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Alliance-Outcome Associations in Interventions for Youth Internalizing Disorders: Identifying Mediators and Moderators

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ALLIANCE-OUTCOME ASSOCIATIONS IN INTERVENTIONS FOR YOUTH INTERNALIZING DISORDERS: IDENTIFYING MEDIATORS AND MODERATORS

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Deepika Bose

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To: Dean Michael R. Heithaus
College of Arts, Sciences, and Education

This dissertation, written by Deepika Bose, and entitled Alliance-Outcome Associations in Interventions for Youth Internalizing Disorders: Identifying Mediators and Moderators, having been approved in respect to style and intellectual content, is referred to you for judgement.

We have read this dissertation and recommend that it be approved.

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ABSTRACT OF THE DISSERTATION

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Deepika Bose

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Professor Jeremy W. Pettit, Major Professor

Suboptimal treatment response rates in interventions for youth internalizing disorders (anxiety, depression, OCD) highlight a critical need to enhance intervention outcomes. My dissertation project addresses this need by identifying therapeutic process variables that predict intervention outcomes, and examining how, for whom, and under what circumstances they contribute to outcomes. In a series of three manuscripts, I present findings on a systematic review and meta-analysis of alliance-outcome associations in youths receiving intervention for internalizing disorders (Chapter II) and examine variables that may explain or influence alliance-outcome associations in interventions for internalizing problems in university-based (Chapter III) and usual care settings (Chapter IV). Findings across studies revealed that (1) findings on alliance-outcome associations are mixed and may be explained by clinical and methodological heterogeneity between studies; (2) age influences the association between therapeutic alliance and outcome, with stronger effects in older youths compared to younger youths; (3) session attendance is important to outcome; and (4) associations between early

provider perceptions of alliance and outcomes may be more complex than previously believed. Findings from the three manuscripts provide a more nuanced understanding of alliance-outcome associations in interventions for youth internalizing disorders. Future research should consider the role of additional engagement variables on outcomes, evaluate why early provider perceptions of alliance might predict worse youth outcomes in cognitive behavioral therapy, and incorporate developmental considerations into models of youth engagement and outcomes.

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CHAPTER I

Preface

Despite major advances in the development of evidence-based psychological interventions for youth internalizing disorders (e.g., anxiety, depression, obsessive-compulsive disorder) in the last two decades, approximately 50% of youths receiving evidence-based psychological interventions show insufficient response to treatment (March et al., 2004; Walkup et al., 2008). These findings highlight a critical need to enhance intervention outcomes. There are multiple potential paths to addressing the need to enhance intervention outcomes, including examining predictors of intervention response and identifying approaches to tailor and personalize interventions. My dissertation project addresses this critical need by identifying therapeutic process variables that predict intervention outcomes, and examining *how*, *for whom*, and *under what circumstances* they contribute to outcomes.

My dissertation portfolio includes three manuscripts. The first manuscript (Chapter II) presents findings on a systematic review and preliminary meta-analysis of studies examining the prospective relationship between therapeutic alliance and outcomes for youths receiving intervention for internalizing disorders. Findings highlight potential sources of clinical and methodological heterogeneity that may explain mixed and inconsistent findings, and identify future directions for alliance-based research. The second manuscript (Chapter III) evaluates the relation between therapeutic alliance, session attendance, and outcomes in youths who participated in a randomized controlled trial testing the efficacy of cognitive-behavioral therapy or client-centered therapy for anxiety (Silk et al., 2018). In addition to examining the associations between each of the

variables, I examined: (1) the indirect effect of alliance on outcomes through session attendance; (2) the moderating role of intervention type on the alliance-outcome association; and (3) the effect of outcome measurement timing on the strength of the alliance-outcome association. The third manuscript (Chapter IV) examines the role of therapeutic alliance, youth motivation, and session attendance on youth outcomes in youth receiving usual care services for anxiety or depression. Specific analyses included: (1) the associations between alliance, motivation, attendance, and youth outcomes; (2) the indirect effects of alliance on outcomes through session attendance and youth motivation; and (3) the moderating effects of age, ethnicity, and problem type on the alliance-outcome association.

Findings from my project inform efforts to identify specific intervention targets and provide insights on tailoring and personalizing interventions based on intervention type and youth characteristics. With this knowledge in hand, treatment providers will be better positioned to improve the quality and impact of mental health services for youth with internalizing problems.

CHAPTER II.

Therapeutic Alliance in Psychosocial Interventions for Youth Internalizing Disorders: A Systematic Review and Preliminary Meta-Analysis

An edited version of this manuscript has been published:

Bose, D., Proenza, D.A., Costales, G., Viswesvaran, C., Bickman, L. & Pettit, J.W. (2021). Therapeutic alliance in psychosocial interventions for youth internalizing disorders: A systematic review and preliminary meta-analysis. *Clinical Psychology: Science and Practice.*

Abstract

We report a systematic review and meta-analysis of studies examining the prospective relationship between therapeutic alliance and outcomes for youth ages 6 to 18 receiving intervention for internalizing disorders, with a primary aim to identify potential sources of heterogeneity. Twenty studies met criteria for the review and 18 studies met criteria for the meta-analysis. The overall size of the alliance-outcome relationship was small and positive ($r = 0.18$, $p < .01$). The strength of the alliance-outcome relationship varied by problem type, alliance timing, and geographic location. Effect sizes were significantly smaller in studies of youth anxiety and significantly larger when alliance was measured between session 4-6 and in studies conducted in the United States. We discuss study implications and methodological considerations for future studies.

Keywords: therapeutic alliance; child/adolescent; anxiety; depression; obsessive-compulsive disorder; internalizing

Introduction

The therapeutic alliance is a promising area for understanding and enhancing youth intervention response. Therapeutic alliance has been termed and defined in numerous ways. A commonly cited and accepted definition in the youth literature is the emotional and collaborative bond between intervention providers and patients (Bordin, 1979; DiGiuseppe et al., 1996). More specifically, the tripartite model of alliance (Bordin, 1979) proposes that the alliance is composed of: (1) the emotional *bond* between the provider and patient, (2) collaborative agreement on short- and long-term intervention *goals*, and (3) collaborative agreement on intervention *tasks* performed to achieve the agreed upon goals.

Therapeutic alliance has been theorized to predict intervention outcomes directly and indirectly. Some theoretical orientations (e.g., psychodynamic) propose the therapeutic alliance is a curative process in itself (Messer & Kaslow, 2020), whereas others (e.g., cognitive-behavioral) propose the alliance indirectly influences intervention outcomes by increasing motivation to change, treatment expectancy, session attendance, and active participation in and completion of prescribed therapeutic activities (Karver et al., 2005; Hawley & Garland, 2008).

Empirical data consistently document that the therapeutic alliance has a significant, small effect on intervention outcomes in youth psychotherapy (Shirk et al., 2011; McLeod, 2011; Karver et al., 2018). The alliance-outcome relationship in internalizing disorders specifically tends to be small and statistically significant (mean effect sizes from $r = 0.10$ to $r = .19$) (Karver et al., 2018; McLeod, 2011). This small effect is surprising given that, from a theoretical standpoint, the alliance plays an important role in interventions for youth internalizing disorders. Therapeutic activities for internalizing disorders often involve putting youths in situations they avoid (e.g., exposures for anxiety), may have low motivation to complete (e.g., behavioral activation for depression), and/or lead to short-term distress (e.g., response prevention for obsessive-compulsive disorder). A positive therapeutic alliance may promote youth motivation and engagement in such assigned and at times challenging therapeutic tasks, thereby contributing to positive intervention outcomes.

To our knowledge, no review has examined potential sources of heterogeneity or moderators of alliance-outcome associations within interventions for internalizing disorders. A previous review by McLeod (2011) examined heterogeneity (Cochran's *Q*)

within 8 studies on youth internalizing disorders and not find statistically significant results. However, the number of studies on alliance-outcome associations in youth internalizing disorders has nearly tripled since the McLeod (2011) review. During the last decade, studies of the alliance-outcome association in interventions for youth internalizing disorders have differed in the disorder targeted, intervention type, intervention setting, and timing of alliance and outcome assessment. This heterogeneity decreases confidence in the overall effect size estimates obtained in prior meta-analyses, and highlights a need to examine differences between subgroups to advance understanding of *for whom* and *under what circumstances* alliance in interventions for youth internalizing disorders is (or is not) particularly important for outcomes.

Knowledge of *for whom* and *under what circumstances* therapeutic alliance contributes most strongly to outcomes can guide efforts to tailor and personalize interventions for youth, which aligns with recent calls for precision mental health (DeRubeis, 2019). For example, it is possible that the alliance-outcome relationship is stronger for depressive disorders than anxiety disorders because youth with depressive disorders may have lower initial motivation to complete intervention activities (Brody, 2009) and may subsequently rely more on the alliance as an initial motivational incentive to complete therapeutic tasks. By contrast, youth with anxiety disorders may have greater initial motivation for treatment (Chu et al., 2014) and need not rely on therapeutic alliance as motivation for intervention participation. In line with this possibility, studies of alliance-outcome associations more consistently report significant results in samples of youth with depression (e.g., Shirk et al., 2008; Reyes, 2013; Labouliere et al., 2017) than youth with anxiety (e.g., Liber et al., 2010; Anderson et al., 2012; Fjermestad et al., 2016;

Stjerneklar et al., 2019; Fjermestad et al., 2020). If alliance is a stronger predictor of outcomes for youth with depression compared to youth with anxiety, intervention providers may selectively use alliance-building techniques depending on the presenting problem.

The strength of the alliance-outcome relationship may also depend on the therapeutic intervention format, with stronger alliance-outcome associations in face-to-face compared to internet-delivered interventions. Some online interventions (e.g., Spence, Holmes & Donovan, 2006) require less frequent therapist contact than face-to-face interventions, so the alliance has fewer opportunities to be leveraged to enhance outcomes. A nuanced understanding of how the alliance-outcome association may differ across intervention formats would provide useful information to guide the circumstances under which treatment providers emphasize the use of alliance-building techniques (e.g., providers focus on alliance-building techniques in face-to-face vs. internet-delivered therapies).

