



Review

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Therapeutic alliance across delivery modalities: a systematic narrative review of alliance strength and outcome prediction in face-to-face, online, and blended psychotherapy

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Abstract: The frequency of online psychotherapy, including pure online (PO: videoconference [PO-VC], telephone [PO-TEL], asynchronous therapist-guided [PO-Async]), or blended (BLD) modalities, has grown exponentially, yet how the therapeutic alliance (TA), a key outcome predictor, compares across these formats and face-to-face (FTF) treatment remains unclear. To compare the TA strength and the TA–outcome association across FTF, PO, and BLD modalities, a systematic narrative review (Preferred Reporting Items for Systematic Reviews and Meta-Analyses/Synthesis Without Meta-analysis [PRISMA/SWiM]) was performed by searching PubMed, PsycARTICLES, and Web of Science. Studies were deemed eligible if they quantitatively compared TA across at least two modalities in adults with depressive or anxiety disorders. PO arms were classified as telepsychotherapy (PO-VC/TEL) or therapist-guided digital interventions (PO-Async). The findings were synthesized by direction and consistency. Nine studies, including three primary randomized controlled trials (RCTs) and six secondary analyses, were finally included in this study. TA strength was broadly comparable across all three modalities. One study found significantly lower patient-rated working alliance inventory (WAI) scores at Week 2 in PO-Async versus FTF, resolving by Week 8. The TA–outcome association was mixed, varying by modality, rater perspective, and timepoint. The results showed that TA was broadly equivalent across FTF, PO, and BLD formats, although asynchronous PO might show a transient week-2 lag. The TA–outcome association was less consistent in PO/BLD than in FTF. As a preliminary hypothesis, digital delivery may shift the functional emphasis of the alliance from affective bonding toward task/goal engagement.

Key words: Therapeutic alliance; Working alliance; Telepsychology; Digital mental health; Blended psychotherapy; Online psychotherapy; Systematic narrative review

1 Introduction

Therapeutic alliance (TA) or working alliance, two terms used interchangeably in the literature and treated as synonymous throughout this manuscript (hereafter “TA”), is commonly defined as agreement on treatment goals, collaboration on the tasks required

to achieve them, and the development of a positive affective bond between therapist and patient. Fundamentally, it represents a central, nonspecific factor influencing psychotherapy outcomes (Bordin, 1979; Horvath et al., 2011; Flückiger et al., 2018). Certainly, therapeutic progress depends on this collaborative agreement within a secure relational context (Bordin, 1979). Meta-analytic evidence in adult psychotherapy has consistently demonstrated a positive association between TA and treatment outcomes, with TA serving as a robust predictor across theoretical orientations and clinical settings (Horvath et al., 2011; Flückiger et al., 2018). While most research on the role of TA in psychotherapy was conducted in traditional face-to-face

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(FTF) settings, pioneering studies in the digital context revealed that videoconference-based psychotherapy often produces alliance strength and alliance–outcome correlations comparable to FTF treatment, though the effect sizes may be slightly attenuated (Norwood et al., 2018; Aafjes-van Doorn et al., 2024). Therefore, it is of critical theoretical and clinical importance to understand how different communication media shape the formation, trajectory, and causal mechanisms of TA.

The rapid advancement of information and communication technology (ICT), accelerated by the coronavirus disease 2019 (COVID-19) pandemic, has catalyzed a paradigm shift in psychotherapy delivery. In addition to conventional FTF psychotherapy, pure online (PO, e.g., videoconference [PO-VC] or telephone [PO-TEL] psychotherapy, and therapist-guided digital mental health interventions [DMHIs]) and blended (BLD, e.g., digital modules combined with in-person sessions) interventions are now widely implemented for common mental disorders. These newer modalities offer increased accessibility and flexibility, and reduced stigma, while potentially enabling clients to disclose experiences anonymously in familiar environments (Andersson et al., 2019). Randomized controlled trials (RCTs) and meta-analyses have indicated that internet-delivered cognitive behavioral therapy (iCBT) achieves outcomes comparable to FTF treatment for depression and anxiety, particularly when therapist support via text or video is integrated (Hadjistavropoulos et al., 2017; Andersson et al., 2019). Indeed, studies of BLD CBT have demonstrated alliance ratings comparable to those of standard FTF care, and within such studies, stronger alliances predict greater reductions in depressive symptoms (Vernmark et al., 2019; Kooistra et al., 2020). Collectively, these findings suggest a potential synergistic benefit of multimodal care delivery, although direct head-to-head comparisons of TA across communication media remain limited.

Theoretical frameworks such as the social presence theory propose that perceived co-presence and interpersonal closeness are jointly influenced by feedback immediacy, nonverbal cues, and personalization (Short et al., 1976). When audio-video quality is high, patients in video-based therapy often report a strong sense of “being with” the therapist, and perceived social presence reportedly explains a substantial proportion of

variance in the alliance (Simpson and Reid, 2014). Although text-based and asynchronous communication conveys fewer nonverbal signals, well-designed interfaces and individualized feedback can still foster trust and perceived connection (van Lotringen et al., 2021). According to the media richness theory, the capacity of the channel to convey cues and enable rapid feedback correspondingly constrains relational processes (Daft and Lengel, 1986). Meanwhile, practical challenges, such as network instability, can disrupt conversational rhythm and emotional attunement. Therapists may compensate by adjusting gaze, camera framing, or using explicit verbal clarification to counterbalance reduced nonverbal information (Simpson and Reid, 2014). Conversely, text-only modalities may limit the real-time monitoring of distress or crises. Furthermore, current TA measures are often adapted by substituting “therapist” with “application,” which may inadequately capture these digital relational dynamics, underscoring the need for instruments specifically validated for digital care (van Lotringen et al., 2021).

