three-level meta-analysis with random-effects restricted maximum-likelihood estimators. The overall alliance–outcome association for face-to-face psychotherapy was $r = .278$ (95% confidence intervals [.256, .299], $p < .0001$; equivalent of $d = .579$). There was heterogeneity among the effect sizes, and 2% of the 295 effect sizes indicated negative correlations. The correlation for Internet-based psychotherapy was approximately the same (viz., $r = .275$, $k = 23$). These results confirm the robustness of the positive relation between the alliance and outcome. This relation remains consistent across assessor perspectives, alliance and outcome measures, treatment approaches, patient characteristics, and countries. The article concludes with causality considerations, research limitations, diversity considerations, and therapeutic practices.

Clinical Impact Statement

Question: How robust is the correlation of the alliance (as a holistic, collaborative quality measured during therapy) with therapy outcomes? **Findings:** Based on over 300 studies, the positive relation of the alliance and outcome remains across assessor perspectives, alliance and outcome measures, treatment approaches, patient (intake-) characteristics, face-to-face and Internet-mediated therapies, and countries. **Meaning:** The alliance, which is of a mutual collaboration and partnership between therapist and client, is an important aspect of psychotherapy across various psychotherapy approaches. **Next Steps:** The universality of the alliance–outcome relation and the potential conceptual boundaries have to be investigated across cultural and biopsychosocial contexts inside but also outside of psychotherapeutic settings in a quantitative and in a qualitative manner.

Keywords: therapeutic alliance, psychotherapy relationship, working alliance, meta-analysis, psychotherapy outcome

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The alliance continues to be one of the most investigated factors leading to psychotherapy success. The term *alliance*, originated in the psychodynamic literature (Zetzel, 1956), has become increasingly popular in a variety of helping professions, including nursing, social work, medicine, psychiatry, rehabilitation, counseling (Horvath et al., 2014), and e-mental health (Berger, 2017; Sucala, Schnur, Constantino, Miller, Brackman, & Montgomery, 2012). The more recent interest in the alliance evident in the literature is probably attributable, in part, to the dual facts that (a) research consistently finds a moderate but robust relation between the alliance and outcome across a broad array of treatments (Horvath & Bedi, 2002; Horvath, Del Re, Flückiger, & Symonds, 2011; Martin, Garske, & Davis, 2000) and (b) the alliance can be assessed in a practical and direct manner. Items such as “I believe my therapist is genuinely concerned for my welfare,” “We agree on what is important for me to work on,” and “My therapist and I respect each other” can be utilized in many clinical contexts. Our report focuses on the portion of the empirical literature linking the alliance to psychotherapy outcome published between 1978 and 2017.

In this article, we first present the definition of the alliance, its measures, and a clinical excerpt. Next, we provide a meta-analytic synthesis of the alliance–outcome research. The analyses cover the relation between the alliance and psychotherapy outcomes across assessor perspectives, alliance measures, treatment approaches, and countries. We conclude with patient contributions, adaptability to e-mental health treatments, causality considerations, limitations of the research, diversity considerations, and therapeutic practices.

Definitions and Measures

The term *alliance* (sometimes preceded by *therapeutic*, *working*, or *helping*) refers to the holistic collaborative aspects of the therapist–client relationship. The theoretical discourse on the collaborative aspects of the therapeutic relationship (Freud, 1912/1958; Rogers & Wood, 1974; Zetzel, 1956) has been strongly impacted by the proposal that common, pantheoretical factors responsible for a significant part of the effectiveness of different therapeutic practices (Bordin, 1989; Frank, 1961; Horvath & Symonds, 1991; Rosenzweig, 1936; Wampold & Imel, 2015).

Historically, the alliance concept (but not the term itself) dates back to the middle period of Freud’s writings. He clearly recognized the importance of the client’s conscious attachment to the person of the therapist:

... even the most brilliant results were liable to be suddenly wiped away if my personal relation with the patient was disturbed. . . . the personal emotional relation between doctor and client was after all stronger than the whole cathartic process (Freud, 1927/1961, p. 27).

At the same time, Freud was theorizing that the unconscious projection of significant past unresolved relationships (transference) was the ubiquitous core of the therapeutic process: “It [transference] is a universal phenomenon of the human mind, it dominates the whole of each person’s relations to his human environment” (Freud, 1927/1961, p. 42; Freud, 1963).

The importance of the conscious affiliation and collaboration between client and therapist was taken up by several analysts. Zetzel (1956) coined the term *therapeutic alliance* to refer to the client’s ability to use the healthy part of her/his ego to link up or

join with the analyst to accomplish the therapeutic tasks. Greenson (1965) made a distinction between the *working alliance*, the client’s ability to align with the tasks of analysis, and the *therapeutic alliance*, the capacity of therapist and client to form a personal bond with the therapist (Horvath & Luborsky, 1993).

Another positive influence on the development of work on the alliance was Rogers’ application of empirical methods to the investigation of the therapist’s offered facilitative conditions (e.g., empathy, positive regard, genuineness, trustworthiness, etc.). This body of work pioneered the methods of investigating relational variables rigorously (Rogers, Gendlin, Kiesler, & Truax, 1967).

The “new” alliance concept emphasized the conscious aspects of the relationship (as opposed to unconscious processes) and the holistic achievement of collaborative “working together” aspects of the relationship. Luborsky (1976) proposed an extension of Zetzel’s (1956) conceptualization and suggested that the alliance between therapist and client developed in two phases. The first phase, Type I alliance, involved the client’s belief in the therapist as a potent source of help provided through a warm, supporting, and caring relationship. The second phase, Type II alliance, involved the client’s investment and faith in the therapeutic process itself, a commitment to some of the concepts undergirding the therapy (e.g., nature of the problem and value of the exploratory process), as well as a willing investment of her/himself to share ownership for the therapy process. Although Luborsky’s conceptualization about the therapy process was grounded in psychodynamic theory, his description of the alliance as a therapeutic process was easily applicable to all forms of treatments.

Bordin (1976, 1989, 1994) proposed a pantheoretical version of the alliance that he called the *working alliance*. His concept of the alliance was based on Greenson’s (1965) ideas. For Bordin, the core of the alliance was a collaborative stance in therapy focused on three components: agreement on the therapeutic goals, consensus on the tasks that make up therapy, and a bond between the client and the therapist. He theorized that different therapies would place different demands on the relationship, thus the “profile” of the ideal working alliance would differ across orientations.

Definitions

Researchers from different theoretical orientations adapted and enriched Bordin’s and Luborsky’s positions, resulting in a range of assumptions realized via a variety of assessment approaches. Some of the main approaches include the following:

(1) Psychometric definitions. Some research on the alliance asserts that the alliance is composed of independent elements (particular facets or components) and attempts to determine to what extent one component may be prioritized in comparison to the other components (Falkenström, Hatcher, & Holmqvist, 2015; Webb et al., 2011). Other research highlights the alliance as a synergistic assembly of components where the whole is more than the sum of its parts (e.g., goal agreement, task consensus, and bond together produce the therapeutic benefit; Horvath & Greenberg, 1989).

(2) Longitudinal unfolding. Some researchers assumed the alliance as a relatively stable factor over the course of treatment (Crits-Christoph, Gibbons, Hamilton, Ring-Kurtz, & Gallop, 2011). Meanwhile, others have investigated changes on a session-

by-session basis (Falkenström, Granström, & Homqvist, 2013; Rubel, Rosenbaum, & Lutz, 2017; Zilcha-Mano et al., 2016).

(3) Participant perspectives. The alliance exists in a transaction (at least a dyadic construct), so different participants understandably experience it differently. The collaborative quality of the alliance highlights all therapy participants, including the client and therapist, and also partners, group members, and observers. That results in simultaneous, interdependent evaluations of the alliance from several participants over time, each representing a particular view of the alliance (Atzil-Slonim et al., 2015; Hartmann, Joos, Orlinsky, & Zeeck, 2015; Kivlighan, Hill, Gelso, & Baumann, 2016; Marmarosh & Kivlighan, 2012).

(4) Nested data structures. The alliance assessments often are based on multiple nested levels; that is, sessions are frequently nested within patients, patients are nested within therapists, and therapists are nested within clinics. By estimating the proportion of the variance at each level (Baldwin & Imel, 2013; Baldwin, Wampold, & Imel, 2007; Dinger Strack, Leichsenring, & Schauenburg, 2007) and examining which level contributes most to the overall variability (by not only clients and therapists but also clinics; Crits-Christoph, Hamilton, et al., 2011), the alliance–outcome association can be unpacked to better understand how it works to increase the benefits of treatment.

This variety of approaches to assess the alliance expanded rather than narrowed the way the term is used in the literature. This lack of a precise consensual definition has, on one hand, made it easier for researchers and clinicians of diverse theoretical frameworks to embrace the term and integrate it within their respective conceptualizations (Castonguay & Beutler, 2005; Muran & Barber, 2010). But on the other hand, this “creative ambiguity” also led to some problematic developments in the research literature: the 39 different measures used in the studies in our meta-analyses clearly overlap to some extent but do not share a clear common point of reference.

Measures

Consistent with the previous meta-analyses, four measures—California Psychotherapy Alliance Scale (CALPAS; Marmar, Horowitz, Weiss, & Marziali, 1986), Helping Alliance Questionnaire (HAQ; Alexander & Luborsky, 1987), Vanderbilt Psychotherapy Process Scale (VPPS; Suh, Strupp, & O’Malley, 1986), and the Working Alliance Inventory (WAI; Horvath & Greenberg, 1989)—accounted for approximately two-thirds of the alliance–outcome studies. In the current search, 73 (69%) of the 105 articles used an inventory that was based on WAI-items. Over time, there has been a tendency to develop and use shorter versions of the measures. Each of these four core instruments has been in use for over 30 years and has demonstrated acceptable levels of internal consistency, in the range of .81 to .87 (Cronbach’s α). Rated (observer) measures tend to report similar interrater reliability coefficients.