The current study addresses gaps in the knowledge base by providing a systematic review of the literature on the prospective relationship between therapeutic alliance and intervention outcomes for youths receiving treatment for internalizing disorders, with a primary aim to identify potential sources of heterogeneity. We hypothesize that the alliance-outcome association will be larger and more consistently detected in interventions targeting depressive disorders and in face-to-face versus online interventions (for the reasons described above). Given that the alliance-outcome association has been studied in multiple countries, we examine whether geographic location (a proxy for cultural factors) might account for differences in the strength of

alliance-outcome associations. We also explore whether intervention type and intervention setting will explain heterogeneity in the alliance-outcome association.

In addition, we sought to examine whether methodological differences among studies might also account for differences. Methodological differences include alliance measurement timing (e.g., after session 1, after session 3, etc.), outcome measurement timing (e.g., mid-treatment, post-treatment, follow up), and informant (e.g., youth, parent, provider, observer). In a prior meta-analysis on alliance-outcome associations in youth with a wide range of problem types, McLeod (2011) determined that alliance-outcome associations are stronger when alliance is measured later in treatment. We examine whether this finding replicates within samples of youth with internalizing disorders. With respect to outcome timing, we hypothesize that prospective alliance-outcome associations will be stronger when outcome is measured mid- or post-treatment compared to follow-up. That is, we predict that alliance measured at a single timepoint will be more predictive of shorter- versus longer-term outcomes, given that alliance is not stable and shifts over time (Kendall et al., 2009; Hudson et al., 2014; Chu et al., 2014). Prior meta-analyses have also documented that alliance and outcome informant does not moderate alliance-outcome associations (McLeod, 2011; Karver et al., 2018). We explore whether similar patterns emerge among studies examining alliance-outcome associations within internalizing disorders, specifically. Further, given that different alliance measurements vary in terms of how alliance is defined and which components of alliance are measured (Karver et al., 2018), we also explored whether patterns of findings varied by the type alliance measure administered.

A secondary study aim is to conduct a meta-analysis of the prospective association between therapeutic alliance and intervention outcomes for youths receiving treatment for internalizing disorders and delineate potential sources of heterogeneity via metaregression and subgroup analyses. Although the total number of studies meeting inclusion criteria for this meta-analysis is low (n = 18, see Method section for details), we conduct it with an eye toward gaining insight into factors that might influence the strength and direction of the alliance-outcome association in interventions for youth internalizing disorders. Such insight may inform theory and guide future studies on the alliance-outcome association in youth internalizing disorders.

Method

Criteria for Considering Studies for This Review

Types of Studies. All empirical intervention studies containing at least one measure of provider-youth alliance and at least one measure of intervention outcome were considered for inclusion. To test the prospective association between therapeutic alliance and intervention outcomes, we required the provider-youth alliance measure to be collected early and/or mid-treatment and the outcome needed to be measured after the alliance measure. Given that most interventions for youth internalizing disorders involve direct intervention with youth, studies exclusively examining the provider-parent relationship were excluded. That is, because only a small number of studies on alliance in interventions for youth internalizing disorders use interventions that directly involve parents, we did not expect parent ratings of alliance to provide a valuable source of information when identifying sources of heterogeneity in the association between alliance

and youth outcomes. We only included quantitative studies and studies published in English.

Types of Participants. We included all studies of children and adolescents (mean age 18 years or younger) diagnosed with any of the following using a provider-administered interview (unstructured, semi-structured, or structured) according to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM): separation anxiety disorder, generalized anxiety disorder, social anxiety disorder, specific phobias, panic disorder, selective mutism, major depressive disorder, dysthymia, persistent depressive disorder, and obsessive-compulsive disorder (OCD). To limit our study to youth with a clinical diagnosis, we excluded studies restricted to youth who did not meet diagnostic criteria for these disorders (e.g., youth with "elevated symptoms" or "high-risk"). We excluded studies if internalizing disorders were not the primary intervention target.

Types of Interventions. We required interventions to be psychosocial interventions (i.e., psychotherapies) targeting anxiety, depression, and/or OCD. We excluded exclusively pharmacological trials.

Types of Alliance and Outcome Measures. Consistent with most prior investigations and reviews, we included alliance measures that examined at least one of the three dimensions of therapeutic alliance: emotional bond between provider and youth, agreement and collaboration on therapy-related tasks, and agreement on intervention goals (Bordin, 1979). Outcome measures included measures of intervention response, symptom improvement, diagnostic recovery, or improvements in general functioning.

Search Methods for Identification of Studies

The systematic search and reporting of findings were conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009). Two reviewers conducted an electronic search on PsycINFO, MEDLINE, and Web of Science via ProQuest for articles published from inception to January 2020, using the following search terms: *(((alliance OR attachment OR bond) AND (therap* OR counselor* OR provider* OR clinician* OR psychologist*)) OR ("therap* relationship")) AND (child OR teen* OR adolescen* OR youth*) AND (anxi* OR depress* OR dysthymi* OR phobia* OR "obsessive-compulsive" OR OCD OR "mood disorder*" OR internalizing).* Two reviewers independently screened the titles and abstracts of all results. A third reviewer was contacted for consensus in the case of discrepancies. Reference lists of previously published empirical studies and reviews on the alliance-outcome relationship were also screened. If studies reported alliance ratings and intervention outcome information but did not report the relationship between alliance and outcome, we contacted authors to determine that missing information. The first author developed a manual to assist the coding team on data extraction. Data extracted included information on participants, providers, interventions, measures, and alliance-outcome associations. Coders extracted data from the articles and met weekly with a third reviewer to resolve discrepancies.

Quality Assessment of Studies

We assessed the methodological quality of the studies included in the review using a 10-item checklist following the Standard Quality Assessment Criteria for Evaluating Primary Research Papers from a Variety of Fields (Kmet et al., 2004). Two reviewers independently rated the quality of the studies and consulted with a third

reviewer if discrepancies occurred. To be included, studies needed to have a minimum score of 10 out of 20 (i.e., studies needed to include at least "partial" descriptions of the study design, sample, outcome measurement, analytic methods, and conclusions drawn). All studies in our review met this condition.

Meta-Analysis Plan

We restricted our meta-analysis to studies that reported zero-order effects or controlled only for pretreatment severity of internalizing problem. We contacted study authors to obtain zero-order correlations when studies controlled for multiple variables, given that inclusion of such studies would produce an unreliable estimate (see *Table 1* for effect sizes that were obtained by author inquiry). We used Pearson's product-moment correlation coefficient *r* as the effect size estimate. When studies reported β or Cohen's *d* as the effect size estimate, we converted β and *d* to Pearson's *r* (Peterson & Brown, 2005; Borenstein et al., 2009). To account for multiple, dependent within-study effect size estimates, we used multivariate meta-analysis with robust variance estimation (RVE) (Hedges et al., 2010). We ran a random-effects model to account for heterogeneity among studies. To statistically evaluate heterogeneity (i.e., variability that is explained by between-study differences instead of sampling error), we examined the I^2 test statistic (Higgins & Green, 2011; Thorlund et al., 2012). To identify sources of heterogeneity, we performed subgroup analyses and meta-regressions on *a priori* determined subgroups (see *Table 2*). Publication bias was assessed by a visual examination of a funnel plot and Egger's regression test (Egger et al., 1997). To examine for possible outliers, we conducted outlier and influence diagnostics using procedures outlined by Viechtbauer and Cheung (2010). No statistically significant outliers were detected. The meta-analysis

was performed using the R statistical program (R Core Team, 2017) metafor and Robumeta packages (Viechtbauer, 2010; Fisher & Tipton, 2017). We calculated mean weighted *r's* and weighted standard deviations for the subgroup analyses using the radiant.data package in R (Nijs, 2020).

Results

Figure 1 presents the search results. Twenty studies met criteria for inclusion in the narrative review and 18 studies met inclusion criteria for the meta-analysis. Two studies were excluded from the meta-analysis, one because were unable to obtain the zero-order correlation or standardized partial effect between alliance and outcome and another because the study sample overlapped completely with another study already included in the meta-analysis.

Of the 20 studies in the review, 17 were published in peer-reviewed journals and 3 (Creed, 2007; Avny, 2011; Reyes, 2013) were published theses/dissertations. Results from 8 studies were obtained from author inquiries (see *Table 1*). Quality assessment scores ranged from 18 to 20, indicating good quality of reporting among all studies. Participant ages ranged from 6 to 18 years (M = 12.35, SD = 2.46). Approximately 53% of participants were female and the majority were Caucasians/European Americans, followed by Hispanic/Latino, African Americans, Other/Mixed, and Asians. Providers included doctoral level psychologists, master's level providers, social workers, and graduate students. The majority of studies (n = 18) implemented cognitive behavioral therapy (CBT) and were delivered in weekly individual therapy format. University-based or specialty clinic (n = 9) was the most common setting. The average number of treatment sessions was 13.41 (SD = 2.86), with session times ranging from 30 to 90

minutes. See *Table 1* for the geographic location of studies, type of effect size reported/obtained, and information on the alliance and outcome measures administered in each study.

Narrative Review

We group the summary of study findings by internalizing disorder categories.

Anxiety. Of the 12 studies examining alliance-outcome associations in interventions for youth anxiety disorders, 1 study reported only significant findings (Cummings et al., 2013), 5 studies reported mixed findings (Creed, 2007; Chiu et al., 2009; Hudson et al., 2014; McLeod et al., 2017; Marker et al., 2013), and 6 studies reported only null findings (Liber et al., 2010; Anderson et al., 2012; Fjermestad et al., 2016; Whitehead et al., 2018; Stjerneklar et al., 2019; Fjermestad et al., 2020). All 12 studies examined alliance-outcome associations in individual, family, and/or group-based CBT.

In the studies reporting mixed findings, the significance of the alliance-outcome association varied based on outcome timing, informant source, alliance and outcome measurement, and youth age. With respect to outcome timing, Chiu et al. (2009) found that observer-rated early alliance significantly predicted outcomes at mid-treatment but not post-treatment in youths 6-13 years old (age range = 7-18; mean age = 9.74; 29% female).