Overall, empirical evidence supports a positive association between TA and clinical outcomes. At the same time, findings remain mixed regarding whether alliance strength in PO and BLD is comparable to that in FTF and whether the strength of the TA–outcome association is equivalent within studies across communication media (Norwood et al., 2018; Aafjes-van Doorn et al., 2024). Sources of inconsistency likely include measurement heterogeneity, particularly differences in alliance instruments and client-versus-therapist ratings (Igra et al., 2020), and intervention heterogeneity, including treatment format, delivery modality, synchronicity, and the sequencing of online and FTF components in BLD models (Vernmark et al., 2019; Kooistra et al., 2020; van Lotringen et al., 2021). In addition, sample and design characteristics such as digital literacy, treatment dose, contact intensity, patient preference, and therapist effects further contribute to this variability (Swift and Callahan, 2009; del Re et al., 2012; Swift et al., 2018; Windle et al., 2020).

Therefore, the present review focuses on adult populations with primary common mental disorders (depressive and anxiety disorders), examining TA across three delivery formats (FTF, PO, and BLD) using standardized TA instruments within randomized, prospective, or cross-sectional designs. This focus is intentional and theoretically motivated: depressive and

anxiety disorders represent globally the most prevalent common mental disorders and constitute the primary targets for technology-mediated psychotherapy, thus generating the most coherent and comparable corpus of RCTs across delivery modalities. Moreover, studies within these populations predominantly employ standardized TA instruments, e.g., working alliance inventory (WAI) and its variants, under comparable assessment schedules, enabling more meaningful cross-study synthesis than what would be achievable with a broader, more diagnostically heterogeneous scope. This scoping also ensures cohort homogeneity by excluding youths, whose alliance formation involves distinct triadic dynamics (e.g., parental involvement) and warrants a separate review. The first objective was to compare TA strength across delivery formats; the second was to examine whether the strength of the alliance–outcome association is comparable across communication media; and the third goal was to identify key moderators that can inform both methodological rigor and clinical practice in contemporary psychotherapy delivery.

2 Methodology

We conducted a systematic narrative review to synthesize available empirical evidence on TA across three delivery formats—FTF, PO (e.g., PO-VC, PO-TEL, and asynchronous text/app/email [PO-Async]), and BLD—for adults with depressive and/or anxiety disorders. Within the PO category, we further distinguished between two intervention classes that differ in the degree to which the therapeutic agent remains human-centered: (1) telepsychotherapy, defined as synchronous clinician-delivered psychotherapy via video or telephone (PO-VC or PO-TEL), in which the therapist–patient dyad remains central and only the communication medium changes; and (2) therapist-guided DMHIs, defined as asynchronous or platform-mediated programs (PO-Async), in which structured online modules carry part of the therapeutic content while a human therapist still provides guidance, feedback, and relational support. Importantly, all nine studies included in this review retained an active human therapist role; none involved fully automated, unguided programs where the therapist was replaced entirely by a digital platform. Each PO study was classified according to this distinction, and the resulting subtype labels, namely,

PO-VC, PO-TEL, and PO-Async, were applied consistently throughout the synthesis. We pre-specified narrative synthesis (as per Synthesis Without Meta-analysis [SWiM] guidelines, which guided our grouping of studies by primary research question and delivery format, our emphasis on direction and consistency of effects rather than pooled estimates, and our approach to sensitivity considerations including rater perspective and instrument version) rather than meta-analysis given the anticipated heterogeneity in study designs, intervention delivery (FTF/PO/BLD mix), and TA measurement (instrument versions, rater, and timepoints), allowing the context-sensitive interpretation of cross-media patterns (Popay et al., 2006). The methods used were aligned with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement to enhance transparency and reproducibility. We recorded search dates, screening procedures, and eligibility decisions, and prespecified data items, synthesis rules, and risk-of-bias handling.

The review protocol was prospectively registered with the Open Science Framework (<https://doi.org/10.17605/OSF.IO/5AGZT>) on October 16, 2025, and no deviations from the registered protocol were made.

2.1 Research questions

The primary research questions guiding this review were whether TA levels are comparable across FTF, PO, and BLD, and whether the TA–outcome association differs by delivery format and assessment timepoint (early/mid/late) in adults with depressive or anxiety disorders. These primary questions were further broken down into the following sub-questions:

- (1) Are TA levels, as measured by standardized instruments, comparable across delivery modes?
- (2) Within studies, is the TA–outcome association moderated by delivery format?
- (3) Which factors moderate alliance in digital or blended contexts: measurement (instrument/version, rater, timepoint), intervention (synchronous/asynchronous balance, platform usability, dose/sequencing), and sample/design (digital literacy, preference accommodation, therapist effects)?

2.2 Search strategy

A systematic search was performed in PubMed, American Psychological Association (APA) PsycARTICLES, and Web of Science to identify relevant English-language

studies published from January 2000 onward. Searches covered database inception to October 20, 2025. The search strategy combined keywords, Boolean operators, and truncation (*), comprehensively covering three domains: TA (e.g., “therapeutic alliance,” “working alliance,” and WAI), digital delivery terms (e.g., “online,” “blended,” and “videoconferencing”), and target disorders (e.g., “depression” and “anxiety”). The search syntax was tailored to each database (the full lists shown in the supplementary methods).

Studies were selected based on pre-defined criteria according to the PICOS framework (Population, Intervention, Comparator, Outcomes, Study design).