The shared variance among these well-established measures has been shown to be less than 50% (Horvath, 2009). An investigation of the shared factor structure of the WAI, CALPAS, and HAQ found that “confident collaborative relationship” was the central common theme among them (Hatcher & Barends, 1996). Items such as “My therapist and I respect each other” (WAI-patient), “I feel I am working together with the therapist in a joint effort”

(Helping Alliance Questionnaire -II patient), and “Did you feel that you were working together with your therapist, that the two of you were joined in a struggle to overcome your problems?” (CALPAS-patient) illustrate the shared understanding of the global, heuristic quality of collaboration across measures. A number of different forms (e.g., short versions, observer versions, and translations) of the core measures now thrive. For example, the original Helping Alliance Questionnaire has undergone a major revision (HAQ II; Luborsky et al., 1996), and the two versions of the instrument have in common less than 30% of content; consequently, we coded HAQ and HAQ II as separate measures in our meta-analysis.

The qualitative meaning of the alliance itself is likely to change over the course of treatment for a particular case (Luborsky, 1976) and the way the alliance items are interpreted by the respondent also may shift depending on the phase of treatment (Beltz, Wright, Sprague, & Molenaar, 2016; Tschacher, Scheier, & Grawe, 1998). For example, the item “I feel that my therapist appreciates me” may have a qualitatively different meaning at the beginning of a treatment than at a later session when the therapist and client address highly emotional topics. Even though the diversity of the alliance measures likely contributes to the variability of the alliance–outcome relation, it also demonstrates the broadly accepted relevance of diverse ways to assess the collaborative qualities of the therapist and client relationship.

Clinical Examples

The alliance represents an emergent quality of mutual collaboration and partnership between therapist and client. In a sense the alliance infuses every interaction throughout psychotherapy, not just those instances when the focus is on the “relationship” or agreement on goals and tasks. The alliance is therefore different in this sense from, for example, a therapist’s empathic response, which could be identified as a particular statement of response. Although we can readily identify an interactive sequence that strengthens or disrupts the alliance, one cannot code a particular response as representing the “alliance.” Thus, the alliance is not the outcome of a particular intervention; it is an unfolding process or development that can take different forms and may be achieved almost instantly or nurtured over a longer period of time within a responsive relationship (Kramer & Stiles, 2015; Stiles, 2009).

The following dialogue illustrates a realistic conversation about negotiating the clients’ collaborative engagement in goal agreement, task consensus, and trustful confidentiality at the check-in phase at Session 5.¹ The client (C) and therapist (T) are discussing a *thought diary*:

C: *I think you are the expert, and therefore I trust you that you can show me the best way to get over my recent worries.*

¹ This clinical excerpt was translated and adapted from video recordings of the check-in phase at Session 5 of a cognitive behavioral therapy for generalized anxiety disorder (Flückiger et al., 2016). All clients gave written and verbal consent to use these recordings for research purposes (in an anonymous form). This procedure was approved by the local institutional review board. Specific characteristics of persons are fictionalized to further protect anonymity.

- T: *I really appreciate your openness and trust. At the same time, I believe we need a common understanding about your situation and how we should proceed in your therapy.*
- C: *Well, aren't you going to tell me what I should do?*
- T: *Because [during the last session] we scheduled to take a more precise look at your behaviors and thoughts based on your diary?*
- C: *Well, documentation of situations and thoughts . . . And all that, sorry to say it, damned silly stuff. [Laugh]*
- T: *Were your thoughts and emotions silly or the structured diary itself?*
- C: *Well, . . . look, I mean a little bit both . . . you are the therapist. So I guess I better start with the documentation . . . is hard work, and of course, this is not really lot of fun.*
- T: *Well, I understand this "damned silly stuff" is hard work . . . but at the same time, there is also straight-laced humor here . . . right now.*
- C: *Mhmmm . . . It's crazy you know, before I got married I was a pretty wild dog . . . long hair, motorcycles, pretty crazy. Lot of fun!*
- T: *Something like a wild dog that is not fully welcome anymore?*
- C: *Well, I got, let's say "domesticated" . . . you know, married, good job, slick house, kids . . . maybe I lost the good parts of my wild side.*
- T: *. . . And the wild side might have something interesting to say . . .*
- C: *I might be a little afraid of my old wild dog . . .*
- T: *You fear that your "wild dog" is too negative to let him have a voice?*
- C: *Well, I really fear taking an honest look at this "wild dog" during therapy. At the same time . . . of course . . . I somewhat fear the consequences.*
- T: *I am optimistic that opening the box does not mean destroying all the good things. But of course it seems to be important that both of us are careful and honest to bring all the potential consequences to the table. [pause 10 s] . . . is your wife reading your diaries right now?*
- C: *Well, I thought it would be good to discuss it with her . . . but, I am not sure, if I really should.*
- T: *Ok, I see. Maybe there are different steps here?*

In this example, the therapist attempts to move forward with the scheduled treatment plan. As the process unfolds, he becomes aware of the client's ambivalence. He demonstrates his commitment to explore collaboratively potential reasons and alternatives. The client mentions a mixture of hopes and worries about therapy in an open and straightforward manner. The therapist's challenge

in building the alliance is to recognize, legitimize, and work through these potential pitfalls and engage the client in a joint exploration of obstacles without losing track of the collaboratively identified therapy goals.

Results of Previous Meta-Analyses

Since the initial meta-analysis of Horvath and Symonds (1991), the alliance–outcome correlation has been examined meta-analytically several times (Horvath & Bedi, 2002; Horvath et al., 2011; Martin et al., 2000). The overall correlations varied only slightly over the years (Horvath & Bedi, 2002: $r = .21$, $k = 100$; Horvath et al., 2011: $r = .28$, $k = 190$; Horvath & Symonds, 1991: $r = .26$, $k = 26$; Martin et al., 2000: $r = .22$, $k = 79$). That suggests stability of the estimate despite accumulating studies, more sophisticated statistical models, and other methodological advances. Moreover, the follow-up articles to the 2011 meta-analysis revealed comparable effect sizes (ESs; Del Re, Flückiger, Horvath, Symonds, & Wampold, 2012: $r = .27$, $k = 69$; Flückiger, Del Re, Wampold, Symonds, & Horvath, 2012: $r = .29$, $k = 235$). At the same time, each of the meta-analyses revealed relatively large heterogeneity (Horvath et al., 2011: proportion of variability due to true difference among studies $I^2 = 56\%$).

Meta-Analytic Review

Source of data. To locate new research on the relation between alliance and outcome from March, 2010 to April, 2017, a search (via EBSCO) of the PsycINFO database and PSYINDEX (for German-language articles) was undertaken using search parameters similar to the prior meta-analyses. The criteria for inclusion in this report were as follows: (a) the author referred to the therapy process variable as *helping alliance*, *working alliance*, or *therapeutic alliance*; (b) the authors provided data of outcome measures at the end of treatment (postassessment); (c) the data reported were such that we could extract or estimate a value indicating the relation between alliance and outcome; (d) the clients were adults (age >18 years); and (e) reports were written in the English, Italian, German or French languages. The exclusion criteria included studies not using clinical samples (e.g., analogue data), qualitative studies, and using five or fewer patients. Face-to-face psychotherapy and e-mental or Internet-based therapy were included using the comparable search strategy. E-Mental health studies are analyzed separately and presented after considerations of face-to-face psychotherapy.

The flowchart provides an overview of the extraction procedure (Figure 1). From the 5770 articles retrieved dating between 2011 and 2017, we identified 105 new articles that reported an alliance–outcome relation in adult psychotherapy. The integration of the 201 older articles (included in Horvath et al., 2011) resulted in a total of 306 studies based on 295 independent samples. Overall, there are 1,465 reported alliance–outcome relations, representing around 30,000 clients with a mean of 100 clients per study. Table 1 provides descriptive information on the 105 new research reports (for the studies in the earlier meta-analyses, see Horvath et al., 2011).

The data in our meta-analysis spans four decades and includes both published ($k = 242$) and unpublished ($k = 53$) studies, from independent samples collected in naturalistic settings ($k = 195$), as

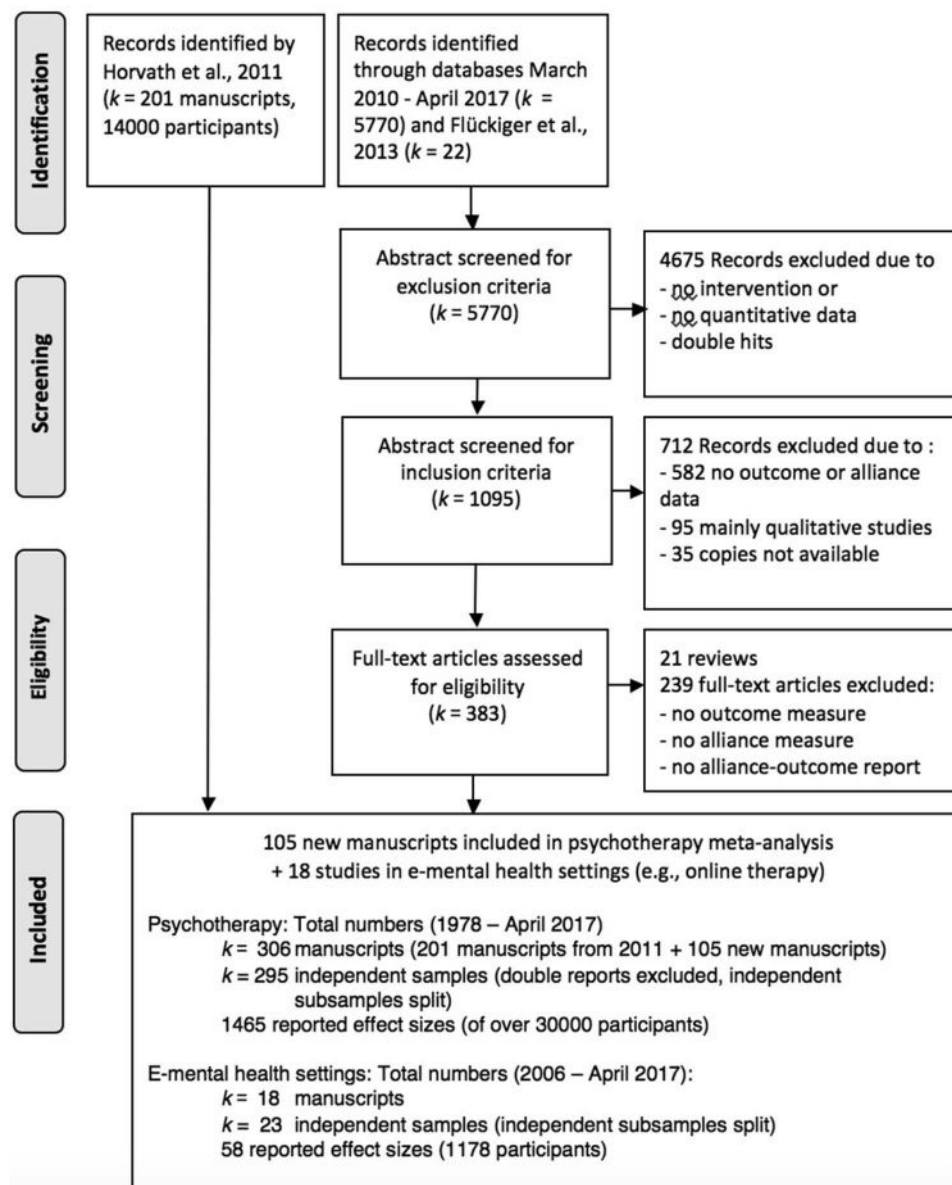


Figure 1. Flowchart of the included and excluded articles.