In Hudson et al. (2014), which included a sample of youths 6-14 years old (mean age = 10.7; 53% female), pre-treatment youth-rated alliance predicted post-treatment mother- and teacher-rated symptoms and post-treatment youth-rated coping skills, but not post-treatment youth-rated anxiety symptoms. Early alliance also predicted follow-up

teacher-rated symptoms and follow-up youth-rated coping skills, though it did not predict follow-up mother- or youth-rated anxiety symptoms. Hudson et al. (2014) also examined change in youth alliance over the course of treatment and found that youth-rated change in alliance predicted post-treatment youth-rated coping skills and follow-up teacher-rated symptoms. Youth-rated change in alliance did not predict any other outcomes. Altogether, findings from Hudson et al. (2014) demonstrated that early youth-rated alliance predicted more outcomes at post-treatment than at follow-up, and alliance assessed at a single timepoint predicted more post-treatment and follow-up outcomes than change in alliance. Additionally, the significance of the alliance-outcome association varied by informant (e.g., teacher vs. youth-report of youth symptoms) and outcome (e.g., youth-rated coping skills vs. youth-rated anxiety symptoms).

Creed (2007), Marker et al. (2013), and McLeod et al. (2017) examined alliance-outcome associations in subsamples of youths drawn from a single randomized controlled trial (Kendall et al., 2008). In these studies, the strength of the alliance-outcome association varied depending on alliance and outcome informant, alliance and outcome measurement, and youth age. Creed (2007) included youths 8-17 years old (age range = 8-17; mean age = 11.20; 43% female) and found that early provider- and observer-rated alliance predicted post-treatment parent-rated anxiety symptoms but did not predict any other outcomes. Youth-rated early alliance did not predict any outcomes. Marker et al. (2013) examined change in alliance scores in youths 7-14 years old (age range = 7-14; mean age = 10.19; 51% female) and found that mother- and provider-ratings of change in alliance predicted change in outcome, though youth- and father-ratings of change in alliance did not. Marker et al. (2013) also found that anxiety reduction predicted change

in father- and provider-ratings of change in alliance, but not mother- or youth-ratings of change in alliance. Finally, McLeod et al. (2017) found that youth- and provider-ratings of alliance had stronger correlations with outcomes compared to observer-ratings of alliance (age range = 7-15; mean age = 10.28; 40% female). In addition, McLeod et al. (2017) found that when the sample was split by age, observer-ratings of alliance and outcome were in the expected direction for children younger than 11 (higher alliance associated with lower anxiety), whereas the correlations were in the opposite and unexpected direction for adolescents 11 and older (higher alliance associated with higher anxiety).

Among the studies reporting null findings, five were conducted outside of the United States (Liber et al., 2010; Anderson et al., 2012; Fjermestad et al., 2016; Stjerneklar et al., 2019; Fjermestad et al., 2020) and two examined alliance-outcome associations in internet-based CBT and assessed outcomes at follow-up (Anderson et al., 2012; Stjerneklar et al., 2019). Of note, Anderson et al. (2012) conducted moderation analyses and found that alliance-outcome associations were significant among older youths, but not younger youths.

Mixed Anxiety and Depression. The two studies that examined alliance-outcome associations in samples with mixed anxiety and depression reported mixed findings. In McLeod and Weisz (2005), the significance of the alliance-outcome association varied by outcome. Average observer-rater alliance scores predicted post-treatment youth-rated anxiety symptoms, but no other outcomes (age range = 8-14; mean age = 10.3; 75% female). In Fernandez et al. (2016), adolescents (age range = 13-17; mean age = 15.9; 75% female) received psychodynamic therapy (n =5), systemic/constructivist therapy (n

= 13), or CBT (n =2) for anxiety or depression. In this study, alliance-outcome significance varied by alliance informant. Early adolescent-rated alliance was associated with post-intervention outcomes, while early provider-rated alliance was associated with mid-intervention outcome but not post-intervention outcomes. Parent-rated alliance was not associated with mid- or post-intervention outcomes.

Depression. Of the five studies examining alliance-outcome associations in interventions for depression, one study reported only significant findings (Labouliere et al., 2017), three studies reported mixed findings (Shirk et al., 2008; Reyes, 2013; Kobak et al., 2015) and one study reported only null findings (Avny, 2011). All five studies examined alliance-outcome associations in CBT, though the treatment setting (community, school) varied across studies (see *Table 1*). One study (Kobak et al., 2015) also included a treatment-as-usual arm.

In the studies reporting mixed findings, significance varied by outcome, alliance informant, alliance timing, and intervention type. In Shirk et al. (2008) (age range = 14-18; mean age = 15.8; 67% female), adolescent-rated early alliance correlated with post-treatment clinician-rated depressive symptoms, change in pre-post clinician-rated depressive symptoms, and change in self-reported depressive symptoms, but not post-treatment self-reported depression. Early provider-rated alliance was not correlated with any measured outcomes.

In Reyes (2013), alliance-outcome significance varied depending on the timing of alliance measurement, with observer-rated alliance predicting week 16 adolescent-rated depressive symptoms when measured at Session 4, but not Session 1 in adolescents with depression and a trauma history (age range = 13-17; mean age = 15.48; 84% female).

In Kobak et al. (2015), alliance-outcome significance varied by intervention type, with Session 6 adolescent-rated alliance predicting post-treatment adolescent-rated depression symptoms among adolescents receiving CBT but not treatment-as-usual (age range = 12-17; mean age = 15.4; 66% female).

OCD. Keeley et al. (2011) examined alliance-outcome associations in youths receiving intervention for OCD (age range = 7-17; mean age = 13.15; 44% female). Controlling for initial symptom severity, mid-intervention youth- and provider-ratings of the alliance predicted post-intervention outcome. Initial provider-rated alliance also predicted post-intervention outcome, but initial youth-rated alliance did not. Additionally, early alliance shifts (i.e., changes in alliance scores from session 1 to 5) predicted post-intervention outcome when children rated the alliance and approached significance when providers rated the alliance. Late alliance shifts (i.e., changes from final session alliance score and session 5 alliance score) did not predict post-intervention outcomes.

Meta-Analysis

Visual inspection of the funnel plot (*Figure* 2) and results from Egger's regression test of funnel plot asymmetry ($z = 1.41$, $p = 0.16$) did not indicate the presence of publication bias. The overall mean effect for all studies (n = 18) was $r = 0.18$ ($p < .01$, $df = 16.8$, $SE = 0.04$, 95%CI = 0.09, 0.27), $d = 0.37$ (95% CI = 0.18, 0.56), with a moderate-to-substantial amount of heterogeneity, $I^2 = 55.99\%$. See *Figure 3* for a forest plot with individual study effect sizes and their confidence intervals. To identify potential sources of heterogeneity among studies, we ran meta-regressions and subgroup analyses (see *Table 2*). Problem type, alliance measurement timing, and geographic location emerged as reliable (i.e., $df > 4$; Fisher & Tipton, 2015) and significant moderators. The alliance-

outcome relationship was significantly smaller in studies involving youths with anxiety compared to studies involving youths with OCD, depression, and mixed anxiety/depression (estimate = -0.18, *SE* = 0.07, $p < .001$), and significantly larger in studies involving youths in treatment for OCD compared to those involving youths with anxiety, depression, and mixed anxiety/depression (estimate = 0.46, *SE* = 0.04, $p < .05$). The alliance-outcome relationship was also significantly larger when alliance was measured between sessions 4-6 compared to sessions 1, 3, 8, and average across sessions (estimate = 0.23, *SE* = 0.09, $p < .05$), and in studies conducted in the United States compared to those conducted outside of the United States (estimate = 0.25, *SE* = 0.08, $p < .05$). Age was examined as a continuous moderator and did not moderate the alliance-outcome association (estimate = 0.02, *SE* = 0.02, $p > .05$). Although no other moderators were statistically significant and reliable, subgroup analyses revealed differences in effect sizes within moderator groups, including outcome timing, intervention setting, and intervention type (see *Table 2*).

One overarching finding is the large heterogeneity in the effect sizes (even in sub-group analyses), which suggests that the alliance-outcome association is likely to be subject to multiple moderating effects. Further theoretical development of process models explaining how alliance influences outcomes, coupled with large scale studies that incorporate multiple facets (informants, settings, etc.) explored in the current study, are warranted.

Discussion

Consistent with prior work (e.g., McLeod, 2011; Karver et al., 2018), we found evidence that the alliance-outcome association plays a limited role in predicting

intervention outcomes for youths with internalizing disorders. Although the role of alliance in interventions for youth internalizing disorders may in fact be limited, it is also plausible that methodological and conceptual differences between studies have hindered the field's ability to fully capture its contribution to outcomes for youth with internalizing disorders.

Most studies examining alliance-outcome associations in interventions for youth internalizing disorders reported mixed findings. The significance and strength of the alliance-outcome association varied by multiple factors, including problem type, timing of alliance measurement, and geographic location.

With regards to problem type, the alliance-outcome relationship was smaller for anxiety compared to OCD, depression, and mixed anxiety/depression, and larger for OCD compared to anxiety, depression, and mixed anxiety/depression. The smaller effect sizes in anxiety studies aligns with our hypothesis that youth with anxiety disorders need not rely as heavily on therapeutic alliance for positive outcomes, perhaps as a result of their greater intrinsic motivation for treatment (Chu et al., 2014). Additional empirical testing of the mechanisms by which alliance contributes to outcomes in youth internalizing populations is needed to shed light on why alliance-outcome associations are smaller in youth with anxiety disorders. Because only one study examined the alliance-outcome association in youth with OCD (Keeley et al., 2011), the OCD finding should be considered preliminary and interpreted with caution.

With regards to timing of alliance measurement, the alliance-outcome relationship was largest and most consistently detected when alliance was measured between sessions 4 and 6 and after session 1 (though the session 1 difference was not statistically

significant). Many CBT interventions introduce the behavioral component of treatment (exposures, behavioral activation) between sessions 4 to 6, after the initial psychoeducation and self-monitoring phases end (e.g., Freeman & Garcia, 2009; Curry et al., 2000; Silverman, unpublished). It may be that the alliance is especially important when patients are expected to perform therapeutic activities that may be particularly challenging (Kendall et al., 2009). Additionally, initial alliance may be important in predicting outcomes, perhaps by promoting youth involvement and collaboration in treatment (Karver et al., 2005; Shirk & Karver, 2006). In that sense, "starting out on the right foot" might be especially important when intervening on internalizing disorders in youth. With this in mind, strategies to build the alliance would be wise to concentrate heavily on the time at which behavioral components are introduced and the first session.