The inclusion criteria were as follows:

(1) Adults (≥ 18 years) with a primary diagnosis of a depressive disorder and/or an anxiety disorder, as defined by standardized diagnostic criteria, e.g., Diagnostic and Statistical Manual of Mental Disorders, 4th/5th edition (DSM-IV/5) and the International Classification of Diseases, 10th/11th edition (ICD-10/11).

(2) Head-to-head or stratified comparison of TA in at least two of the three defined treatment modalities: (a) FTF psychotherapy, traditional therapy conducted with both parties present in the same physical space, without integrated digital therapeutic elements; (b) PO psychotherapy, treatment delivered entirely via digital means (e.g., PO-VC, PO-TEL, or PO-Async) with no in-person contact (Mercadal Rotger and Cabré, 2022); (c) BLD psychotherapy, a treatment plan that systematically integrates FTF sessions with online components that have a defined therapeutic function (e.g., online exercises, mood monitoring, and psychoeducation) (Titzler et al., 2018). Variation in the proportion and therapeutic function of online components was considered during data extraction and narrative synthesis.

(3) TA measured as a primary or key secondary outcome using a standardized, quantifiable instrument, e.g., WAI and helping alliance questionnaire (HAQ).

(4) RCTs, prospective clinical studies, and cross-sectional studies, providing extractable quantitative data on alliance.

(5) Peer-reviewed, full-text journal articles.

The exclusion criteria were as follows:

(1) Studies focusing on children or adolescents (< 18 years), or on populations with psychotic/bipolar disorders or with significant comorbid physical/neurological conditions.

(2) Interventions that were not psychotherapeutic in nature, e.g., pharmacotherapy alone, psychoeducation-only programs, and self-help without therapist support.

(3) Qualitative studies, case reports, narrative reviews, theoretical papers, conference abstracts, and unpublished manuscripts.

(4) Studies that did not report quantitative alliance data.

2.3 Study selection process

All records identified through the database searches were imported and stored in Zotero reference management software (version 8.0). Two reviewers independently screened titles and abstracts and full texts in Rayyan (<https://www.rayyan.ai>), with disagreements resolved by consensus discussion or a third reviewer. Titles and abstracts were first screened against the selection criteria. The full texts of potentially relevant articles were subsequently retrieved and assessed in detail for eligibility. The study selection process is summarized in the PRISMA flow diagram shown in Fig. 1.

2.4 Data extraction

A structured Excel worksheet was used as a standardized data extraction form. The extracted items included study characteristics (e.g., country, sample size, diagnosis, and baseline severity), delivery modality specification (FTF, PO, and BLD), treatment theoretical orientation, statistics on the alliance–outcome relationship, and alliance outcomes (total and dimensional scores).

2.5 Risk of bias assessment

A formal risk of bias assessment using a standardized tool, e.g., Cochrane risk of bias (RoB) 2.0, was not conducted, as the review aimed to provide a narrative synthesis rather than a pooled quantitative estimate, for which formal RoB weighting is essential. Instead, a structured narrative quality appraisal was performed. Each included study was evaluated across the following methodological domains: (1) adequacy of randomization and allocation concealment; (2) blinding of participants and outcome assessors (noting that blinding to delivery modality is inherently infeasible in these designs); (3) completeness of outcome data and handling of attrition; (4) selective outcome reporting; (5) TA measurement characteristics (instrument