well as from randomized controlled trials ($k = 100$). The number of eligible studies included in this analysis is roughly triple of that prior to 2000. The growth in the literature over the past decade means not only that there are more studies available for analysis but also that there is a significant increase in the types of therapies, treatment contexts, client problems, and research designs captured by the current meta-analysis.

Statistical analyses. A random-effects restricted maximum-likelihood estimator was utilized for both univariate and multivariate analyses. This model of analysis is based on the assumption that the studies in this meta-analysis were randomly sampled from a population of studies. All analyses were conducted using the “R” statistical software packages (R version 3.4.4, R Core Team, Vienna Austria),—ES calculation with the compute.es package

(Del Re, 2013), aggregation and univariate methods with the MAJ (Del Re & Hoyt, 2010) package, and multivariate multilevel meta-analytic methods and meta-analytic diagnostics (i.e., tests for outliers) with the “metafor” package (Viechtbauer, 2010).

In most studies, there were several reported alliance–outcome correlation ESs. To account for the dependencies among the outcomes, a three-level meta-analysis was conducted with ESs at level 1, outcome at level 2, and study at level 3. This procedure takes into account the correlation among within-study measures and thus yields a more precise estimate of the population parameter. When conducting omnibus and moderator analyses, all correlations were transformed to Fisher’s z (1924) for the analyses and then transformed back to r for interpretive purposes. In cases where the primary study reported more than one level of a categorical vari-

Table 1
Description of the Meta-Analytic Studies From 2011 to 2017

Publication	Country	Type	Design	Disorder	Outcome		Alliance		Effect size				
					Rater	Measure	Time	Rater	Measure	Primary	(<i>r</i> =)	(<i>d</i> =)	<i>N</i>
Accurso et al. (2015)	USA	CBT	RCT	Binge eating	c	WAI	a	c	EDE	d	.10	.2	80
Andrews et al. (2016)	USA	Healthy lifestyles intervention	RCT	Psychosis	c/t/o	ARM	e	o/c	Retention/GAF/BDI/BPRS	o	.02	.04	211
Applebaum et al. (2012)	USA	CBT-phone	RCT	PTSD	c	WAI	e	c	SCL/PTSD symptoms	d/o	.33	.7	47
Arnow et al. (2013)	USA	CBAS/Supportive therapy	RCT	Depression	c	WAI	e	o	HRSD	d	.45	1.01	224
Auszra, Greenberg, and Herrmann (2013)	Canada	Experiential therapy	RCT	Depression	c	WAI	e	c	BDI	d	.31	.65	74
Barnicot, Gonzalez, McCabe, and Priebe (2016)	UK	DBT	RCT	Borderline	c	STAR	e/a	o	Dropout	o	.00	0	70
Bedics, Atkins, Harned, and Linehan (2015)	USA	DBT/Community treatment	RCT	Borderline	c/t	CALPAS	a	c/o	Suicidality, introject affiliation, and HRSD	o	.08	.16	101
Bertrand et al. (2013)	Canada	SUD program	Other	SUD	t	CALPAS	e	o	Drug use	d	.18	.37	80
Biais, Jacobo, and Smith (2010)	USA	Psychodynamic therapy	Other	Mixed in-patient	c/t	BAM	e	c/o	SOS/Amount of Trouble/GAF	o	.04	.07	20
Bowen and Kurz (2012)	USA	MBSR	RCT	SUD	c	WAI	e	c	FFMQ	o	.41	.89	32
Brady, Warnock-Parkes, Barker, and Ehlers (2015)	UK	Trauma-focused therapy	RCT	PTSD	o	WAI	e	c	poor-good responders (PTSD)	d	.23	.46	58
Brown, Mounford, and Waller (2013)	UK	CBT	Other	Anorexia nervosa	c	WAI	m	o	Dropout/Weight gain	o	-.08	-.15	65
Burns et al. (2015)	USA	CBT	RCT	Chronic pain	c	WAI	e/m	c	Pain/BDI	d	.23	.48	94
Byrd, Patterson, and Turchik (2010)	USA	Counseling	Other	Mixed university sample	c	WAI	e	c	OQ-45	o	.45	1.01	66
Calamaras, Tully, Tone, Price, and Anderson (2015)	USA	CBT	RCT	Social anxiety disorder	c	WAI	e	c	Fear	d	.05	.1	62
Carneiro et al. (2011)	Switzerland	Systemic therapy	Other	Mixed university sample	c	WAI	a	c/o	OQ-45/Satisfaction	o	.55	1.32	10
Carryer and Greenberg (2010)	Canada	Experiential therapy	Other	Depression	c	WAI	e	c	BDI/SCL/IMP/RSE	d/o	.25	.53	38
Carter et al. (2015)	New Zealand	CBT/IPT	RCT	Depression	o	VITAS	e	o	MADRS	d	.17	.34	165
Cavelti, Homan, and Vauth (2016)	Switzerland	Community mental health	Other	Schizophrenia	c	STAR	e	o/t	Recovered	d	.27	.55	133
Chao, Steffen, and Heiby (2012)	USA	Various	Other	Schizophrenia (50%)	c	WAI	e	c	Recovered	d	.37	.81	56
Lo Coco, Gullo, Prestano, and Gelso (2011)	Italy	Counseling	Other	Mixed university sample	c/t	WAI	e	c	OQ-45	o	.21	.42	65

(table continues)

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Table 1 (continued)

Publication	Country	Type	Design	Disorder	Outcome		Alliance		Effect size				
					Rater	Measure	Time	Rater	Measure	Primary	(<i>r</i> =)	(<i>d</i> =)	<i>N</i>
Constantino et al. (2016)	USA	CBAS	RCT	Chronic depression	c	WAI	e	o	HRSD	d	.23	.47	220
Cook, Heather, and McCambridge, and The United Kingdom Alcohol Treatment Trial Research Team (2015)	UK	SUD program	RCT	SUD	c/t	WAI	e	c	Abstinence	d	.18	.36	173
Cooper et al. (2016)	USA	Depression	RCT	Depression	o	WAI	e	o	Dropout	o	.45	1.01	176
Corso et al. (2012)	USA	Primary health care	Other	Various	c	TBS	e	c	Drug use	d	.04	.08	1613
Cramer, von Wyl, Koemeda, Schulthess, and Tschuschke (2015)	Switzerland	Various	Other	Various	c	HAQ	m	c/t	OQ-45	o	.15	.31	260
Cris-Christoph, Gibbons, Hamilton, Ring-Kurtz, and Gallop (2011)	USA	Various	Other	Depression	c	CALPAS	a	c/o	HRSD/BDI	d	.38	.82	45
Cris-Christoph et al. (2011)	USA	SUD program	RCT	SUD	c	CALPAS	e/a	c	Global mental health/Drug use	d	.35	.76	1613
Cronin, Brand, and Mattanah (2014)	USA	Various	Other	Dissociative disorder	c/t	WAI	e	c	PTSD symptoms/SCL/Treatment progress	d/o	.45	1.01	131
DeSorcy, Olver, and Wormith (2016)	USA	CBT	Other	Offenders	c	WAI	m	o	Dropout/Violence	o	.07	.14	423
Doran, Safran, and Muran (2017)	USA	CBT/Brief relational therapy	Other	Various	c	WAI	a	c	IIP	o	.31	.66	47
Ellis, Berio, Carcone, and Naar-King (2012)	USA	Family-centered treatment	Other	Diabetes	c	BTPS	e	c	Hemoglobin	d	.22	.45	72
Flückiger et al. (2013)	Switzerland	CBT	Other	Mixed university sample	c/t	BPSR	e/a	c	Outcome composite	o	.20	.41	430
Flückiger (2012)	Switzerland	CBT/BWLT	RCT	Binge Eating	c	BPSR	e/a	o	Dropout	o	.48	1.09	78
Gibbons et al. (2010)	USA	CM/CBT	RCT	Marijuana	c/t	WAI	e	o	Drug use	d	.41	.9	86
Gold, Hilsenroth, Kuntmann, and Owen (2015)	USA	Psychodynamic therapy	Other	Various	c	WAI	m	c	SCL/Improvement	o	.32	.68	38
Goldberg, Davis, and Hoyt (2013)	USA	Mindfulness smoking reduction	RCT	Smoking	c	WAI	m	c/o	Abstinence/Negative affect/Emotion regulation	d/o	.32	.68	37
Goldman and Gregory (2010)	USA	Dynamic deconstructive therapy	RCT	Borderline	o	WAI	a	c/o	Borderline Symptoms/BDI/Social support	d/o	.44	.98	10
Gullo, Lo Coco, and Gelso (2012)	Italy	Counseling	Other	Various	c	WAI	e	c	OQ-45	o	.18	.36	32

(table continues)

Table 1 (continued)