Intriguingly, the alliance-outcome association was markedly smaller in studies conducted outside of the United States compared to studies conducted in the United States. Study characteristics do not appear to account for this difference, leaving open the possibility of cultural differences influencing the alliance-outcome association. We speculate that components of the alliance (e.g., task collaboration, agreement on goals) might be more critical for therapy engagement in the United States compared to other countries or cultural settings. Alternatively, methodological factors we were unable to evaluate in this review (e.g., use of translated measures) may also contribute to differences in the alliance-outcome association across countries. As we elaborate in the following section, testing predictors of the alliance-outcome association, including cultural factors, represents an important direction for future research.

Subgroup analyses revealed differences in effect sizes in outcome measurement timing, intervention setting, and intervention type, though these differences were not statistically significant. With regards to timing of outcome measurement, the alliance-outcome relationship was largest and most consistently detected when outcome was measured mid-treatment and smallest when measured at follow-up. It is possible that this finding can be explained by shifts in the alliance over the course of therapy (Kendall et al., 2009; Hudson et al., 2014; Chu et al., 2014), meaning early alliance may be only weakly related to outcome at posttreatment or follow-up if the alliance changes during treatment. It is also possible that alliance measurements taken at later times in treatment are confounded with symptom improvements (Crits-Christoph et al., 2011; Marker et al., 2013). With regards to intervention setting and type, the alliance-outcome relationship was larger in university- and school-based interventions compared to online and community-based interventions, and larger in treatment as usual/mixed intervention groups compared to CBT-only groups. Additional, theory-driven studies on the alliance-outcome relationship across intervention settings and types are needed to determine whether the aforementioned differences replicate.

Limitations and Future Directions

Our findings should be interpreted in view of limitations. The relatively small number of studies that met criteria for inclusion in this review limits our ability to draw firm conclusions about moderator effects; thus, our meta-regression findings should be interpreted with caution. Additionally, given that the majority of studies on youth internalizing disorders involve treatment with youth, the present study primarily focused on the youth-provider alliance. However, the parent-provider alliance has been examined

in a small number of studies on the alliance-outcome relationship in youth internalizing disorders (e.g., McLeod & Weisz, 2005; Anderson et al., 2012; Keeley et al., 2011), and is important in contributing to outcomes (McLeod, 2011). Further, the majority of studies included in our review examined alliance-outcome associations in CBT, which limited our ability to examine how alliance-outcome associations differ across different schools of psychotherapy (e.g., psychodynamic, humanistic, etc.). We encourage future alliance research to further consider the parent-provider alliance and the role of intervention type in alliance-outcome associations interventions for youth internalizing disorders.

Studies of the alliance-outcome relationship in youth internalizing disorders often controlled for multiple variables. While this information adds a significant contribution to knowledge, consistently reporting the bivariate relationship between alliance and outcome will provide the field with a clearer, more reliable understanding of the alliance-outcome association.

The alliance literature is characterized by a restricted range of scores, ceiling effects, and differences in measurement constructs (Bickman et al., 2012; Garland et al., 2014; Shirk et al., 2010). Limited variation in alliance scores may result from measurement issues (e.g., asking general vs. session-specific questions about the quality of the alliance) and/or social desirability (i.e., youth may feel uncomfortable reporting a negative alliance with their provider) (Shirk et al., 2010; Bickman et al., 2012). Further, various alliance measurements have been developed as a result of differing conceptualizations of alliance. For example, the TASC (Shirk & Saiz, 1992) measures the emotional bond and collaboration between youth and provider, whereas the WAI (Horvath & Greenberg, 1989) measures the emotional bond and agreement on tasks and

goals. Thus, differences in the strength of alliance-outcome associations in studies using the TASC compared to the WAI open up the possibility that perceived collaboration between the youth and provider is a stronger predictor of outcomes than agreement on tasks and goals. Altogether, variations in how alliance is measured limits our understanding of which aspects of the alliance are predictive of outcomes. We encourage future research to report on the associations between alliance subscales (e.g., bond, task collaboration, agreement on goals) and outcome to enhance the field's understanding of which components of alliance are most predictive of outcomes.

Little is known about predictors and mediators of the alliance-outcome relationship. With regards to alliance predictors, youth characteristics including initial symptom severity, perceived social support, perceived security in relationships with caregivers, and socio-emotional functioning have been shown to predict initial alliance and/or alliance trajectory (Chu et al., 2014; Levin et al., 2012; Whitehead et al., 2018). Additionally, provider behaviors, such as collaboration, support, exploration of patient's subjective experiences, and responsiveness have positively predicted alliance, whereas behaviors such as finding common ground, pushing the youth to talk, being overly formal, failing to acknowledge youth's emotions, criticizing, and excessive recall of prior information have negatively predicted the alliance in treatment for youth internalizing disorders (Creed, 2007; Russell et al., 2008; Karver et al., 2008). Even less is known about mediators of the alliance-outcome association. Despite examinations of mediators of the alliance-outcome association (e.g., Anderson et al., 2012; Karver et al., 2008; Shirk et al., 2008), no study to our knowledge has identified a significant mediator. As noted by Karver et al. (2018), nonsignificant findings may be attributable to underpowered studies

and limited alliance or outcome measurements. Future studies should continue to examine mediators with larger sample sizes and using multiple alliance and outcome assessment timepoints.

In summary, findings from the current study indicate the alliance overall plays a limited role in treatment outcome for youth with internalizing disorders, but also provide initial evidence that the strength of the alliance-outcome association depends on youth and intervention characteristics. Knowledge of *for whom* and *under what circumstances* the alliance contributes most strongly to outcomes carries implications *for whom* and *under what circumstances* providers should focus on alliance-building techniques. Based on the current review, alliance-building strategies should be prioritized after session 1 and when behavioral components of treatment are introduced, when working with youth who have depression and possibly OCD, and when working with youth who reside in the United States. To guide providers on specific alliance-building techniques, it is also important to continue to determine youth- and provider- factors that contribute to a strong alliance, and whether these factors vary by youth characteristics. Increased efforts to advance the study of alliance in youth psychotherapy by conducting experimental studies on the influence of therapeutic alliance on outcomes and examining predictors, mediators, and moderators of the alliance-outcome association carry implications for increasing intervention response rates and overall functioning in youths receiving psychological care.

Table 1. Summary of Studies

Study	Problem Type	*N*	r^{+}	Alliance Inf.	Alliance Timing	Outcome Inf.	Outcome Timing	Intervention Type	Setting	Country
Anderson et al. (2012)	Anx.	132	-0.13	Y	3	Prov.	FU	CBT	Online	Aus.
Avny (2011)	Dep.	41	-0.01	Obs.	Early	Y	Post	CBT, UC	Comm.	USA
			0.13			Par.				
Chiu et al. (2009)	Anx.	34	0.37	Obs.	Avg. 2&4	Par.	Mid.	ICBT, FCBT	Univ.	USA
			0.29	Obs.	Avg. 2&4	Par.	Mid.			
Creed (2007)[1]	Anx.	68	0.14[2]	Obs.	3	Prov.	Post	ICBT, FCBT	Univ.	USA
			0.21[3]	P		Par.				
			0.25[4]	Y						
Cummings et al. (2013)[a]	Anx.	279	0.26	Y	6	Prov.	Post	CBT, CBT+Meds	Univ.	USA
			0.31							
			0.23							
Fernandez et al. (2016)[a]	Anx & Dep.	8	0.04	Y	1	Y	Mid.	Mixed	Comm.	Chile
			0.71	P						
Fjermestad et al. (2016)[a]	Anx.	91	0.05	Y	3	Y	Post	CBT	Comm.	Norway
			0.06	P						
			-0.02	Y		Par.	Post			
			0.08	P						

Fjermestad et al. (2020)[b]	Anx.	73	-0.14	P	3	Prov.	Post	CBT	Comm.	Norway
			0.01	P		Y				
			-0.08	Y		Prov.				
			-0.02	Y		Y				
Hudson et al. (2014)	Anx.	151	--	Obs.	Avg.	Par. Y Teach. Par. Y	Post, FU	ICBT, FCBT, GCBT	Univ.	USA
Keeley et al. (2011)	OCD	22	0.34	Y	1	Prov.	Post	ICBT	Specialty	USA
			0.64	Y	5	Prov.	Post			
			0.54	Prov.	1	Prov.	Post			
			0.64	Prov.	5	Prov.	Post			
Kobak et al. (2015) – CBT[a]	Dep.	35	0.36	Y	6	Y	Post	ICBT + technology	Comm.	USA
Kobak et al. (2015) – TAU[a]	Dep.	30	0.31	Y	6	Y	Post	TAU	Comm.	
Labouliere et al. (2017)	Dep.	38	0.29	Obs.	1	Y	Mid.	ICBT	School	
Liber et al. (2010)[a]	Anx.	50	0.11	Obs.	Avg	Y	Post	ICBT, GCBT		Neth.
		43	-0.16			Moth.				
		52	-0.03			Fath.				
Marker et al. (2013)[a, 1]	Anx.	86	0.36	Y	1	Y	Post	ICBT, FCBT	Univ.	USA
McLeod & Weisz (2005)	Anx. & Dep.	22	0.21[5]	Obs.	Avg	Par. Y Prov. Y Prov.	Post	TAU	Comm.	USA

McLeod et al. (2017) – Child[1]	Anx.	31	0.2	Y	Avg	Par.	Post	ICBT	Univ.	USA
			0.17	Prov.	Avg	Par.	Post			
			0.16	Obs.	Avg	Par.	Post			
			0.14	Obs.	Avg	Par.	Post			
McLeod et al. (2017) – Adol.[1]	Anx.	19	0.38	Y	Avg	Par.	Post	ICBT	Univ.	USA
			0.29	Prov.	Avg	Par.	Post			
			-0.18	Obs.	Avg	Par.	Post			
			-0.41	Obs.	Avg	Par.	Post			
Reyes (2013)	Dep.	43	0.12	Obs.	1	Y	Post	ICBT, UC	Comm.	USA
			0.47		4					
Shirk et al. (2008)	Dep.	50	0.26	Y	3	Y	Post	ICBT	School	USA
			0.33	Y	3	Prov.	Post	ICBT	School	
			0.06	Prov.	3	Y	Post	ICBT	School	
			0.15	Prov.	3	Prov.	Post	ICBT	School	
Stjerneklar et al. (2019)	Anx.	65	0.07	Y	4	Y	FU	ICBT	Online	Den.
			0.19	Y	4	Prov.	FU			
			0.18	Y	8	Y	FU			
			0.2	Y	8	Prov.	FU			
Whitehead et al (2018)[a]	Anx.	87	-0.04	Obs.	Early	Y	Post	ICBT, FCBT	Univ.	USA

Note. Anx. = Anxiety. Dep. = Depression. OCD = Obsessive-compulsive disorder. Y = Youth. Obs. = Observer. Prov. = Provider. Par. = Parent. FU = Follow-up. ICBT = Individual CBT. FCBT = Family CBT. GCBT = Group CBT. UC = Usual Care. NST = Nondirective supportive therapy. TAU = Treatment as usual. Comm. = Community. Univ. = University. Aus. = Australia. Neth. = Netherlands. Den. = Denmark.