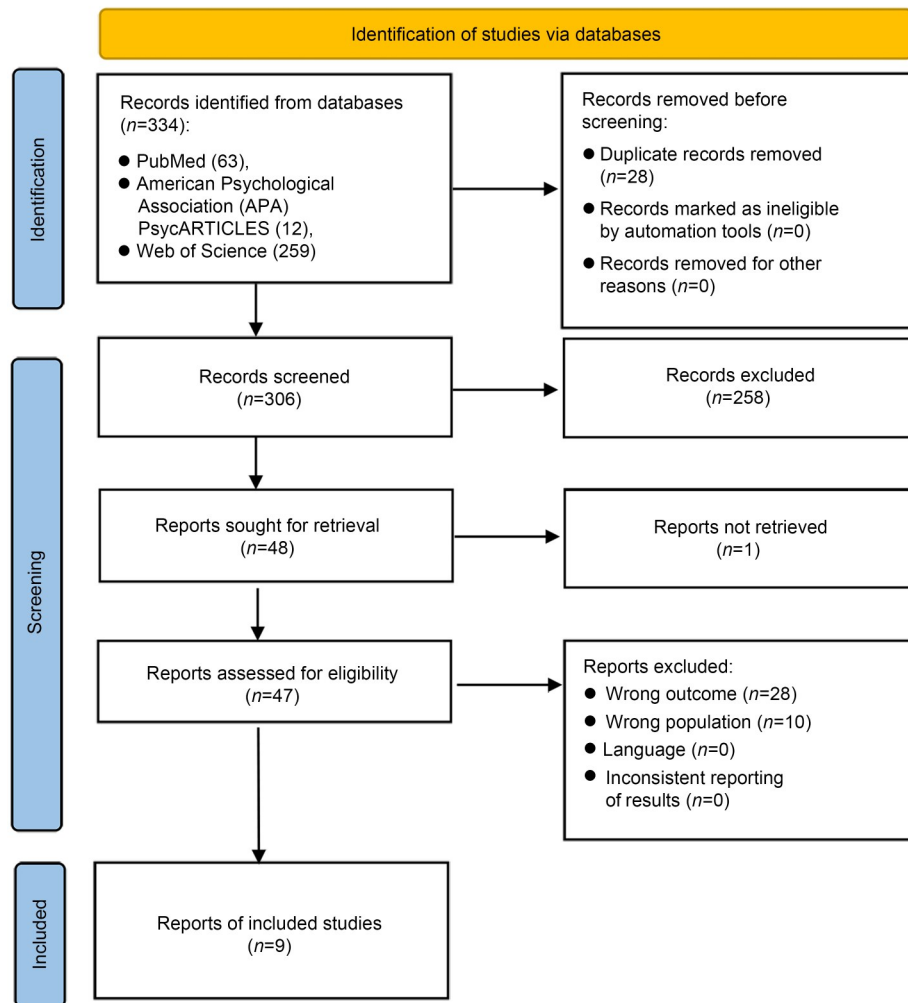


Fig. 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram. Records with ineligible study designs (e.g., qualitative studies and case reports), as well as publications that were non-empirical or were not published as full-text journal articles (e.g., narrative reviews, theoretical papers, and conference abstracts), were excluded during title screening. When full-text articles were excluded for more than one reason, only the first reason (based on the inclusion criteria order listed in this figure) was noted.

version, rater perspective, assessment timing relative to treatment phase); and (6) potential confounding due to therapist effects or concurrent treatments. The findings of this appraisal were integrated into the narrative synthesis and informed the interpretive weight assigned to each study's findings. The absence of a formal standardized RoB tool is acknowledged as a limitation of this review (details shown in Section 4.6).

2.6 Methods of synthesis

Findings were synthesized narratively and grouped by primary research question, delivery format, and assessment timepoint (early, mid, and late treatments).

The synthesis emphasized the direction of effects and consistency of findings across studies. A cross-instrument pooling of raw alliance scores was avoided where metric comparability was uncertain. Sensitivity considerations were integrated, exploring the potential influence of rater perspective, instrument version, and variability in intervention components.

3 Results

This review included nine studies: three primary RCTs and six secondary analyses of RCT data. All studies enrolled adult patients with depressive or anxiety

disorders and employed interventions grounded in interpersonal psychotherapy (IPT), cognitive behavioral therapy (CBT), or CBT-based approaches. Treatment modalities were classified as FTF, PO (PO-VC, PO-TEL, and PO-Async), and BLD. Comparison types included PO vs. FTF (four studies), BLD vs. FTF (four studies), and BLD vs. PO (one study). Core study characteristics and comparative TA findings are summarized in Table 1, with additional methodological characteristics, alliance dimensions, and reported moderators provided in Table S1.

3.1 Comparison of therapeutic alliance strength across different treatment modalities

The studies suggest that TA strength in PO and BLD models is broadly comparable to traditional FTF treatment, though subtle differences emerge in specific phases or comparisons.

Among the four studies directly comparing PO and FTF, three found no significant differences in TA scores between modalities, suggesting a comparable overall alliance level. In a secondary analysis of 325 patients with major depressive disorder, Stiles-Shields et al. (2014) reported no significant between-group differences in either patient- or therapist-rated WAI scores at Weeks 4 and 14 (Cohen's $f^2=0-0.013$, all $P>0.05$). Similarly, in an RCT with 77 depressed patients, Swartz et al. (2023) found no significant group effects in TA ratings, whether reported by patients ($P>0.05$) or therapists (IPT: mean [M]=42.6, standard deviation [SD]=5.8; CBT: $M=43.5$, $SD=6.6$; $t=0.548$, $P=0.586$). In an RCT of 71 patients with panic disorder with or without agoraphobia, Bouchard et al. (2020) also observed slightly lower alliance scores in the PO-VC CBT group compared to FTF CBT, though the effect size was small (partial $\eta^2=0.03-0.06$), and the differences were nonsignificant. However, another study indicated that alliance formation may be more sensitive to delivery mode during the initial weeks of treatment. In this RCT of 204 patients with health anxiety, Axelsson and Hedman-Lagerlöf (2025) found that at Week 2 (the earliest assessment point in this study), PO participants reported significantly lower WAI composite total scores (patient-rated, 6-item version) than FTF participants ($t=-4.17$, $P<0.001$); by Week 8, the difference was no longer significant ($t=-1.92$, $P=0.057$), suggesting a transient “catch-up” effect in online alliance development. It should be noted that the

WAI used in this study yields a single composite score; dimensional decomposition (bond vs. task vs. goal) was not reported for the between-group comparison, precluding any attribution of the week-2 lag to a specific TA dimension.

Across the five studies involving BLD interventions, alliance levels under the BLD condition were generally comparable to those with FTF treatment (Berger et al., 2018; Askjer and Mathiasen, 2021; Romijn et al., 2021; Mathiasen et al., 2022). Mathiasen et al. (2022) conducted a study involving 76 patients with depression and found no significant difference between BLD CBT and FTF CBT in the WAI total scores (mean difference=2.31; $t_{50.08}=1.14$; $P=0.26$). Consistently, Berger et al. (2018), Askjer and Mathiasen (2021), and Romijn et al. (2021) all reported no statistically significant differences in overall and dimensional TA scores between BLD and FTF treatments. Meanwhile, a potential advantage for BLD intervention emerged compared with PO care. In a study of 34 women with postpartum depression, Branquinho et al. (2024) found slightly higher alliance scores under the BLD condition than under the PO condition ($U=60.50$, $P=0.086$). This, while not statistically significant, suggests a potential trend favoring the BLD format.