Publication	Country	Type	Design	Disorder	Outcome			Alliance		Effect size			
					Rater	Measure	Time	Rater	Measure	Primary	(<i>r</i> =)	(<i>d</i> =)	<i>N</i>
Gysin-Maillart, Schwab, Soravia, Megert, and Michel (2016)	Switzerland	Suicide attempt	RCT	Suicidality	c	HAQ	e	c	BDI/Suicidality	d	.56	1.35	57
Häring, Agarwalla, Müller, and Küchenhoff (2010)	Switzerland	Psychoanalysis	Other	Various	t	TAB	e	c/o	BDI/IIP	o	.46	1.03	39
Hartmann, Orlinsky, Weber, Sandholz, and Zeeck (2010)	Germany	Inpatient psychotherapy	Other	Bulimia nervosa	c	HAQ	e	o	Bulimia diagnosis	d	.00	0	43
Hartzler, Witkiewitz, Villaruel, and Donovan (2011)	USA	CBT	RCT	SUD	c	WAI	e	c	Drug use/SCL	d/o	.06	.11	157
Haug et al. (2016)	Norway	CBT	RCT	Anxiety disorders	c	WAI	e/l	c	Late improvement/ GAF/Outcome composite	d/o	.05	.1	88
Heins, Knoop, and Bleijenberg (2013)	Netherlands	CBT	Other	Chronic fatigue	c	WAI	E	c	Fatigue symptoms	d	.11	.22	183
Hendriksen, Peen, Van, Barber, and Dekker (2014)	Netherlands	Psychodynamic therapy	RCT	Depression	c	HAQ	m	o	HRSR	d	.00	0	117
Hermann, Greenberg, and Auszra (2014)	Canada	Emotion-focused therapy	Other	Depression	c	WAI	e	c	BDI	d	.20	.41	30
Hersoug, Høglend, Gabbard, and Lorentzen (2013)	Scandinavia	Psychodynamic therapy	Other	Various	c	WAI	m	c/o	Functioning/IIP	o	.21	.44	100
Hicks, Deane, and Crowe (2012)	Australia	CM	Other	Severe mental illness	c	WAI	m	c	Recovery	o	.51	1.17	61
Hoffart, Borge, Sexton, Clark, and Wampold (2012)	Norway	CBT/IPT	RCT	Social anxiety disorder	c	WAI	m	c/t	Social Phobia Scale	d	.20	.41	80
Johansson, and Jansson (2010)	Sweden	Psychodynamic therapy	Other	Various	c	HAQ-II	e	c	SCL/IIP	o	.32	.68	76
Johansson, Høglend, and Hersoug (2011)	Norway	Psychodynamic therapy	Other	Various	c	WAI	e	c	Functioning/IIP/GAF/ SCL	o	.39	.84	76
van der Kaap-Deeder, Smets, and Boone (2016)	Belgium	Treatment as usual	Other	Eating disorder	c	WAI	m	c	Eating symptoms/ Body dissatisfaction	d	.27	.55	53
Keeley, Geffken, Ricketts, McNamara, and Storch (2011)	USA	CBT	Other	Obsessive compulsive	c/t/o	WAI	e	o/c/t	OCD symptoms	d	.69	1.92	23
Kirouac, Witkiewitz, and Donovan (2016)	USA	CBT	RCT	SUD	c	WAI	e	c/o	Drug use/SCL	d/o	.17	.34	639

(table continues)

Table 1 (continued)

Publication	Country	Type	Design	Disorder	Outcome			Alliance		Effect size			
					Rater	Measure	Time	Rater	Measure	Primary	(<i>r</i> =)	(<i>d</i> =)	<i>N</i>
Knuutila, Kuusisto, Saarnio, and Nummi (2012)	Finland	SUD program	Other	SUD	c	WAI	e	o	Dropout	o	.06	.11	281
Kramer et al. (2014)	Switzerland	CM	RCT	Borderline	c	WAI	e/a	c	OQ-45	o	.43	.96	32
Kushner, Quilty, Uliaszek, McBride, and Bagby (2016)	Canada	ADM/IPT/CBT	RCT	Depression	c/t	CALPAS	e/l	o/c	HRSD/BDI	d	.19	.38	146
Lecomte, Laferriere-Simard, and Leclerc (2012)	Canada	CBT	RCT	Psychosis	c/t	WAI	a	o/c	Insight/Drop out/RSE	d/o	.37	.79	35
Leibert, Smith, and Agaskar (2011)	USA	Counseling	Other	Mixed university sample	c	WAI	e	c	OQ-45	o	.35	.75	135
Lilja, Zellerroth, Axberg, and Norlander (2016)	UK	CBT	Other	Depression	c	WAI	a	c	Outcome composite	o	.28	.58	40
Lerner, Mikami, and McLeod (2011)	USA	Parent friendship coaching	Other	ADHD parents	c	TPOCS	a	t/o	Parental quality	d	.36	.77	27
Lorenzo-Luaces, DeRubeis, and Webb (2014)	USA	CBT	RCT	Depression	o	WAI	e	c	BDI	d	.23	.47	60
Maher et al. (2012)	USA	CBT	RCT	Obsessive compulsive	c	WAI	e	o	OCD symptoms	d	.30	.63	28
Mahon et al. (2015)	UK	Counseling	Other	Mixed university sample	c	WAI	e	o	Dropout	o	.20	.41	122
Maitland, Petts, Knott, Briggs, Moore, and Gaynor (2016)	USA	Various	RCT	Various	c	WAI	a	c	Diagnostic screening/ Fear of intimacy	d/o	.65	1.7	22
Mallinckrodt and Tekie (2016)	USA	Various	Other	Various	c	WAI	m	c	OQ-45	o	.26	.54	769
Manne et al. (2010)	USA	Cancer counseling	RCT	Cancer	c	WAI	e	c	BDI	o	.22	.46	198
Marcus, Kashy, Winterstein, and Diamond (2011)	USA	SUD program	RCT	SUD	c/t	WAI	e	c	Drug use/BDI	d	.18	.37	398
Marmarosh, and Kivlighan (2012)	USA	Counseling	Other	Various	c	WAI	e	c	SCL	o	.23	.47	82
McBride (2010)	Canada	IPT	Other	Depression	c	WAI	e	c	BDI	d	.28	.58	74
McLaughlin, Keller, Feeny, Youngstrom, and Zoellner (2014)	USA	Prolonged exposure	Other	PTSD	c	CALPAS	a	c	PTBS symptoms/BDI	d/o	.38	.81	116
Mörberg (2014)	Sweden	CBT	RCT	Social anxiety	c	WAI	e	c	Social Interaction Anxiety Scale	d	.16	.32	28
Owen, Thomas, and Rodolfa (2013)	USA	Counseling	Other	Mixed university sample	c	WAI	a	c	SOS	o	.29	.61	91

(table continues)

Table 1 (continued)

Publication	Country	Type	Design	Disorder	Outcome			Alliance		Effect size ($d =$)	N		
					Rater	Measure	Time	Rater	Measure			Primary	($r =$)
Pan, Huey, and Hernandez (2011)	USA	CBT	RCT	Phobia	c/t	WAI	e	c/t	Anxiety symptoms/ Behavioral approach	d/o	.51	1.18	30
Patterson, Anderson, and Wei (2014)	USA	Counseling	Other	Mixed university sample	c	WAI	e	c	OQ-45	o	.38	.82	132
Pinto, Campbell, Hien, Yu, and Gorruchurn (2011)	USA	CBT/Psychoeducation	RCT	ADHD	t	HAQ-II	e	c	Retention	o	.13	.26	346
Polaschek, and Ross (2010)	New Zealand	CBT	Other	Violence	c/o	WAI	m/a	o	Violence	d	.10	.21	50
Ruchlewska, Kamperman, Wierdsma, van der Gaag, and Mulder (2016)	Netherlands	Community mental health	RCT	Various	t	WAI	e	o	Readmission	o	.02	.04	212
Ruglass et al. (2012)	USA	SUD program	RCT	SUD/PTSD	c	HAQ-II	e	c/t	Substance use/PTSD symptoms	d	.16	.33	223
Sasso, Strunk, Braun, DeRubeis, and Brotman (2016)	USA	CBT	RCT	Depression	o	WAI	e	c	BDI	d	.18	.38	57
Sauer, Anderson, Gormley, Richmond, and Preacco (2010)	USA	Counseling	Other	Various	c	WAI	e	c	OQ-45	o	.22	.45	50
Simpson et al. (2011)	USA	CBT	RCT	Obsessive compulsive	c	WAI	e	o	OCD symptoms	d	.40	.87	30
Smerud and Rosenfarb (2011)	USA	Family psychoeducation	Other	Schizophrenia	o	SOFTA	m	o	Rescue medication/hospitalization	d	.06	.13	28
Smith et al. (2012)	USA	IPT/Treatment-as-usual	RCT	Depression	c	WAI	e	c	BDI	d	.38	.82	35
Snippe et al. (2015)	The Netherlands	CBT/MBCT	RCT	Depression and diabetes	c	WAI	e/m	c	BDI	d	.16	.32	34
Stiles-Shields et al. (2013)	Australia and USA	CBT/Supportive therapy	RCT	Anorexia nervosa	c	HAQ	e	c	BMI/BDI/EDE	o	.25	.51	63
Stiles-Shields, Kwasny, Cai, and Mohr (2014)	USA	CBT	RCT	Depression	c/t	WAI	e	c/o	Depression/HRSD	d	.00	0	290
Taber, Leibert, and Agaskar (2011)	USA	Counseling	Other	Mixed university sample	c	WAI	e	c	OQ-45	o	.07	.15	32
Tschuschke et al. (2015)	Switzerland	Various	Other	Mixed	c	HAQ	e	c	SCL	o	.15	.3	81
Turner, Bryant-Waugh, and Marshall (2015)	UK	CBT	Other	Eating disorder	c	WAI	e	c	EDE	d	.24	.49	94
Ullvenes et al. (2012)	Norway	CBT	RCT	Cluster C	c	HAQ	e	c	SCL	o	.28	.58	23

(table continues)

Table 1 (continued)