[+]*The sign of* r *was switched for some studies. When the alliance-outcome association fell in the expected direction (e.g., in situations in which higher alliance predicted lower symptoms or higher alliance predicted greater change from pre- to post-*

treatment), a positive sign was assigned. When the alliance-outcome association fell in the unexpected direction (e.g., higher alliance predicted worse symptoms post-treatment), a negative sign was assigned.
[a]Zero-order correlations obtained via author inquiry.
[1]Overlapping samples. Meta-analyses were run with and without each study (Creed, 2007; Marker et al., 2013; McLeod et al., 2017) and results stayed the same. Based on recommendations set forth by Hunter and Schmidt (2004), we included all studies in the overall meta-analysis. [2-5]Average correlation between alliance and outcome measures.

Table 2. Subgroup Analyses

	No. of studies	No. of effect sizes	Mean weighted *r* (SD_r)
Problem Type			
Anxiety	10	39	0.14 (0.15)
Depression	5	11	0.21 (0.34)
Mixed Anx. & Dep.	2	3	0.28 (0.23)
OCD	1	4	0.54 (0.12)
Alliance Informant			
Youth	11	24	0.18 (0.15)
Provider	6	13	0.13 (0.19)
Observer	9	20	0.13 (0.18)
Alliance Timing			
Early (S1-S3)	12	31	0.12 (0.16)
Early-mid (S4-S6)	5	10	0.28 (0.11)
Avg. across sessions	3	12	0.06 (0.19)
Session 1	5	7	0.32 (0.15)
Session 3	4	21	0.10 (0.20)
Session 8	1	2	0.19 (0.01)
Alliance Measure			
TASC/TASA/TASC-T	7	27	0.16 (0.17)
WAI	3	7	0.07 (0.16)
TPOCS	7	13	0.10 (0.18)
CPTR	1	3	0.27 (0.03)
TABBS	1	4	0.23 (0.07)
VTAS-R-SF	1	2	-0.07 (0.27)
Outcome Informant			
Youth	11	17	0.14 (0.18)
Parent	6	24	0.12 (0.15)
Provider/IE	6	15	0.22 (0.16)
Outcome Timing			
During treatment	2	4	0.34 (0.15)
Post-treatment	12	46	0.17 (0.16)
Follow-up	2	5	0.06 (0.14)
Effect Reported			
Zero-order	10	33	0.16 (0.14)
Partial controlling for initial severity	7	20	0.17 (0.25)
Intervention Type			
CBT only	15	51	0.16 (0.17)
Other	3	4	0.29 (0.28)

Setting			
Univ./Special.	8	34	0.20 (0.15)
Community	6	13	0.07 (0.18)
School	2	5	0.21 (0.10)
Online	2	5	0.06 (0.14)
Geographic Location			
USA	13	43	0.22 (0.14)
Other	5	14	0.01 (0.13)

Figure 1. Search Strategy Results by PRISMA (2009) Guidelines.