3.2 Complex role of therapeutic alliance as a predictor of clinical outcomes

Evidence remains mixed regarding whether TA predicts clinical outcomes and whether this predictive relationship varies by treatment modality. In an RCT by Axelsson and Hedman-Lagerlöf (2025), early-session (Week 2) TA scores were positively associated with depressive symptom improvement under the PO condition but not the FTF condition. Similarly, Branquinho et al. (2024) found significant negative correlations between TA and depressive symptoms in both BLD ($\rho=-0.526$, $P=0.044$) and PO ($\rho=-0.922$, $P<0.001$) formats. In contrast, after analyzing data from 204 patients with depression, Askjer and Mathiasen (2021) found no independent predictive effect of TA total scores on treatment outcomes (FTF: $b=0.00$, $P=0.832$; BLD-CBT: $b=0.00$, $P=0.133$).

The predictive strength of the alliance may also vary by time, modality, and dimension. Stiles-Shields et al. (2014) reported that TA was significantly associated with symptom improvement during treatment (Cohen's $f^2=0-0.029$, all $P<0.05$), but not at post-treatment follow-up (Cohen's $f^2=0-0.004$, all $P>0.1$).

Table 1 Primary findings on therapeutic alliance across cross-media psychological treatments (online, blended, and face-to-face) for adult depression and anxiety

Study ID	Authors (year)	Study location	Comparison groups	PO subtype/ intervention class	Measurement and rater	Outcome	Alliance–outcome association
1	Stiles-Shields et al. (2014)	USA	PO-TEL vs. FTF	Telepsychotherapy (PO-TEL: synchronous telephone CBT)	WAI-C and WAI-T; Weeks 4 and 14 Patient+therapist	Week 4: FTF WAI-C=49.9 (SE=0.64) vs. T-CBT WAI-C=49.7 (0.61), MD=0.21, not significant Week 14: FTF WAI-C=51.6 (0.70) vs. T-CBT WAI-C=50.8 (0.65), MD=0.77, not significant	Mid-treatment: $\beta=-0.15$ (Ham-D), $\beta=-0.12$ (PHQ-9), $P<0.001$ Post-treatment: $\beta=-0.01$ (Ham-D), $\beta=-0.03$ (PHQ-9), not significant
2	Swartz et al. (2023)	USA	PO-VC vs. FTF	Telepsychotherapy (PO-VC: synchronous videoconference IPT/CBT)	WAI; after each session Patient+therapist	Regression coefficient: -2.33 (SD=3.72); no significant group main effects	NG
3	Mathiasen et al. (2022)	Denmark	BLD vs. FTF	BLD (FTF sessions+ICBT online modules)	WAI-SR; baseline/ follow-up at 3, 6, and 12 months Patient (self-report)	No significant difference (MD=2.31; $t_{50.08}=1.14$; $P=0.26$)	NG
4	Berger et al. (2018)	Germany	BLD vs. FTF	BLD (FTF psychotherapy+ adjunctive online program deprexis)	WAI-SR (WAI-SR-C+ WAI-SR-T); Weeks 6 and 12 Patient+therapist	Week 6: BLD WAI-SR-C=3.64 (SD=0.59) vs. FTF WAI-SR-C=3.48 (0.88), Cohen's $d=0.22$, not significant Week 12: BLD WAI-SR-C=3.93 (0.84), FTF WAI-SR-C=3.52 (0.94), Cohen's $d=0.46$, not significant	Week 6: BLD $r=0.07$ ($P=0.73$), FTF $r=0.58$ ($P<0.01$) Week 12: BLD $r=0.59$ ($P<0.01$), FTF $r=0.43$ ($P<0.05$)
5	Branquinho et al. (2024)	Portugal	BLD vs. PO-Async	BLD (web-based program+ FTF sessions with psychologist); PO-Async: therapist-guided DMHI (guided web-based CBT program only)	WAI-SR; pre-, post-intervention, and 3-month follow-up Patient (self-report)	BLD WAI-SR=16.97, PO-Async WAI-SR=11.65; marginally significant ($U=60.50$, $P=0.086$), favoring BLD	BLD: $\rho=-0.526$, $P=0.044$; PO-Async: $\rho=-0.922$, $P<0.001$. More positive TA associated with lower depressive symptoms post-treatment in both groups
6	Romijn et al. (2021)	The Netherlands	BLD vs. FTF	BLD (FTF CBT sessions+ online CBT modules)	WAI-SR; 15 and 52 weeks after baseline Patient (self-report)	bCBT WAI-SR=4.27 (SD=0.69), FTF WAI-SR=4.25 (0.51); no significant difference ($t=-0.111$, $P=0.912$)	NG

To be continued

Table 1 (continued)

Study ID	Authors (year)	Study location	Comparison groups	PO subtype/ intervention class	Measurement and rater	Outcome	Alliance–outcome association
7	Axelsson and Hedman-Lagerlöf (2025)	Sweden	PO-Async vs. FTF	Therapist-guided DMHI (PO-Async: 12-module internet CBT with asynchronous therapist messaging)	WAI (6-item composite); Weeks 2 and 8 Patient (self-report)	Week 2: PO-Async WAI=32.3 (SD=7.9), FTF WAI=36.3 (5.9), $t=-4.17$, $P<0.001$ Week 8: PO-Async WAI=34.6 (6.9), FTF WAI=36.1 (6.5), $t=-1.92$, $P=0.057$	PO-Async: Week 2 $b=0.11$ ($P=0.023$); Week 8 $b=0.16$ ($P<0.001$) FTF: Week 2 $b=0.11$ ($P=0.165$); Week 8 $b=0.14$ ($P=0.237$)
8	Askjer and Mathiasen (2021)	Denmark	BLD vs. FTF	BLD (FTF CBT sessions+ online CBT modules)	WAI-SR (WAI-C+WAI-T); 3-month follow-up Patient+therapist	FTF mean WAI (WAI-C+WAI-T combined)=46.4; BLD WAI=46.8; no significant difference	WAI-C: not significantly predictive ($b=0.00$, $P=0.845$) WAI-T: significantly predictive when adjusting for confounds ($b=0.00$, $P=0.044$) Joint WAI (total sample): significant ($b=0.00$, $P=0.039$, $R^2_{adj}=0.07$) Within-condition models (FTF and BLD separately): not significant
9	Bouchard et al. (2020)	Canada	PO-VC vs. FTF	Telepsychotherapy (PO-VC: synchronous videoconference CBT)	WAI+CALPAS; after Sessions 1, 5, and 12 Patient (self-report)	Alliance strong in both groups but slightly lower in PO-VC vs. FTF across all comparisons; no significant difference; small effect sizes (partial $\eta^2=0.03-0.06$)	NG