Publication	Country	Type	Design	Disorder	Outcome		Alliance		Effect size				
					Rater	Measure	Time	Rater	Measure	(<i>r</i> =)	(<i>d</i> =)	<i>N</i>	
Urbanoski, Kelly, Hoepfner, and Slaymaker (2012)	USA	Various	Other	SUD	c	WAI	m	c	Abstinence/SCL	d/o	.05	.11	303
Wagner, Brand, Schulz, and Knaevelsrud (2012)	USA	CBT	Other	Partner violence	c	WAI	e/a	o	Physical aggression	d	.17	.35	107
Watson, Schein, and McMullen (2010)	Canada	CBT/Process experiential	RCT	Depression	c	WAI	a	c	BDI	d	.53	1.24	66
Watson, McMullen, Prosser, and Bedard (2011)	Canada	CBT/Process experiential	RCT	Depression	c	WAI	a	c	BDI/RSE/DAS/IIP/SCL	d/o	.55	1.33	66
Weck et al. (2013)	Germany	CBT	RCT	Depression	c	HAQ	a	o	Days to relapse	d	.10	.2	80
Weck, Richtberg, Jakob, Neng, and Höfling (2015)	Germany	CBT/Exposure therapy	RCT	Anxiety	o	HAQ	m	o	OCD symptoms	d	.17	.35	68
Weck, Grikscheit, Jakob, Höfling, and Stangier (2015)	Germany	CBT	RCT	Various	o	HAQ	e	o	Outcome composite	o	.24	.49	61
Weck et al. (2016)	Germany	CBT	RCT	Panic	o	HAQ	e	c	Panic symptoms	d	.29	.61	84
Weiss, Kivity, and Huppert (2014)	Israel	CBT	Other	Panic	c	WAI	e	c	Anxiety sensitivity	d	.37	.8	19
Westmacott, Hunsley, Best, Rumstein-McKean, and Schindler (2010)	Canada	CBT/Process-experiential/Interpersonal	Other	Schizophrenia (50%)	c/t	WAI	e	c	SCL/GAF	o	.40	.87	83
Wheaton, Huppert, Foa, and Simpson (2016)	USA	CBT	RCT	Obsessive compulsive	c	WAI	e	t	OCD symptoms	d	.10	.2	37
Xu and Tracey (2015)	USA	Counseling	Other	Various	c	WAI	e	c	OQ-45	o	.28	.58	638
Zilcha-Mano et al. (2016)	USA	CBT/Alliance fostering treatment	RCT	Various	c/t	WAI	e	c/t	Problem solved (1-item)	o	.52	1.22	241

Note. The descriptives of manuscripts published earlier than 2011 are presented in Horvath et al., 2011. Treatments: CBT = Cognitive; Behavioral Therapy; CBAS = Cognitive Behavioral Analysis System; DBT = Dialectic Behavioral Therapy; MBSR = Mindfulness Based Stress Reduction; BWLT = Body Weight Loss Therapy; IPT = Interpersonal Therapy; CM = Clinical Management; ADM = Antidepressant Medication; SUD-program = Substance Use Disorder program. Disorder: PTSD = posttraumatic stress disorder; SUD = substance use disorder; ADHD = attentional deficit hyperactivity disorder; Rater: C = client; T = Therapist; O = Observer/Other. Alliance Measures: WAI = Working Alliance Inventory; ARM = Agnew Relationship Measure; BAM = Brief Alliance Measure; CALPAS = California Psychotherapy Alliance Scale; STAR = Scale To Assess Therapeutic Relationships; VITAS = Vanderbilt Therapeutic Alliance Scale; HAQ = Helping Alliance Questionnaire; HAQ II = Helping Alliance Questionnaire II; TBS = Therapeutic Bond Scale; BPSR = Bern Post Session Report; BTPS = Barriers to Treatment Participation Scale; TPOCS = Therapy Process Observational Coding System–Alliance Scale; SOFTA = System for observing family therapy alliances; TAB = Therapeutic Working Relationship. Time of the alliance assessment: e = early (Session 1–5); m = mid treatment (e < m < l); l = Late (5 last sessions); a = Averaged. Outcome Measures: EDE = Eating Disorder Examination; GAF = Global Assessment of Functioning; BDI = Beck Depression Inventory; BPRS = Brief Psychiatric Rating Scale; SCL = Symptom Check List–90; HRSD = Hamilton Rating Scale for Depression; DAS = Dysfunctional Attitude Scale; SOS = Schwartz Outcome Scale; FFMQ = Facets of Mindfulness Questionnaire; OQ-45 = Outcome Questionnaire–45; IIP = Inventory of Interpersonal Problems–64; RSE = Rosenberg Self-Esteem Scale; MADRS = Montgomery-Asberg Depression Rating Scale.

able (e.g., reporting both early, mid, and late alliance and outcome correlations), dependencies at the moderator level were accounted for by utilizing a three-level multilevel multivariate meta-analysis, which adds random effects for each study and for each outcome and accounts for hierarchical dependence. These procedures yield estimates that account for covariance between within-study ESs for a fully independent analysis at the moderator level. The aggregated ES was computed taking into account the sample size of each study, as well as an adjustment for within-study correlations between outcome measures.

Overall alliance–outcome correlation. The overall weighted average ES, based on 295 independent alliance–outcome relations, was $r = .278$ (95% confidence interval [CI] [.256, .299], $p < .0001$). This is equivalent of $d = .579$ (95% CI [.530, .627]). This effect size is to the third decimal place identical to what was found in the 2011 meta-analysis ($r = .278$; Horvath et al., 2011). The overall ES of .278 indicates the alliance–outcome relation accounts for about 8% of the variability of treatment outcomes.

Publication bias. Our search of electronic databases and public records may be biased in favor of including more published than unpublished material with smaller or negative ESs. We tested the possibility of such a bias. The funnel plot (Figure 2) is a diagram of standard error on the Y axis and the ES on the X axis. In the presence of bias, the plot would show a higher concentration of studies on one side of the mean than the other. There was no indication of publication bias in our sample. Also, we computed how many “hidden” publications with different aggregate ES it would take to reduce the overall ES between alliance and outcome to zero. In this dataset, the fail-safe value was greater than 1,000.

Variability of effect sizes. There was a great deal of variability among the ESs associated with the studies, similar to what was found in all but one of the previous meta-analysis (Horvath et al., 2011). The group of alliance–outcome ESs in this study indicates a platykurtic distribution and significant heterogeneity ($Q_{(294)} = 1017.6$, $p < .0001$; $I^2 = 70.8$, 95% CI [61.9, 73.1]). I^2 is an index that may be interpreted as the percentage of variability due to true differences among effect sizes (Hedges & Olkin, 1985). The large I^2 value found in this analysis could be due to several factors: researchers assessing alliance at different points of therapy, the variety of therapy contexts, who rated the alliance and outcome, and the instrument used to measure the alliance. In addition, outcomes were also measured from a variety of perspectives and

with diverse instruments, sometimes immediately after treatments, at other times at follow-up. Each of these differences, alone or in combination, could moderate the alliance–outcome relation.

Moderators

We investigated possible causes for the observed high levels of heterogeneity by examining potential moderators of the alliance–outcome relation: publication year of the study, treatment type, patient diagnosis, alliance measure, rater of the alliance, time of the alliance assessment, outcome measures, specificity of outcome, source of outcome data, type of research design, and country of study. Table 2 summarizes the investigated moderators.

Study year. We compared the 2011 alliance data set (1978–2011 data, $r_{\text{eed}} = .26$, $k = 190$) with the more recently collected data (2011–2017 data, $r_{\text{adjusted}} = .22$, $k = 105$). The adjusted ES for the new sample was slightly lower than the 2011 data ($r_{\text{difference}} = .041$; $p = .041$), perhaps due to the use of abbreviated alliance measures in the newer data or the wide range of included studies.

Treatment type. Bordin (1989, 1994) argued that the alliance is a significant factor in all types of therapeutic relationships. We tested this claim by examining averaged effect sizes associated with different psychotherapies. The aggregate ES of each treatment, as identified by the authors of the studies, were not significantly different from each other ($Q_{(6)} = 3.587$): for cognitive behavior therapy ($r_{\text{adjusted}} = .20$, $k = 72$), counseling ($r_{\text{adjusted}} = .23$, $k = 26$), psychodynamic therapy ($r_{\text{adjusted}} = .24$, $k = 57$), humanistic therapy ($r_{\text{adjusted}} = .26$, $k = 11$), interpersonal therapy (IPT, $r_{\text{adjusted}} = .28$, $k = 9$), and unspecified and eclectic treatments ($r_{\text{adjusted}} = .24$, $k = 98$). Similar to the 2011 results, the alliance appears to be a pantheoretical factor across treatments.

Patient diagnosis. Previous research has identified substance use disorder (SUD) populations with smaller ESs than those of other disorders (Flückiger et al., 2013). We sought to explore the possibility of different alliance–outcome relations among diagnostic groups using the larger sample of studies and a more differentiated grade of clusters. These included anxiety disorders ($r_{\text{adjusted}} = .24$, $k = 23$), borderline personality disorder ($r_{\text{adjusted}} = .32$, $k = 9$), depression ($r_{\text{adjusted}} = .26$, $k = 54$), eating disorders ($r_{\text{adjusted}} = .15$, $k = 11$), other personality disorders ($r_{\text{adjusted}} = .32$, $k = 5$), posttraumatic stress disorder ($r_{\text{adjusted}} = .31$, $k = 7$), schizophrenia ($r_{\text{adjusted}} = .30$, $k = 12$), substance use disorder (SUD, $r_{\text{adjusted}} = .14$, $k = 29$), and transdiagnostic samples ($r_{\text{adjusted}} = .26$, $k = 107$). The results were consistent with previous research: The SUD population produced smaller alliance–outcome associations than other diagnoses ($Q_{(8)} = 27.958$; $p < .001$). One outlying study (Luborsky, 1985), in which the aggregate ES for this study was large $r = .78$, was removed from the analysis. In addition, eating disordered populations also had smaller alliance–outcome associations in the adult population (Graves et al., 2017). Moreover, borderline personality disorder showed large, between-study differences with correlations ranging from .00 to .78 (Bedics, Atkins, Harned, & Linehan, 2015).