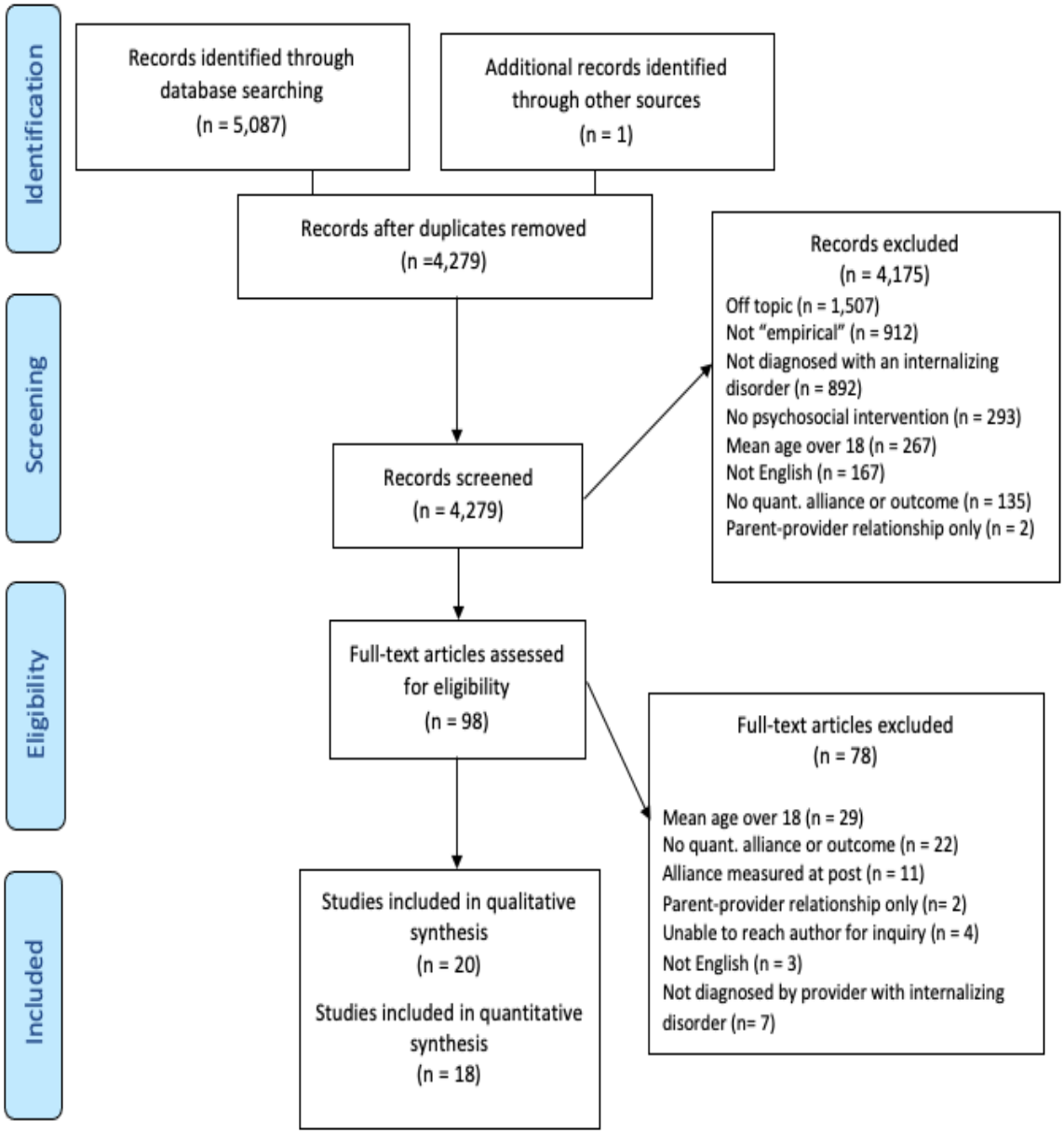


Figure 2. Funnel Plot to Assess for Publication Bias

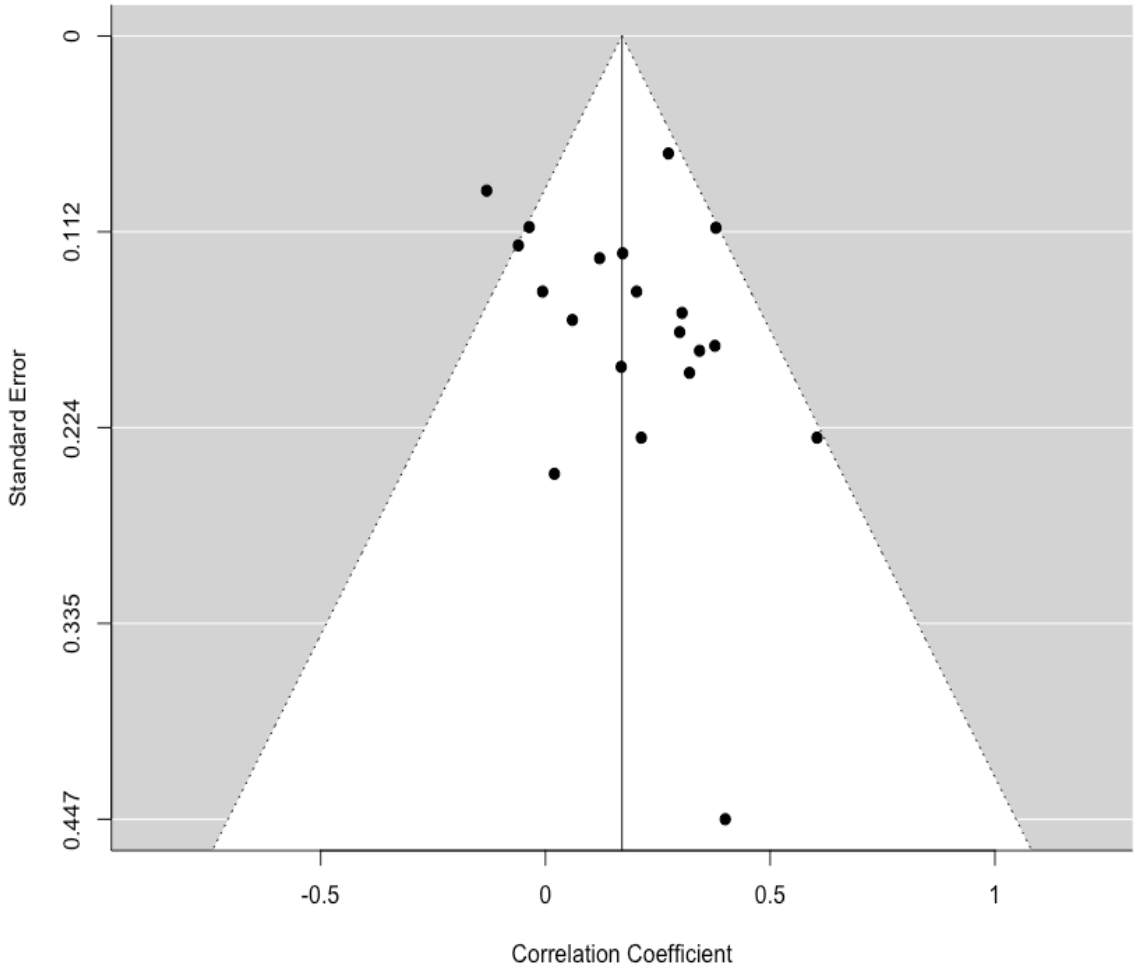
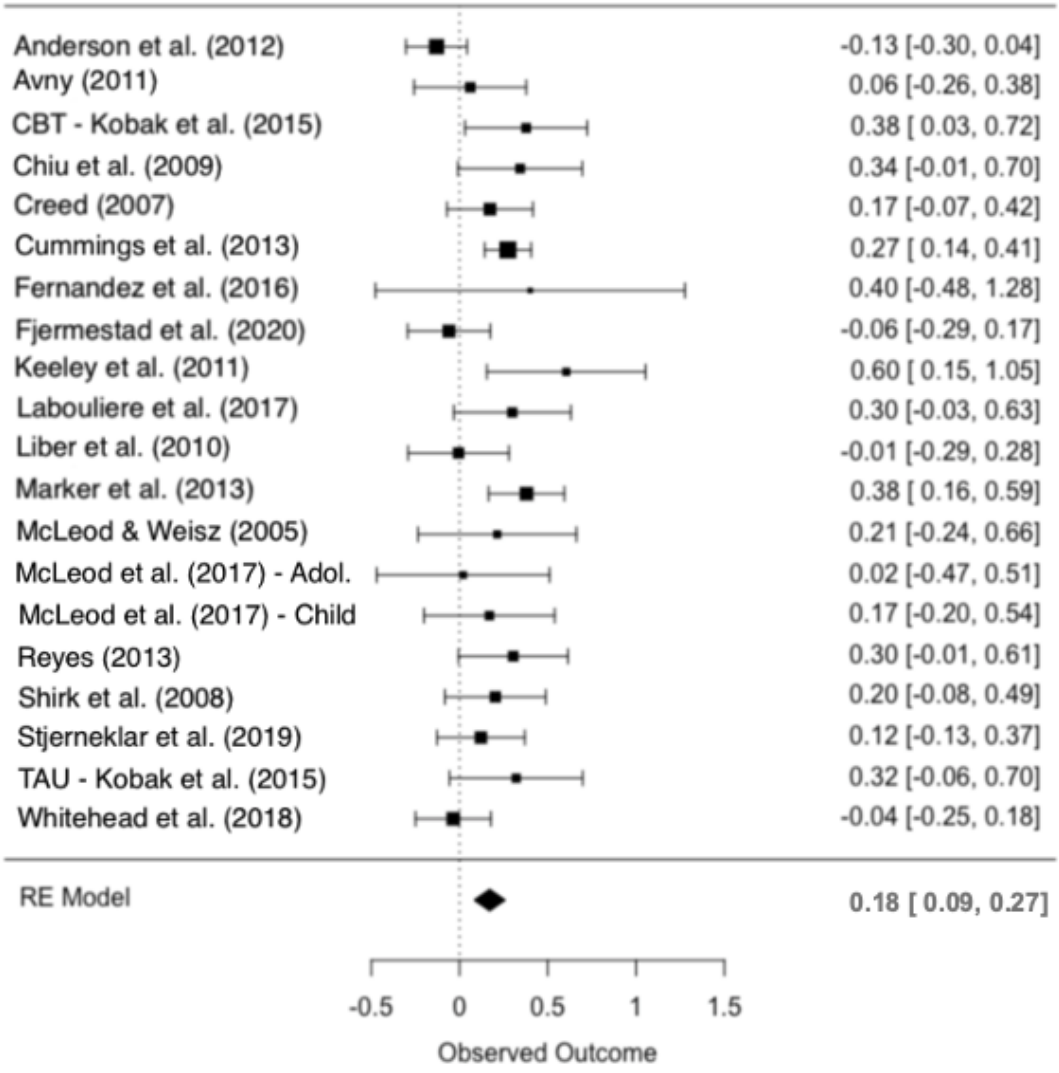


Figure 3. Forest Plot of Study Effect Sizes and Overall Effect Size



CHAPTER III.

Therapeutic Alliance, Session Attendance, and Outcomes in Youth Receiving Cognitive Behavioral Therapy or Client-Centered Therapy for Anxiety

Abstract

The present study examined the relation between therapeutic alliance, session attendance, and outcomes in youths (N = 135; 55.6% female) who participated in a randomized controlled trial testing the efficacy of cognitive-behavioral therapy or client-centered therapy for anxiety (Silk et al., 2018). We investigated (1) the associations between alliance, attendance, and outcomes; (2) the indirect effect of alliance on outcomes through session attendance; and (3) the moderating effect of treatment type on the alliance-outcome association. Findings revealed that provider-ratings of alliance predicted greater youth-rated symptom severity. Session attendance predicted youth-rated outcomes, though the indirect effect of alliance on outcomes through session attendance was not significant. Treatment type did not moderate the alliance-outcome association. Results show that increasing session attendance is important for enhancing outcomes and highlight the need for additional research on the roles of alliance and treatment type on the alliance-outcome association in youth anxiety interventions.

Keywords: therapeutic alliance; treatment attendance; child/adolescent; anxiety; cognitive-behavioral therapy; supportive therapy

Introduction

Therapeutic alliance refers to the emotional bond and collaborative relationship between patients and providers (Bordin, 1979). Research on therapeutic alliance consistently documents small, significant associations with outcomes in youth psychotherapy (Shirk, Karver, & Brown, 2011; McLeod, 2011; Karver et al., 2018). Therapeutic alliance is theorized to enhance outcomes in part by increasing youth attendance and involvement in treatment (Chu & Kendall, 2004; Shirk et al., 2008; Karver et al., 2008; McLeod et al., 2014). Within the context of youth anxiety treatment specifically, a strong alliance is theorized to improve outcomes by increasing youth involvement in skill-building tasks (Chu et al., 2004) and facilitating the completion of therapeutic tasks that may be perceived as challenging (e.g., behavioral exposures; Kendall & Ollendick, 2004; McLeod et al., 2014).

In spite of the strong theoretical basis for how alliance contributes to outcomes in youth anxiety treatments, empirical findings have been mixed. Possible explanations for mixed findings include methodological differences between studies (e.g., measurement timing, informant source, participant characteristics, treatment types) and variations in how alliance is conceptualized and measured (Cummings et al., 2013; Fjermestad et al., 2016). The mixed findings highlight the need for continued examination of therapeutic alliance in relation to outcomes in youth anxiety treatment, including how alliance might contribute to outcomes and variables that may influence the strength of the alliance-outcome association in youth anxiety treatments (Bose et al., under review). In the present study, we examine each of these issues. Below, we present relevant theory and research.

Alliance, Attendance, and Outcomes

Models of the alliance-outcome association posit that a positive, early alliance predicts session attendance (therapy "dosage"), which in turn predicts outcomes (Shirk, 2001; Hawley & Weisz, 2005; Shirk et al., 2008). Consistent with these models, research has documented significant associations between alliance and session attendance (Kazdin, Holland & Crowley, 1997; Garcia & Weisz, 2002; Hawley & Weisz, 2005; Shirk et al., 2008; Ormhaug & Jensen, 2018), and between session attendance (higher "doses" of treatment) and treatment outcomes (Angold et al., 2000; Nock & Ferriter, 2005).

Although links between alliance, attendance, and outcomes have been established, we are aware of only one study from the youth literature that has tested the full model wherein the association between alliance and outcomes is accounted for by attendance (Shirk et al., 2008). In this study, Shirk and colleagues found that in a sample of 54 adolescents receiving cognitive-behavioral therapy (CBT) for depression, provider-rated alliance was associated with session attendance but the indirect path from alliance to outcome through attendance was not supported. As noted by Shirk and colleagues (2008), additional testing of this model in larger samples with higher statistical power to detect indirect effects is needed before drawing conclusions.

Factors Influencing the Strength of the Alliance-Outcome Association

In addition to the emerging literature on the mechanisms by which alliance contributes to outcomes, there is growing evidence that the strength of the alliance-outcome association depends on substantive factors (e.g., youth and treatment characteristics) and study methodology (McLeod, 2011; Karver et al., 2018). Below, we

describe two factors that may influence the strength of the alliance-outcome association in youth psychotherapy: treatment type and outcome measurement timing.

Treatment Type

In a study examining the relation between alliance, treatment involvement, and outcomes in adolescents receiving CBT or nondirective supportive therapy for depression, Karver et al. (2008) found that alliance and involvement were differentially associated with outcomes. Specifically, associations between alliance and outcome, and youth involvement and outcome, emerged only in the CBT arm, not the nondirective supportive therapy arm. These findings led the researchers to conclude that therapeutic alliance and youth involvement may partially explain treatment outcome in CBT but not supportive therapy (Karver et al., 2008). In addition, a recent meta-analysis by Karver et al. (2018) concluded that the alliance-outcome association was larger in behavioral treatments (r = .23) compared to nonbehavioral treatments like supportive therapy (r = .10), though this difference was not statistically significant.

Altogether, there is emerging evidence that the alliance-outcome association differs across treatments for youth internalizing disorders, with stronger effects in CBT compared to supportive therapy. We are unaware of any other studies (except Karver et al., 2008) that examined alliance-outcome associations across multiple treatment types. We are also unaware of any studies that have examined treatment type as a moderator of alliance-outcome associations. Examination of the moderating effect of treatment type on alliance-outcome associations will advance theory and provide insights on whether therapeutic alliance and alliance-building should (or need not be) emphasized equally across treatments.