TA: therapeutic alliance; BLD: blended; PO-VC: pure online videoconference; PO-TEL: pure online telephone; PO-Async: pure online asynchronous; FTF: face-to-face; CBT: cognitive behavioral therapy; iCBT: internet-based CBT; T-CBT: telephone-administered CBT; bCBT: blended CBT; WAI: working alliance inventory; WAI-C: WAI client version; WAI-T: WAI therapist version; WAI-SR: WAI-short revised; WAI-SR-C: WAI-SR client version; WAI-SR-T: WAI-SR therapist version; DMHI: digital mental health intervention; IPT: interpersonal psychotherapy; CALPAS: California Psychotherapy Alliance Scales; Ham-D: Hamilton Depression Rating Scale; PHQ-9: Patient Health Questionnaire-9; SE: mean error; SD: standard deviation; MD: mean difference; β and b/B : regression coefficients as reported in the original studies; U : Mann-Whitney U statistic; t : t statistic; ρ : Spearman's rank correlation coefficient; r : Pearson's correlation coefficient; R^2_{adj} : adjusted R -squared; Cohen's d : standardized mean difference; partial η^2 : partial eta squared; NG: not given.

In a sample of 98 depressed patients, Berger et al. (2018) identified a time-dependent modality difference: in the FTF group, patient-rated alliance predicted outcomes as early as Week 6 ($r=0.58$, $P<0.01$), whereas in the BLD group, the relationship became significant only by Week 12 ($r=0.59$, $P<0.01$). Moreover, Askjer and Mathiasen (2021) observed that across all treatment subgroups, the goal dimension of the alliance consistently scored higher than the task and bond dimensions. Conversely, Bouchard et al. (2020) reported no significant modality or time–modality interaction for any WAI dimension, indicating dimensional stability across communication media.

4 Discussion

This review aimed to examine whether the TA varies across delivery modalities, i.e., FTF, PO, and BLD, in adults with depressive and anxiety disorders. Overall, analyzing the reviewed studies suggests that TA levels are broadly comparable across modalities at the study level. However, temporal and modality-dependent differences emerge in the formation and predictive strength of the alliance. These findings rest on the critical assumption of cross-media score equivalence in established instruments (e.g., WAI and its revised versions). Thus, given the current uncertainty about measurement invariance, these interpretations should be treated with caution.

4.1 Principal finding: overall comparability and compensatory mechanisms

A central finding of this review is that the overall alliance levels appear comparable across modalities, consistent with prior work across diverse populations and disorders. Similar trends have been observed beyond the current scope. For instance, Wade et al. (2019) found that among 17 clinicians delivering remote interventions to families after pediatric brain injury, telepsychological care was perceived as equivalent to FTF work in alliance quality, weekly patient engagement, and progress. A large-scale survey of addiction treatment groups also reported no significant difference in alliance scores between BLD and in-person participation (Bormann et al., 2024).

This robustness likely reflects a constellation of compensatory mechanisms. First, an increased functional

weight of the task/goal dimension may compensate for potential reductions in the affective bond. Etzelmueller et al. (2018) suggested that the high structure and on-demand accessibility of online modules strengthen patients' identification with therapeutic tasks and goals, factors more directly linked to symptom change. Similarly, in a secondary analysis, Gómez Penedo et al. (2020) found that within web-based interventions, the task/goal dimension was a strong predictor of long-term outcomes, whereas the bond dimension was not. These findings indicate a possible shift in the central mechanism of the online alliance, that is, from traditional emotional bonding toward a collaborative working partnership centered on shared tasks and goals.

Second, unique affordances of the digital medium, such as anonymity, may facilitate alliance formation for some patients. Anonymity can reduce stigma and shame, thereby promoting self-disclosure and engagement (Wallin et al., 2016). Barceló-Soler et al. (2023) found that in low-intensity online interventions, perceived anonymity emerged as a distinct positive factor within the bond dimension of the alliance. At the same time, the limited sensitivity of traditional instruments may obscure subtle cross-media differences. Barceló-Soler et al. (2023) noted that standard TA measures such as the WAI tend to conflate task and goal factors in online settings, potentially masking differences in goal negotiation processes between in-person and digital modalities. Thus, the equivalence of alliance strength across formats should be interpreted within the constraints of existing measurement tools and study designs, highlighting the critical need for tests of cross-modal measurement invariance in future research.