Alliance measures. Researchers used a wide variety of alliance measures. Within the studies included in the meta-analysis, 39 different instruments were utilized. These included well-established instruments: CALPAS ($r_{\text{adjusted}} = .22$, $k = 34$), HAQ ($r_{\text{adjusted}} = .26$, $k = 33$), HAQ-II ($r_{\text{adjusted}} = .16$, $k = 8$), and WAI ($r_{\text{adjusted}} = .24$, $k = 150$). We compared the effects for each of the

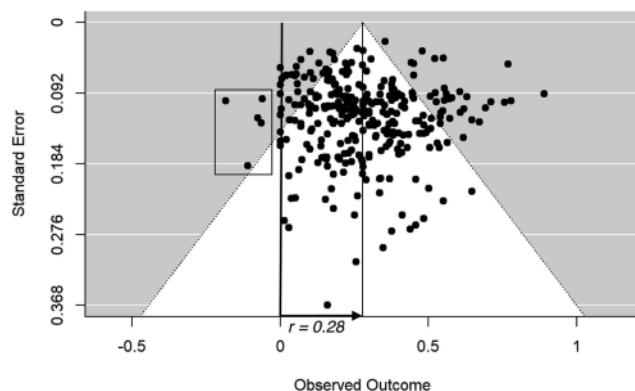


Figure 2. Funnel plot of all included effect sizes ($k = 295$).

Table 2
Summary of the Investigated Moderators

Moderator _{references}	<i>k</i>	Moderator effects
2017 sample		Present analyses
Year of study _{new}	295	2017 < 2011
Treatment type _{a/b}	295	≈ CBT, Counseling, Humanistic, Psychodynamic, IPT, Unspecified/Eclectic
Client diagnoses _{c/d/e}	295	SUD, Eating Disorder < Anxiety, Borderline PS, Depression, Other PS, PTSD, Schizophrenia, Transdiagnostic Samples
Alliance measure _{a/c}	295	≈ CALPAS, HAQ, HAQII, WAI, Other Measures
Alliance rater _{a/c}	295	Trend: Observer < Client
Time _{a/b}	295	Early, Mid < Late, Combination
Outcome measure _a		Dropout, Risk Behavior < BDI, HRSD, Other Depression, Global Outcomes, IIP, OQ-45, Other Measures
Specificity of outcome _b	295	Disorder Specific Outcomes < Other Outcomes
Source of outcome _a	295	≈ Clients, Therapist, Observer, Other Source
Type of design _b	295	≈ Randomized Clinical Trial, Other Design
Study country _{new}	295	Trend: BeNeLux < Other Countries
Partial correlation _{new}	295	≈ Zero-Order Correlation, Partial Correlation (e.g., adjust for intake)
2011 sample		Further analyses
Publication source _a	190	≈ Dissertation, Book, Journal
Researcher allegiance _b	190	Early Alliance: Alliance Investigator > Others
Manual use _b	190	≈ Manualized Therapy, Not Manualized
Therapist effects _c	69	Ratio: Between Therapists > Within Therapists
Ethnic minority clients _d	235	White Clients > Other Clients / Covariability with SUD
E-mental health sample _{new}	23	≈ Face-to-face therapy

Note. new = newly added moderator before CBT; PT = Interpersonal Therapy after CBT; PS = personality disorder after PTSD; CBT = cognitive behavioral therapy; SUD = substance use disorder; PTSD = posttraumatic stress disorder; CALPAS = California Psychotherapy Alliance Scale; HAQ = Helping Alliance Questionnaire; HAQ II = Helping Alliance Questionnaire II; WAI = Working Alliance Inventory; BDI = Beck Depression Inventory; HRSD = Hamilton Rating Scale for Depression; IIP = Inventory of Interpersonal Problems-64; OQ-45 = Outcome Questionnaire-45.

^a Horvath et al. (2011); ^b Flückiger, Del Re, Wampold, Symonds, and Horvath (2012); ^c Del Re, Flückiger, Horvath, Symonds, and Wampold (2012); ^d Flückiger et al. (2013); ^e Graves et al. (2017).

four measures plus a collective category called Other ($r_{adjusted} = .28, k = 71$) and a Combined category ($r_{adjusted} = .20, k = 9$) where more than one measure was used but could not be disaggregated. The differences among the effects for different measures were not significant ($Q_{(7)} = 7.487; p = .38$). However, variability within each category was large, making it less likely to detect statistically significant differences among these clusters.

Raters of alliance. The alliance can be rated from four perspectives: clients ($r_{adjusted} = .25, k = 223$), observers ($r_{adjusted} = .22, k = 66$), other participants such as partners and family members ($r_{adjusted} = .25, k = 48$), and therapists ($r_{adjusted} = .22, k = 40$). The omnibus model ($Q_{(3)} = 6.827; p = .078$) indicated a trend that the observer-rated effects were slightly smaller in comparison with the client-rated alliance–outcome correlation (whereas the therapist and other categories did not differ from client rated alliance). These findings somewhat differ from previous research (earlier studies did not split the other and observer category) and where the therapists’ evaluations indicated a trend toward a lower alliance–outcome association (Horvath & Bedi, 2002; Horvath et al., 2011; Horvath & Symonds, 1991).

Time of alliance assessment. We examined the impact of the phase of treatment the alliance was assessed by separating the correlations into four categories: Early (alliance assessed in Sessions 1–5; $r_{adjusted} = .22, k = 182$); mid (after the fifth session and at least four or more sessions before end of treatment; $r_{adjusted} = .21, k = 51$); late (within three sessions of end of treatment; $r_{adjusted} = .30, k = 41$); and averaged (combination of assessment points; $r_{adjusted} = .29, k = 73$). The Q statistic for the overall contrast among these time categories was highly significant ($Q_{(3)} = 17.814; p < .001$). The result replicates the previous findings

(Flückiger et al., 2012; Horvath et al., 2011;) that the relation between alliance and outcome is higher when the alliance is measured late in therapy in comparison to the early alliance assessment (and the other alliance assessments in between these two values). As expected, variables measured at the nearly same time (i.e., proximal variables) typically are more highly correlated than distal variables.

Outcome measures. As was the case with the alliance measures, a wide range of therapy outcome measures was included in our studies. A total of 35 different outcome assessments were used, which were classified in 10 categories based on the frequency of use (five or more studies; split of depression measures into three categories). The alliance–outcome effects for these 10 classes of measures differed significantly ($Q_{(9)} = 24.433; p = .01$). The categories and corresponding correlations were as follows: Beck Depression Inventory ($r_{adjusted} = .28, k = 44$), other depression measures ($r_{adjusted} = .25, k = 15$), dropout ($r_{adjusted} = .18, k = 27$), global outcome ($r_{adjusted} = .30, k = 46$), Hamilton Rating Scale for Depression ($r_{adjusted} = .25, k = 14$), Inventory of Interpersonal Problems ($r_{adjusted} = .22, k = 16$), Outcome-Questionnaire-45 ($r_{adjusted} = .24, k = 13$), other measures ($r_{adjusted} = .24, k = 167$), risk behavior ($r_{adjusted} = .17, k = 35$), and Symptom Check List 90 and its shorter versions (SCL, $r_{adjusted} = .23, k = 58$).

The contrast analysis between the Beck Depression Inventory and the other 10 classes of outcomes indicated a statistically significant lower alliance–outcome correlation in dropout or risk behaviors ($r_{difference} = .10$ and $.11$, respectively; $p < .05$). Dropout as a treatment outcome and risk behaviors were almost exclusively utilized in SUD samples. Although client termination represents—in one sense—a “hard” outcome index, the SUD samples included in the

data were highly variable; clients in these treatments are often volatile and have multiple problems (Flückiger et al., 2013). As a result, individuals might drop out of therapy for a diverse set of reasons, apart from lack of treatment progress. Aside from these effects, all the categories showed high variability within each category.

Specificity of outcome. Specificity of outcome refers to whether the measure was disorder-specific outcome ($r_{\text{adjusted}} = .23, k = 66$) or not (other outcome, $r_{\text{adjusted}} = .26, k = 242$). For example, a psychotherapy study of depressed patients might have a specific measure, such as the Eating Disorder Examination Questionnaire, and a general symptom measure, such as the Symptom Check List 90. Due to relatively higher power in the present data, this small effect was statistically significant ($Q_{(1)} = 4.543; p = .033$) in comparison with the prior meta-analysis (Flückiger et al., 2012). These results indicate that the alliance is predictive for disorder-specific measures but predictability may be slightly higher if outcome is assessed with broader mental health measures (World Health Organization 2014).

Sources of outcome data. Similar to the measurement of alliance, researchers collect outcome ratings from various perspectives, including clients ($r_{\text{adjusted}} = .25, k = 204$), independent observers ($r_{\text{adjusted}} = .22, k = 66$), therapists ($r_{\text{adjusted}} = .29, k = 34$), and other sources (e.g., drop outs, days of sobriety, and rehospitalization; $r_{\text{adjusted}} = .23, k = 61$). The difference among the alliance–outcome ES obtained by these raters was not statistically significant ($Q_{(3)} = 5.885; p = .117$). The power of these contrasts (the likelihood of finding significant differences among the contrasts) is negatively impacted by the large (more than anticipated) heterogeneity in the data.

Research design. Previous research has investigated the magnitude of alliance–outcome ES in randomized controlled trials (Flückiger et al., 2012). Our results replicates the finding of no statistically significant differences ($Q_{(1)} = .96; p = .327$) between alliance–outcome effects in randomized controlled trials ($r_{\text{adjusted}} = .24, k = 110$) and other designs ($r_{\text{adjusted}} = .25, k = 184$).

Country of study. There is a broad consensus that psychotherapy is embedded in cultural-specific contexts impacted by language, history, and organization of mental health systems. Thus, the country in which a psychotherapy study is conducted might impact the generalizability of the alliance and its relation to outcome across ethnic minorities (Flückiger et al., 2013; Owen et al., 2011) and countries (Wei & Heppner, 2005). Our results indicated there was a statistical trend for differences between countries in the magnitude of the alliance–outcome correlation ($Q_{(9)} = 15.78; p = .072$). Specifically, Belgium, The Netherlands, and Luxembourg probably had lower associations in comparison to U.S. samples (BeNeLux countries, $r_{\text{difference}} = -.11, k = 7$). Figure 3 displays the heat map of alliance–outcome correlations by country. This figure shows that there is a disproportion of data collection from North America ($k = 208$), English-speaking countries ($k = 21$), and European countries ($k = 65$).