Outcome Measurement Timing

The strength of alliance-outcome association may also vary depending on the timepoint at which outcome is assessed (Chu, Suveg, Creed, & Kendall, 2010). In a study of 34 youths receiving CBT for youth anxiety, Chiu et al. (2009) found that early alliance predicted mid-treatment outcomes, but not post- or follow-up outcomes. Additionally, a systematic review and meta-analysis of alliance-outcome associations in treatments for youth internalizing disorders found that across studies, alliance-outcome associations tend to be stronger when outcome is measured mid-treatment compared to post-treatment or follow-up (Bose et al., under review). Together, these findings suggest that early alliance is a better predictor of outcomes at mid-treatment than post- or follow-up. The limited empirical basis for this hypothesis (at a within-study level) calls for additional study of the effect of early alliance on outcomes at different timepoints, in order to assess whether the effect of early alliance on outcomes lessens over time.

Present Study

The purpose of the present study is to conduct a secondary data analysis to examine the relation between therapeutic alliance, session attendance, and outcomes in youths who participated in a randomized controlled trial testing the efficacy of CBT and client-centered therapy (CCT) for anxiety (Silk et al., 2018). We investigate whether alliance influences outcomes indirectly through session attendance. We also examine whether the strength of the alliance-outcome association differs by treatment type or outcome measurement timing. Specifically, we will test whether prior research findings replicate with respect to stronger alliance-outcome associations in CBT compared to supportive therapy (CCT). We hypothesize that treatment type will moderate the alliance-

outcome association, such that alliance predicts outcomes in CBT but not CCT. We base this hypothesis on prior research (Karver et al., 2008) and theory that the alliance is more critical to the completion of tasks in CBT than supportive therapy (Shirk et al., 2008). We also hypothesize that the strength of the alliance-outcome association will decrease over time, with stronger alliance-outcome associations when outcome is measured at mid-treatment than post-treatment.

In general, empirical testing on the role of therapeutic alliance in treatments for youth internalizing disorders has lagged far behind theory development. The present study provides a necessary expansion of a very small empirical literature. Findings from this study will provide novel insights on potential treatment targets for youth anxiety (e.g., increasing session attendance by improving the alliance) and will inform the field of the circumstances under which alliance contributes most strongly to outcomes.

Method

Participants

Participants included children and adolescents who were enrolled in a randomized controlled trial evaluating the effects of CBT and CCT on youth outcomes (Silk et al., 2018). Participants included 135 youths (age range: 9-14; 55.6% female) who were randomized using a 2:1 ratio to receive CBT (N = 92) or CCT (N = 43). Eighty-eight percent of youths were White, 5.9% Multiracial, 3.7% Black, 3.0% Hispanic or Latino, and 1.5% Other. Family income was $10-30,000 (10.4%), $30-60,000 (25.2%), and $60-100,000+ (58.5%). Eight participants (5.9%) did not indicate their income.

Providers included seven master's and doctoral-level providers. Providers were trained in both CBT and CCT by experts, received weekly supervision, and provided therapy to youths in both treatment groups.

Measures

Therapeutic Alliance

Therapeutic alliance was assessed using the revised Therapeutic Alliance Scale for Children – Child/Therapist Versions (TASC-C/T; Creed & Kendall, 2005). The revised TASC-C/T are 12-item questionnaires that measure youth- and provider-reports of the youth's perspective on the alliance (e.g., "I like spending time with my therapist,"/ "The child likes spending time with you, the therapist"). Respondents rank items on a 4-point Likert scale ranging from "Not at all" to "Very much," with higher scores indicating a stronger alliance. Past research on the TASC-C/T supports internal consistency and convergent and predictive validity (Hawley & Weisz, 2005; Fjermestad et al., 2012; Accurso & Garland, 2015).

Youth Symptom Severity

The Screen for Child Anxiety and Related Emotional Disorders – Child/Parent Versions (SCARED-C/P; Birmaher et al., 1997) are 41-item youth- and caregiver-reports of anxiety symptom severity across multiple anxiety domains (e.g., separation, social, school, panic, general anxiety). Respondents rank items on a 3-point Likert scale ("Not true or hardly ever true" to "Very true or often true"), with higher scores reflecting higher anxiety severity. The SCARED-C/P has satisfactory to excellent test-retest reliability, and good convergent and divergent validity (Birmaher et al., 1999; Monga et al., 2000).

Procedures

Youth demographic information was collected at intake and session attendance (i.e., number of sessions attended) was tracked by providers. Therapeutic alliance was measured at Session 2 and youth symptom severity was measured every session. In the present study, we examined SCARED-C/P scores at three timepoints: "early" (Session 2), "mid-" (Session 7), and "post" (post-treatment). "Initial symptom severity" refers to SCARED-C/P scores assessed at pre-treatment. "Outcome" refers to SCARED-C/P scores assessed at post-treatment.

Providers delivered CBT from the *Coping Cat* manual (Kendall & Hedtke, 2006) and CCT from a manual developed by Cohen and colleagues (2004). In *Coping Cat,* youths are taught skills for anxiety management (e.g., identifying somatic cues and thought patterns, progressive muscle relaxation, developing coping thoughts) and complete graded exposures to approach anxiety-provoking situations. CCT is a supportive, nondirective treatment in which providers use active listening, empathy, and encouragement to address the youth's problems (Cohen et al., 2004). Both interventions consisted of 16 sessions total (14 sessions with the youth, 2 dedicated parent sessions, and parent consultation throughout). Additional information about the study design and procedures are provided in Silk and colleagues (2018).

Data Analytic Plan

Missing data occurred for the TASC-T (3.7%), TASC-C (3.0%), SCARED-P pre (3.0%), SCARED-P early (10.4%), SCARED-P mid (11.9%), SCARED-P post (14.8%), SCARED-C pre (3.7%), SCARED-C early (8.1%), SCARED-C mid (11%), and SCARED-C post (16.3%). Analysis of missing data patterns yielded significant

associations between missingness on the SCARED-C post and being Hispanic (r = 0.28, p < .001) and missingness on the SCARED-C and SCARED-P mid and lower income (r = -0.30 and -0.29, ps <.001) after applying Holm-Bonferonni corrections (Holm, 1979). To address missing data bias, data were estimated using multiple imputation (N = 20 imputations) using the Blimp software package (Enders, Du, & Keller, 2019; Enders, Keller & Levy, 2018; Keller & Enders, 2020).

To test the indirect effect of alliance on outcomes through session attendance, we conducted an indirect effects test with bootstrapping (Preacher & Hayes, 2008). The bootstrapping procedure produces a point estimate for the indirect path after repeatedly sampling the data. The indirect path is the product of path *a* (the effect of the independent variable on the proposed mediator) and path *b* (the effect of the proposed mediator on the dependent variable). A significant indirect effect occurs if the indirect path is significant and regardless of the significance of the direct path or paths *a* and *b* (Hayes & Rockwood, 2017).

To test the moderating effect of treatment condition on the alliance-outcome association, we tested moderated regressions using procedures outlined by Aiken and West (1991). Specifically, we employed ordinary least squares regression to examine the effect of the independent variable, X (alliance) on the dependent variable, Y (youth outcome); the effect of each moderator (M) on Y; and the interaction between X and M on Y (i.e., the effect of X*M on Y).

To explore the effect of outcome measurement timing on the alliance-outcome association, we ran individual linear regression analyses for each outcome timepoint

(early, mid, post-treatment). We applied Holm-Bonferroni adjustments to control for the possibility of family-wise error rates (Holm, 1979).

Youth gender was associated with TASC-T and SCARED-C scores (see *Results*), and so was added as a covariate in models including the TASC-T and SCARED-C. To control for initial symptom severity, we included pre-treatment SCARED scores as a covariate in each of the tested models.

Regression, indirect effect, and moderation analyses were conducted in the R statistical program (R Core Team, 2017), lavaan package (Roseel, 2012). The R statistical program employs rules specified by Rubin (1987) to pool the point and standard error estimates across multiply imputed datasets.

Results

Means, standard deviations, and bivariate correlations between variables are presented in *Table 1*. Female gender was significantly associated with lower income, higher provider-rated alliance, and higher youth-rated symptom severity at pre-, early-, mid-, and post-treatment. Pre-treatment youth-rated symptom severity was lower in the CBT arm than the CCT arm. Higher income was associated with higher session attendance. Provider-rated alliance was also associated with youth-rated alliance and higher youth-rated symptom severity at all timepoints. Youth-rated alliance was associated with lower youth-rated symptom severity at pre-treatment.

Indirect Effect Model: Session Attendance

The indirect path between therapeutic alliance and outcomes through session attendance was not significant according to either alliance or outcome informant. The path between session attendance and youth-rated outcomes (path *b*) was significant using

provider-ratings of alliance, with higher attendance associated with lower youth-rated symptom severity at post-treatment. The direct path between provider-rated alliance and youth-rated outcome was also significant, with higher ratings of alliance associated with higher post-treatment youth-rated symptom severity (see *Table 2* for path estimates).

Interaction Model: Treatment Condition

Examination of alliance-outcome associations by treatment group revealed a differential effect of alliance on outcomes in CCT and CBT. In the CCT group, alliance did not predict outcomes according to either alliance or outcome informant. In CBT, provider-rated alliance predicted greater youth-rated symptom severity at post-treatment, while controlling for initial symptom severity and gender ($\beta = 0.35$, $p = .001$). However, moderation analyses revealed that treatment type did not significantly moderate the effect of alliance on outcome according to either alliance or outcome informant (*Table 3*).

Alliance-Outcome Association Across Measurement Timepoints

See *Table 4* for the predictive effect of early alliance on outcomes across measurement timepoints and informants. Controlling for initial symptom severity and gender, higher provider-rated alliance significantly predicted higher youth-rated anxiety symptoms at all three measurement timepoints, after applying Holm-Bonferroni adjustments (Holm, 1979). The strength of the effect appeared to increase from early treatment to mid-treatment and from mid-treatment to post-treatment.

Discussion

This is the first study to examine associations between therapeutic alliance, session attendance, and outcomes in youths receiving CCT or CBT for anxiety. Provider-ratings of alliance predicted greater youth-rated symptom severity at the end of treatment.

The indirect effect of alliance on outcomes was not accounted for by session attendance, and treatment type did not moderate the alliance-outcome association.