4.2 Nuance 1: temporal sensitivity in alliance formation

Unlike the general comparability of overall alliance levels, the process of alliance formation appears to be time-sensitive across modalities. In PO settings, early alliance formation may lag behind that in FTF treatment, potentially due to the reduction of nonverbal cues and the presence of technological disruptions. Across the included studies, “early phase” assessments varied in timing—Week 4 in Stiles-Shields et al. (2014) and Week 2 in Axelsson and Hedman-Lagerlöf (2025)—reflecting the lack of a standardized definition in the broader literature. The sole significant early-phase

between-group difference identified in this review was specifically observed at Week 2 (Axelsson and Hedman-Lagerlöf, 2025), measured via a 6-item WAI composite score, while dimensional attribution (bond vs. task vs. goal) could not be determined from the available data. Means of nonverbal communication such as eye contact, gestures, and posture are central to the rapid establishment of empathy and trust in traditional in-person therapy (Wade et al., 2019). This reduction in online environments, especially in text-based exchanges, may delay early emotional bonding. Technical issues further contribute to early alliance fragility. Likewise, in interviews with German psychotherapists, Titzler et al. (2018) identified “technical difficulties that can burden and impede alliance formation” as one of the major barriers to implementing BLD care.

Encouragingly, these early disadvantages may be mitigated through active mid-treatment compensatory processes. Therapists can actively engage in rupture-repair strategies by emphasizing verbal clarification, emotional validation, and explicit empathy (Etzelmueller et al., 2018; Tishby and Wiseman, 2022). Moreover, alliance and symptom change appear to reinforce each other bidirectionally. In a large online CBT sample ($n=1089$), Zagorscak et al. (2020) found that early symptom improvement (within the first three weeks) predicted mid-treatment alliance strength, while mid-treatment task/goal alliance in turn predicted subsequent symptom reduction. This positive feedback loop might enable online alliances to “catch up” to in-person levels by mid-treatment. The magnitude of this temporal effect likely varies by rater, instrument version, and treatment intensity, underscoring the need for context-sensitive interpretation.

4.3 Nuance 2: synergistic mechanisms of the blended format

The overall comparability of BLD alliance levels with FTF may reflect a synergistic integration of complementary mechanisms—the interpersonal depth of in-person sessions and the structural efficiency of online components—rather than a simple additive effect.

The initial FTF contact serves as a relational anchor that enables the rapid establishment of trust and emotional connection. In a survey of German primary care physicians and psychotherapists, most professionals reportedly expressed a clear preference for BLD models incorporating an in-person intake session,

reflecting a perceived necessity of early in-person bonding (Titzler et al., 2018). Similarly, in qualitative interviews with 40 patients diagnosed with anxiety or depression, Sextl-Plötz et al. (2025) found that participants repeatedly emphasized the “crucial role of the therapists” describing the interpersonal understanding and empathy built during FTF encounters as providing a “psychological safety net” and motivational foundation for subsequent online work.

The online maintenance phase correspondingly enhances the task/goal dimension of the alliance by providing structured exercises, continuity between sessions, and opportunities for autonomous engagement. In the interviews of Titzler et al. (2018), all participating therapists noted that encouraging patients to engage with digital content between sessions facilitated progress and made treatment more organized and goal-oriented. Thus, BLD interventions may represent an optimal configuration for TA development. Nevertheless, the effectiveness of BLD is likely contingent upon the specific proportion and sequencing of its components (parallel vs. sequential; synchronous vs. asynchronous), which vary widely across studies.

4.4 Nuance 3: the modulated alliance–outcome association

Importantly, the TA–outcome association varies by modality, rater perspective, assessment timing, and alliance dimension—a pattern that warrants careful interpretation given the limited and heterogeneous evidence base.

In conventional FTF psychotherapy, patient-rated alliance has consistently emerged as a reliable predictor of treatment outcome across numerous meta-analyses (Flückiger et al., 2018; van Seters et al., 2024). However, findings from digital and BLD interventions are more heterogeneous. In secondary analyses of BLD CBT trials, Askjer and Mathiasen (2021) found that only therapist-rated alliance significantly predicted reductions in depressive symptoms, whereas patient-rated alliance did not. Similarly, Vernmark et al. (2019) observed that in therapist-guided internet therapy, only therapist ratings of alliance correlated with symptom improvement. Kooistra et al. (2020) further reported that in PO interventions, neither patient nor therapist ratings significantly predicted the outcomes. One possible explanation is that in remote formats, therapists may have greater access to behavioral indicators of engagement, such as task completion,

message frequency, and responsiveness, which are more closely linked to actual therapeutic progress than patients' subjective perceptions.

The temporal dynamics of alliance–outcome associations also appear to differ across modalities. In traditional FTF psychotherapy, early alliance (e.g., within the first three sessions) reliably predicts treatment outcomes, a pattern replicated across adult and adolescent samples (Shirk et al., 2008). In contrast, in PO and BLD contexts where early relational bonding may be delayed, mid-treatment alliance seems to exert a stronger predictive power. Mid-treatment (Week 3) task/goal alliance predicted subsequent symptom improvement, whereas early symptom change was the more proximal driver of alliance formation (Zagorscak et al., 2020; van Seters et al., 2024). This shift suggests the possible reordering of causal dynamics in digital settings, where engagement and alliance evolve iteratively rather than being established linearly.

The functional composition of TA may also change in digital contexts. Classical theory posits that the bond, task, and goal dimensions jointly contribute to psychotherapy outcomes (Bordin, 1979). However, in PO or BLD interventions, the relative weight of these dimensions may be redistributed, with the task/goal component emerging as the primary predictor of clinical improvement. In an analysis of 223 participants receiving web-based treatment, Gómez Penedo et al. (2020) used a psychometrically refined WAI-Internet version that separated “task/goal alignment with the program” from “emotional bond with the supporter.” Only the task/goal alignment predicted both treatment outcomes and well-being at the 9-month follow-up, while emotional bonding showed no significant association. Similarly, Zagorscak et al. (2020) found that stronger task/goal alliance at mid-treatment predicted greater subsequent symptom reduction, whereas bond alliance did not.