Is the Alliance–Outcome Relation a Causal Factor?

Our research has yielded strong support for a predictive relation between alliance and psychotherapy outcomes in individual therapy. This relation is robust, and the likelihood that it is due to chance is exceedingly small (viz., $p < .0001$). We also examined the possibility that the reported correlation may be significantly impacted by a variety of systematic factors and found that this is not the case. This kind of empirical evidence on the alliance largely relies on longitudinal predictor analyses investigating lasting latencies between the predictor and outcome assessments over several weeks and months. Further approaches examined the alliance–outcome relation longitudinally (i.e., session-by-session) and found that within-patient changes in the alliance is associated with subsequent symptom changes (Falkenström, Ekeblad, & Holmqvist, 2016; Feeley, DeRubeis, & Gelfand, 1999; Strunk, Brotman, & DeRubeis, 2010; Xu & Tracey, 2015; Zilcha-Mano et al., 2016; see also Wampold & Imel, 2015; Zilcha-Mano, 2017).

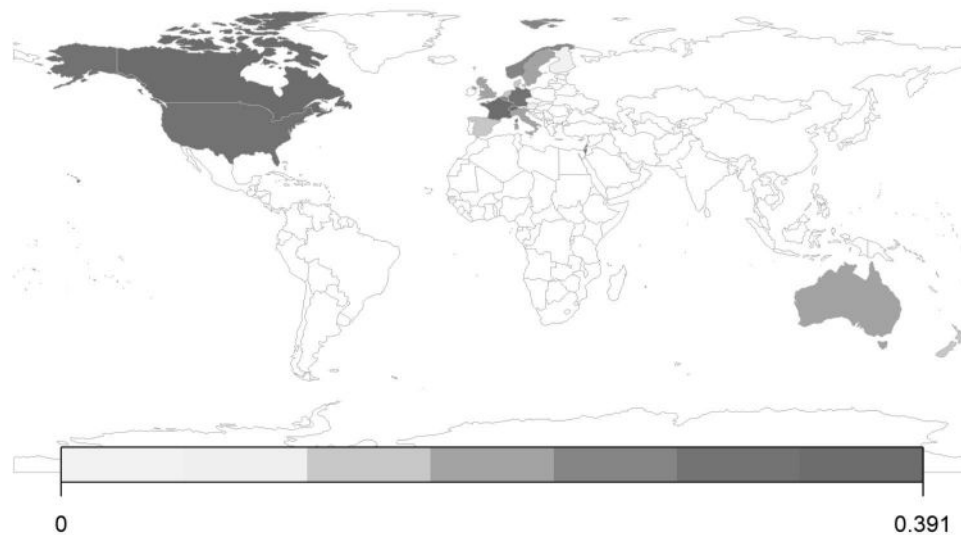


Figure 3. The international context of the included studies reporting an alliance–outcome correlation (white: no studies; gray tones: aggregated alliance–outcome correlation).

Accordingly, using the broadly accepted terminology for longitudinal studies, there is robust empirical evidence that the alliance (measured during therapy) is a moderate *causal facilitative factor* for therapy outcomes at the end of therapy.

However, longitudinal predictor analyses do not imply that there is an experimental *causal relation* between alliance and outcomes in therapy. The question of causal status is important and controversial. Obtaining direct evidence of a causal experimental relation for the class of *dyadic interpersonal variables*, including the alliance not being possible because it is ethically and conceptually not possible to randomize patients to treatments conditions where these variables are manipulated (e.g., to a high and low alliance condition). Furthermore, there are substantial methodological challenges when investigating transactional processes in human interventions (Stiles, 2009; Stiles & Horvath, 2017; Wampold & Imel, 2015). As one consequence, the empirical support for and against the causal hypotheses primarily relies on comprehensive research activities utilizing indirect and contextual evidence.

Our data offered a meta-analytic opportunity to examine one of the hypotheses put forward: the possibility that the alliance is merely an epiphenomenon, a consequence of intake symptom severity and early related changes during therapy (DeRubeis & Feeley, 1990). We inspected the within-study comparison of zero-order alliance–outcome correlations with partial correlations that adjust for intake characteristics and related early symptom change. The partial-correlation coefficient is a coefficient used to describe the linear association between X and Y (alliance and outcome) after excluding the effect of one or more independent factors Z (e.g., intake characteristics and alternative process variables). In the present meta-analysis, 66 studies reported both coefficients (zero-order alliance–outcome correlations and partial correlations). Our results indicated there were no statistically significant differences between zero-order and partial correlations ($Q_{(1)} = 1.651$; $p = .199$), indicating that the potential covariates explicitly selected from the researchers to adjust for possible confounding variables did not reduce the magnitude of the alliance and outcome relations (for zero-order correlations, $r_{\text{adjusted}} = .25$; for partial correlations, $r_{\text{adjusted}} = .22$). These results lend support to the hypothesis that the association between alliance and outcome is not primarily an epiphenomenon linked to intake characteristics and related early therapy gains.

Patient Contributions

The alliance represents a proactive collaboration of clients and therapists across sessions and in moment-to-moment interactions. Clearly, from an ethical point of view, all psychotherapy participants have to consent for the overall therapy goals and tasks in a highly confidential setting. Patient proactive engagement is desirable and necessary in the majority of people seeking a psychotherapist. As such, there is no psychotherapy process and outcome without patient contributions (Pope & Vasquez, 2016).

The reviewed research indicates that the therapist makes a large contribution to the development of the alliance (Del Re et al., 2012), but certainly the patient contributes to the dyadic relationship. For example, patient trust (Birkhäuser et al., 2017), processing activities (Ribeiro, Ribeiro, Gonçalves, Horvath, & Stiles, 2013), capacity for attachment and bond (Bernecker, Levy, & Ellison, 2014; Mallinckrodt & Jeong, 2015), and social support (Coyne,

Constantino, Ravitz, & McBride, 2017; Probst, Lambert, Loew, Dahlbender, & Tritt, 2015) may impact the cooperative quality of the alliance as micro-outcome.

Clients' high problem severity may present challenges to the development of the alliance. Personality disorders have been advanced as one notable population with difficulties forming an alliance (Forster, Berthollier, & Rawlinson, 2014). However, in our meta-analysis, personality-disordered samples indicate a comparable alliance–outcome association to other diagnostic groups. Our findings show high variability of the alliance–outcome ES in borderline personality disorder. This variability might go along with unstable emotional states, which might impact the perception of the alliance in single sessions (Bedics, Atkins, Harned, & Linehan, 2015; Spinhoven, Giesen-Bloo, van Dyck, Kooiman, & Arntz, 2007; Ulvenes, Berggraf, Hoffart, Stiles, Svartberg, McCullough, & Wampold, 2012).

In the current study, we replicated the earlier meta-analytic findings that substance use disorder (Flückiger et al., 2013) and eating disorder (Graves et al., 2017) populations have slightly lower alliance–outcome ESs in adult samples. However, those previous meta-analyses also indicated that the alliance is embedded in a variety of moderating factors, such as ethnic minorities in SUD samples and clients' age in eating disorders, highlighting the psychosocial context within these samples.

There is little research indication that the alliance–outcome correlation is systematically impacted by the patient's intake characteristics based on intake variables that were explicitly selected from the researchers as potentially impactful. Moreover, there is meta-analytic evidence that a considerable proportion of the alliance–outcome correlation is strongly impacted by the therapist (Baldwin et al., 2007; Del Re et al., 2012).

The Alliance in E-Mental Health

There is an increasing number of studies that assessed the alliance–outcome relation in e-mental health or Internet-based therapy, especially outside of North America (16 articles out of 18 articles). It has been repeatedly hypothesized that the alliance is probably less important in Internet-based therapy than in standard face-to-face therapies (Anderson, Paxling, et al., 2012). Table 3 summarizes the studies contained in our separate meta-analysis that offered therapy via Internet, e-mail, videoconferencing, or phone. Within this subset of studies, we included 18 articles that reported 58 alliance–outcome relations of 23 independent samples, representing 1,178 clients with a mean of 65 clients per study (Figure 1). Most of these studies used items adapted from the WAI.

The overall weighted average effect size was $r = .275$ (95% CI [.205, .344], $p < .0001$); equivalent of $d = .572$, (95% CI [.419, .733]), quite similar to that found for face-to-face psychotherapy. The alliance–outcome ESs from these Internet studies were more homogeneous than the larger data set ($Q_{(22)} = 32.6$, $p < .067$; $I^2 = 37.5$, 95%). There was no indication of a publication bias based on a funnel plot, and the fail-safe value was greater than 768.