Taken together, these findings suggest that while emotional bonding remains necessary, its function may be shifting toward an indirect pathway, fostering trust in the treatment platform and process that in turn enhances task engagement and goal pursuit. This emerging concept of a patient–platform alliance warrants further empirical investigation, particularly regarding its mechanisms of trust formation, emotion co-regulation, and impact on clinical change (Barceló-Soler et al., 2023; van Seters et al., 2024).

4.5 Other patient-level factors

Beyond delivery modality, several studies have identified individual and contextual factors influencing alliance formation. Stiles-Shields et al. (2014) found that female patients reported significantly higher TA scores ($P=0.00–0.04$; Cohen's $d=0.13–0.25$). Axelson and Hedman-Lagerlöf (2025) reported small negative correlations between baseline depression severity and early alliance levels (Week 2: $r=-0.05$; Week 8: $r=-0.04$), though these associations were not statistically significant, suggesting only a tentative trend whereby more severe initial symptoms may be associated with lower early alliance ratings. These findings underscore the importance of considering patient-level characteristics—such as attachment style, digital literacy, and treatment expectations—in understanding how individual differences interact with treatment modality to shape the TA.

4.6 Limitations and future directions

Several limitations of this study should be noted. First, conclusions about cross-modality comparability rely on instruments that have not yet been validated for equivalence across delivery formats. Thus, measurement invariance testing and the development of digital-specific TA metrics are urgently needed. Second, heterogeneity in treatment dose, therapist involvement, platform usability, and technological literacy across studies limits the generalizability of the results. Third, most evidence is drawn from short- to medium-term IPT/CBT-based interventions, and the generalizability of these findings to other orientations or chronic conditions remains uncertain. Fourth, although all included PO studies retained an active human therapist, the PO category encompasses both synchronous telepsychotherapy (PO-VC, PO-TEL) and therapist-guided asynchronous DMHIs (PO-Async), which differ in several parameters such as communication channel, relational dynamics, and the degree of therapist presence. Findings aggregated at the PO level should therefore be interpreted with caution, as TA processes and their predictive validity may differ meaningfully between these subcategories. Future reviews with sufficient primary studies in each subclass should examine these subgroups separately. Fifth, a formal risk of bias assessment using a standardized tool was not conducted. Although a structured narrative quality appraisal was performed across key methodological

domains (details shown in Section 2), the absence of a formal instrument restricts the ability to systematically quantify bias risk and may affect the interpretive certainty of the findings. Finally, the predominance of self-selected samples with relatively high digital literacy may bias estimates of alliance formation and engagement.

Building on current evidence, future research must re-specify and measure TA for technology-mediated care. First, this involves extending the classic bond/goal/task model to digital affordances (e.g., usability, telepresence, reliability, and safety) and standardizing validated, digital-specific assessments at common time points. Second, future work should aim to uncover causal mechanisms through multi-method, multi-level designs. These could integrate behavioral telemetry (e.g., logins, completion, latency, and messaging patterns) with WAI-based ratings to model dynamic patient–therapist–technology reciprocity and test how alliance trajectories mediate outcomes. Third, research must embed safety, equity, and implementation from the outset. This includes developing systems for real-time rupture detection with graded human escalation, conducting privacy- and bias-audited analytics, and running pragmatic trials that evaluate workflow fit and cost-effectiveness at scale.

5 Conclusions

Across the existing delivery modalities, TA remains a robust and adaptable foundation for effective psychotherapy. The present synthesis supports the overall equivalence in alliance strength between FTF, PO, and BLD formats, while it reveals meaningful temporal and dimensional distinctions. With respect to modality-specific descriptive findings, telepsychotherapy (PO-VC, PO-TEL) yields TA levels comparable to FTF, with one study suggesting a transient week-2 lag in asynchronous PO formats that resolves by mid-treatment. Similarly, BLD formats demonstrate TA levels comparable to FTF. The TA–outcome association, however, appears less consistent in PO and BLD formats than in FTF, and its strength may vary by rater perspective, timepoint, and TA dimension. Beyond these descriptive observations, as a preliminary hypothesis warranting rigorous prospective investigation, the data tentatively suggest that digital

delivery may shift the functional emphasis of the alliance from affective bonding toward task/goal engagement and that BLD care may leverage complementary relational and structural mechanisms. These mechanistic inferences, however, are drawn from a small, heterogeneous evidence base and should not be treated as established conclusions. Advancing a nuanced understanding of how alliance operates across communication media will be crucial for refining therapist training, optimizing platform design, and ensuring that relational quality remains central in the evolving landscape of digitally mediated psychotherapy.

Data availability statement

All data analyzed during this study were obtained from previously published articles cited in this manuscript. No new primary datasets were generated.

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Author contributions

Xiaoyi ZHOU conceived and designed the study, performed the literature screening and data analysis, and wrote and edited the manuscript. Huimin HUANG and Ruoxu BI performed the literature screening, data extraction, and manuscript revision. Hailong LYU and Lena VERDELI contributed to the critical review and final revision of the manuscript. All authors have read and approved the final manuscript, and therefore, have full access to all the data in the study and take responsibility for the integrity and security of the data.

Compliance with ethics guidelines

Xiaoyi ZHOU, Huimin HUANG, Ruoxu BI, Lena VERDELI, and Hailong LYU declare that they have no conflicts of interest.

This review does not contain any studies with human participants or animals performed by any of the authors.

Declaration on the use of generative AI tools

During the preparation of this work, the authors used ChatGPT to improve language and readability and check for grammatical errors. After using this tool, the authors reviewed

and edited the content as needed and take full responsibility for the content of the publication.

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Supplementary information

Methods; Table S1