Limitations of the Research

This article is based on a quantitative synthesis of the research results. Although our team made a sustained effort to seek all the

Table 3
Description of the Meta-Analytic Studies in E-Mental Health

Publication	Country	Study descriptives				Alliance				Outcome		Effect size	
		Type	Design	Disorder	Rater	Measure	Time	Rater	Measure	Primary	<i>r</i>	<i>d</i>	<i>N</i>
Anderson, Spence, et al. (2012)	Australia	ICBT	RCT	Anxiety disorders	c, o	WAI	Week 3	o	Global Assessment Scale	o	.12	.24	132
Andersson et al. (2015)	Sweden	ICBT	RCT	OCD	c	WAI	Week 3	o	OCD Symptoms	d	.19	.39	94
Andersson, Paxling (2012)	Sweden	ICBT	RCT	Depression	c	WAI	Week 3	c	BDI, Anxiety Symptoms	d/o	.16	.32	174
Berger, Boettcher, and Caspar (2014)	German-speaking	ICBT	RCT	Anxiety disorders	c	WAI	Week 2	c	Beck Anxiety Inventory	o	.23	.47	80
Bergman Nordgren, Carlbring, Limna, and Andersson (2013)	Sweden	ICBT	RCT	Anxiety disorders	c	WAI	Week 3	c	CORE-OM	o	.47	1.06	25
Dölemeyer, Klnitzke, Steinig, Wagner, and Kersting (2013)	German-speaking	ICBT	RCT	Binge Eating	c	WAI	Week 8	c	EDE	d	.26	.54	49
Greene et al. (2010)	USA	Video-AM	RCT	PTSD	c	GTA	Week 6	c	Anger expression	d	.35	.75	112
Hedman, Andersson, Lekander, and Ljónsson (2015)	Sweden	ICBT	RCT	Hypochondriasis	c	WAI	Week 2	c	Health Anxiety Inventory	d	.21	.43	151
Jasper et al. (2014)	German Speaking	ICBT	RCT	Chronic Tinnitus	c	WAI	Week 2	c	Tinnitus Handicap Inventory	d	.29	.61	38
Kiluk, Serafini, Frankforter, Nich, and Carroll (2014)	USA	ICBT-TAU	RCT	SUD	c	WAI	Week 2	c	Days in treatment, drug use	d/o	.20	.41	34
Knaevelsrud and Maercker (2006)	German-speaking	ICBT	RCT	PTSD	c, t	WAI	Week 4	c	Impact of Event Scale, SCL	d	.21	.43	40
Meyer et al. (2015)	German-speaking	ICBT	RCT	Depression	c	WAI	Week 3	c	Patient Health Questionnaire 9	d	.42	.93	62
Mulligan et al. (2014)	UK	CBT (phone)	PPT	Psychosis	c, t	WAI	Week 3	t	Therapist perceived change	o	.34	.72	22
Ormerod, Kennedy, Scott, and Cavanagh (2010)	UK	ICBT	Other	Depression	c	ARM	Average	c	BDI	d	.23	.47	16
Preschl, Maercker, and Wagner (2011)	German Speaking	ICBT	RCT	Depression	c	WAI	Week 4	c	BDI	d	.10	.20	25
Richards, Timulak, and Hevey (2013)	Ireland	ICBT	RCT	Depression	c	WAI	Week 2	c	BDI	d	.42	.93	46
Scherer et al. (2016)	German Speaking	ICBT	RCT	Preterm Labor	c	WAI	Average	c	Stress, Anxiety, Satisfaction	o	.63	1.62	31
Wagner, Brand, Schulz, and Knaevelsrud (2012)	Germany (Arabic Speaking)	ICBT	RCT	PTSD	c	WAI	Week 4	c	Posttraumatic Diagnostic Scale	d	.32	.68	47

Note. Treatment Type: ICBT = Internet-based cognitive behavioral therapy; ICBT-TAU = ICBT + Treatment as Usual; VideoAM = video teleconferencing anger management; CBT (phone) = cognitive behavioral therapy provided by phone. Disorder: PTSD = posttraumatic stress disorder; OCD = obsessive compulsive disorder; SUD = substance use disorder; Design: RCT = randomized controlled trial; PPT = patient preference trial. Rater: c = client; t = Therapist; o = observer/other. Alliance Measures: WAI = Working Alliance Inventory; ARM = Agnew Relationship Measure; GTA = Group Therapeutic Alliance. Outcome Measures: CORE-OM = CORE Outcome Measure; EDE = Eating Disorder Examination; BDI = Beck Depression Inventory; SCL = Symptom Check List 90.

available research on the alliance–outcome relation, no meta-analysis is truly exhaustive, and as Figure 3 impressively shows, this one is no exception. Given the robust finding of the positive association between alliance and outcome, major changes in the association are not likely in the future.

A significant challenge for research on the alliance lies in the quantification of potentially different qualities measured (sometimes called apples and oranges problem; Hunter & Schmidt, 2014). Given the diversity in what researchers call the “alliance,” we probably have collected and summarized different kinds of idiographic and nomothetic understandings. This is a complicated concern, especially in light of the fact that the ESs are quite diverse. A practical response to this challenge is that this article provides a “birds-eye view” of the quantitative question: What have researchers found about the alliance–outcome relation in adult individual psychotherapy?

There are also some technical tradeoffs with our analyses. We chose to use independent data. To achieve this, we performed a three-level multivariate meta-analysis. These analyses account for different outcome assessments applied in the primary studies. As a result, the adjusted alliance–outcome correlation was slightly lower in magnitude in comparison with analyses that do not adjust for these potential confounds. In the long run, the use of independent data is statistically justified and provides further evidence that the alliance–outcome ES is far from being zero-correlated even when applying rigorous and conservative statistical models.

In the future, research designs are needed that can test the causal impact of the alliance along further process variables in psychotherapy outcome using prospective designs. More research is needed in culturally specific samples inside and outside western countries. More research is also needed that examines the boundary conditions of the alliance measures and their interaction to

interpersonal and general process indicators, such as empathy, the real relationship, and corrective experiences (Horvath, 2017).

Future research will certainly explore the alliance in electronically mediated therapies (e.g., Berger, 2017; Richardson, Richards, & Barkham, 2010; Socala et al., 2012). Whatever aspects of the alliance are captured in Internet therapies, the alliance appears to relate to outcome, in a quantitative sense, similarly to face-to-face psychotherapy.

Diversity Considerations

The relationship between a therapist and a client is embedded in cultural norms and expectations about the psychotherapist/helper role. Our meta-analysis contained hundreds of studies from North American and European countries but much fewer from other (maybe less industrialized or “westernized”) countries. Also, except for substance abuse treatment studies, the percent of ethnic minority clients appeared low indeed. Further hardly any studies reported characteristics of their samples beyond age, gender, and race in terms of sexual orientation, gender identity, and other intersecting dimensions of patient diversity. The same (and even more pronounced) can be said for psychotherapists, where the description of the therapists often only includes the number of therapists.

Except in SUD studies, ethnic minorities are underrepresented and may prove an artifact of the research samples (Barber et al., 2001). Furthermore, SUD samples often used dropout dichotomy (yes/no) as outcome, which may have further diminished the overall outcome association. This is an important finding because it demonstrates that a straightforward focus to categorization systems, such as diagnostic categories or ethnic minority status, without a careful integration of the patients overall psychosocial

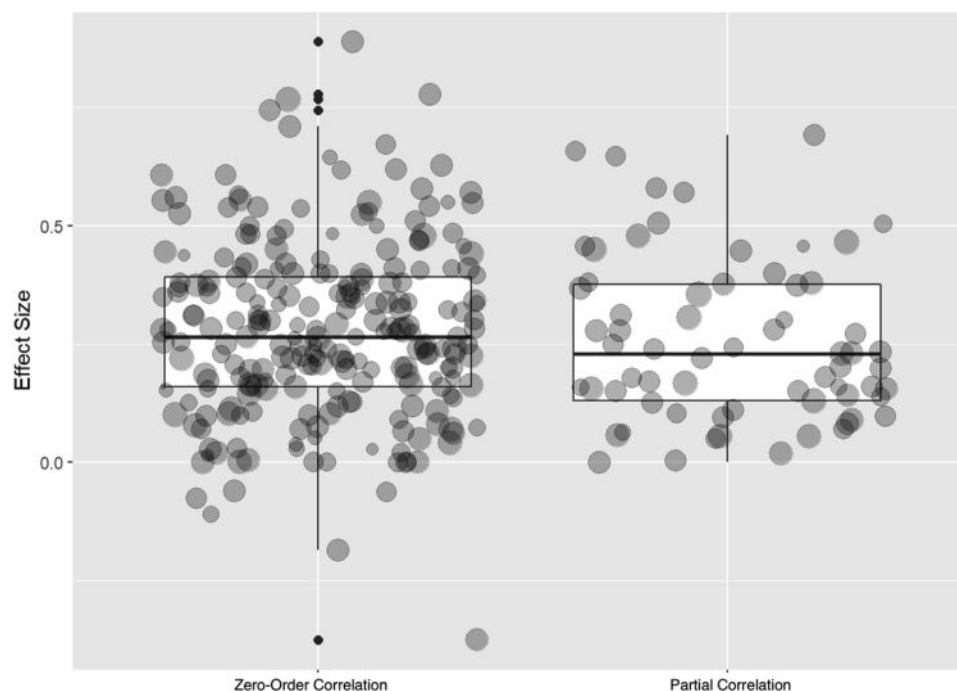


Figure 4. Comparison of reported zero-order and partial correlations.

situation may result in single-edged interpretations. The present meta-analysis could not disentangle these various psychosocial factors.

Therapeutic Practices

The accumulated volume of research on the alliance is impressive. It is certainly among the richest bodies of empirical research on psychotherapy process outcome. Based on that research, we conclude by recommending the following practices:

- ◆ Build and maintain the alliance throughout the course of psychotherapy. That entails creating a warm emotional bond or collaborative attachment with the patient.
- ◆ Develop early on in treatment agreement on therapy goals and on respective tasks of patient and practitioner. Those reliably predict therapeutic success.
- ◆ Respond to clients' motivational readiness/stage of change and their capabilities during the early sessions of therapy.
- ◆ Create wording or therapist slang with a customized quality of inclusiveness and negotiation (Stiles & Horvath, 2017).
- ◆ Collaborate in words and in nonverbal language. Humans detect and perceive nonverbal behaviors, maybe not in every moment, but in many moments (Baumeister, 2005).
- ◆ Address ruptures in the alliance directly and immediately (Safran & Muran, 2000).
- ◆ Create an individual case formulation by responsiveness to patients' individual problems, as well as their preferences.
- ◆ Assess regularly from the client's perspective the strength or quality of the alliance. Assessing the alliance in routine practice helps to detect unsatisfactory progress and identify premature terminations. Existing clinical support tools cannot help restore the alliance and move patients to improved outcomes (Lambert, Whipple, & Kleinstäuber, 2018 this Special Issue; Pincus et al., 2015; Rise, Eriksen, Grimstad, & Steinsbekk, 2012).
- ◆ The alliance of each evaluator (therapist or patient) may be impacted by different social reference groups that may result in divergent alliance ratings. These divergences should be interpreted carefully because they do not have to indicate disagreement. Disagreement between therapist assessment and the client assessment is not something negative but instead may be a marker that a discussion of the relationship might prove helpful or necessary.
- ◆ Goal and task agreement does not mean that the therapist automatically accepts the patient's goals and tasks or vice versa. A strong alliance is often a result of negotiation.
- ◆ Attention should be equally accorded to the alliance in internet-mediated psychotherapy.

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