The significant and positive association between provider-rated alliance and youth-rated symptom severity was unexpected and diverges from prior research. Closer examination of the alliance-outcome association by treatment type revealed a significant, positive association between provider-rated alliance and youth-rated symptom severity in the CBT group but not the CCT group. It is possible that providers who perceived a strong initial alliance with youths felt uncomfortable challenging youths during exposure-based therapy, out of fear of rupturing the alliance (Whiteside et al., 2016; Deacon et al., 2013). Given that exposures are considered the "active ingredient" in CBT for youth anxiety (Whiteside et al., 2020), shying away from challenging exposures may have inadvertently led to worse youth outcomes. Contrarily, providers who perceived a weaker early alliance may have felt as though there was less to "lose," and subsequently felt more comfortable challenging youths during exposures. Challenging youths to complete more difficult exposures may have facilitated positive outcomes. Because data are not available to test this possibility in this sample, future research might further test the associations between provider perceptions of therapeutic alliance, provider comfort with exposure delivery, dose and type of exposures delivered in therapy, and subsequent outcomes.

Therapeutic alliance did not predict outcomes in the CCT group or when youths rated alliance in the CBT group. These findings add to the mixed literature on alliance-outcome associations in youth anxiety treatments (Bose et al., under review), and are consistent with past findings on nonsignificant alliance-outcome associations in

supportive therapy (Karver et al., 2008) and when youths rate the alliance (Creed, 2007; Anderson et al., 2012; Marker et al., 2013; Stjerneklar et al., 2019; Fjermestad et al., 2016).

Although the statistical significance of the alliance-outcome association differed by treatment, treatment type did not significantly moderate the alliance-outcome association. The unequal sample size in the treatment groups (N = 43 in CCT; N = 92 in CBT) may have led to an underestimation of the moderation effect (Arguinis, Edwards, & Bradley, 2017; Memon et al., 2019). We encourage future research to examine alliance-outcome associations across treatment types with large and more equal sample sizes.

The nonsignificant indirect path of alliance on outcome through session attendance may be partially attributed to a weak association between alliance and attendance. In the current sample, other factors (e.g., compensation for participation) may have played a stronger role in predicting attendance. Consistent with prior research (e.g., Angold et al., 2000), session attendance predicted positive outcomes in the indirect effect model using provider-ratings of alliance and youth-ratings of outcome. This finding suggests that attendance plays an important role in predicting youth outcomes. Notably, session attendance was also associated with higher income, suggesting that higher income families attended more sessions than lower income families, and may have experienced better outcomes as a result.

The predictive effect of session attendance on outcomes implies that session attendance should be targeted in treatment, especially in lower income families. Session attendance may be targeted by assessing and resolving barriers to treatment prior to

treatment initiation, measuring patient strengths and needs, soliciting youth and parent commitment to the treatment early-on, and sending appointment reminders on a consistent basis (Lefforge, Donohue, & Strada, 2007; Becker et al., 2015). With lower income families, who may face additional challenges with transportation, cost of services, child-care for siblings, etc. (Gonzalez, 2005; Bringewatt & Gershoff, 2009; Kazdin & Blase, 2011), accessibility of services (and thereby, treatment attendance) may be improved by offering alternative treatment formats, including teletherapy (Crum & Comer, 2016; Nelson & Patton, 2016).

Results from the current study should be interpreted in light of its strengths and limitations. Strengths include a rigorous, RCT design; examination of the prospective association between alliance and outcomes; analysis of alliance-outcome associations in multiple treatment arms (CBT, CCT); multiple outcome assessment timepoints (pre, early, mid, post); and multi-informant (youth, parent) ratings of outcome. With respect to limitations, as previously mentioned, the unequal sample sizes in the treatment groups may have diminished power to detect the moderation effect. Second, we relied on single timepoint assessments of alliance, which may not fully capture the complexity of the relationship between alliance and outcomes. Other alliance-related factors, including alliance shifts and provider-youth agreement on alliance change, may be stronger indicators of outcome (Chiu et al., 2009; Marker et al., 2013; Fjermestad et al., 2016). Third, we did not have access to parent- or observer ratings of alliance or mid-treatment assessments of provider-rated outcome. Observer ratings of alliance provide complementary information and address limitations in youth-, parent-, and provider-report (e.g., demand characteristics, social desirability, etc.) (McLeod & Weisz, 2005).

Parent alliance contributes to youth outcomes in distinct ways from the youth alliance (Hawley & Weisz, 2005), so should also be considered in treatments for youth. Further, given known informant discrepancies in the youth psychopathology literature (De Los Reyes & Kazdin, 2005), it is important to obtain multiple perspectives of alliance and outcomes when possible. Fourth, the tightly-controlled nature of the RCT from which this sample was derived from limits the generalizability of findings. Future research may study whether findings replicate in less-controlled, usual care settings.

Altogether, findings from the current study provide insights on the association between alliance, attendance, and outcomes in youths receiving CBT or CCT for anxiety. Results suggest early provider perceptions of alliance predicting worse youth-rated outcomes in CBT but not CCT (no alliance-outcome effect was found in CCT). Results also suggest that boosting session attendance is important to outcome. This study offers novel contributions in that it is the first to examine (1) the indirect effect of session attendance and (2) the moderating effect of treatment type on the alliance-outcome association in youth anxiety treatments. This study is also the second to examine the prospective association between early alliance and outcomes assessed at multiple timepoints (by multiple informants) over the course of youth anxiety treatment. Given the scant empirical literature on mediators and moderators of alliance-outcome associations in treatments for youth internalizing disorders, additional research on this topic is warranted. Continued examination of mediators and moderators of alliance-outcome associations will advance theory and research by explaining why alliance-outcome findings are often mixed. Based on the findings obtained in our study, future research could also evaluate why early provider perceptions of alliance might predict worse youth

outcomes in CBT and determine whether our findings on alliance-engagement-outcome associations replicate in less-controlled, usual care settings.

Table 1. Bivariate Correlations, Means, and Standard Deviations

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1)	Age	--															
(2)	Gender	-.08	--														
(3)	Ethnicity	-.06	.07	--													
(4)	Income	.05	-.24**	-.13	--												
(5)	Treatment Cond.	-.02	-.004	.03	.01	--											
(6)	Attendance	-.04	.02	-.04	.24**	.03	--										
(7)	TASC-T	.12	.23**	-.09	-.11	.02	-.10	--									
(8)	TASC-C	-.16	.16	.05	-.02	-.02	-.12	.27**	--								
(9)	SCARED-P pre	-.09	.14	.10	-.03	.01	-.10	-.07	-.18*	--							
(10)	SCARED-P early	-.16	.02	.13	-.15	.04	-.10	.04	-.01	.52**	--						
(11)	SCARED-P mid	-.10	.03	.15	-.12	.10	.03	-.02	.02	.47**	.71**	--					
(12)	SCARED-P post	-.18	.07	.05	-.10	-.06	-.05	-.04	-.01	.55*	.60**	.69**	--				
(13)	SCARED-C pre	-.03	.19*	.06	.01	-.21*	.03	.11	.03	.18	.25**	.15	.16	--			
(14)	SCARED-C early	-.10	.25**	.08	-.16	.02	-.07	.25*	.14	.27**	.40**	.37**	.24**	.64**	--		
(15)	SCARED-C mid	-.11	.18**	-.02	-.08	-.02	-.11	.31*	.17	.28**	.36**	.43**	.40**	.51**	.75**	--	
(16)	SCARED-C post	-.08	.27**	.11	-.06	-.08	-.08	.34*	.09	.30**	.24*	.23*	.46**	.41**	.52**	.78*	--
	Mean	10.94	--	--	--	--	14.36	36.21	41.23	36.38	30.07	27.15	22.21	38.50	28.54	25.33	17.80
	SD	1.46	--	--	--	--	3.73	5.85	5.03	11.81	12.45	13.66	12.97	12.70	14.92	17.80	15.10

Note. TASC-T = Therapeutic Alliance Scale for Children – Therapist version. Therapeutic Alliance Scale for Children – Child version. SCARED-P = Screen for Child Anxiety and Related Emotional Disorder – Parent version. SCARED-C = Screen for Child Anxiety and Related Emotional Disorders – Child version.

Table 2. Indirect Path Between Alliance and Outcome through Session Attendance

	Youth-rated Alliance			*Provider-rated Alliance*[b]		
Parent-rated outcome[a]	Est.	*SE*	*p*	Est.	*SE*	*p*
Alliance and attendance (path *a*)	-0.09	0.07	.20	-0.07	0.06	.28
Attendance and outcome (path *b*)	0.01	0.29	.98	-0.04	0.28	.89
Direct path between alliance and outcome (path *c*')	0.21	0.21	.31	0.07	0.18	.68
Indirect path between alliance and outcome (path *a**path *b*)	-0.002	0.02	.91	0.004	0.01	.59
Youth-rated Outcome[a, b]	Est.	*SE*	*p*	Est.	*SE*	*p*
Alliance and attendance (path *a*)	-0.09	0.07	.23	-0.07	0.07	.33
Attendance and outcome (path *b*)	-0.77	0.44	.09	-0.95*	0.38	.02
Direct path between alliance and outcome (path *c*')	0.15	0.31	0.62	0.76*	0.25	.002
Indirect path between alliance and outcome (path *a**path *b*)	0.06	0.07	0.38	0.06	0.07	.41

Note. Est. = Estimate. SE = standard error. [a]*Initial symptom severity was added as a covariate in each of the models.* [b]*Gender was added as a covariate for models including youth-rated outcome and provider-rated alliance. *p < .05.*

Table 3. Interaction Models Examining Moderating Effect of Treatment Type on the Alliance-Outcome Association

	Youth-rated Alliance			*Provider-rated Alliance*		
	Est.	*SE*	*p*	Est.	*SE*	*p*
Parent-rated Outcome						
Alliance	0.31	0.87	.72	-0.27	0.63	.67
Tx. Cond.	0.57	19.73	.97	-9.62	13.31	.47
Alliance*Tx. Cond.	-0.05	0.48	.91	0.22	0.36	.54
Initial severity	0.62**	0.09	<.0001	0.61**	0.09	<.0001
Gender	--	--	--	-1.30	2.09	.53
Youth-rated Outcome						
Alliance	-0.33	1.21	.79	0.83**	0.24	.001
Tx. Cond.	-10.37	27.56	.71	0.95	6.88	.89
Alliance*Tx. Cond.	0.24	0.66	.72	-0.05	0.15	.76
Initial severity	0.43**	0.12	<.0001	0.39**	0.11	<.0001
Gender	4.32	2.92	.14	2.63	2.82	.35

***p < .01.*

Table 4. Predictive Effect of Alliance on Outcomes Across Measurement Timepoints

	Youth-rated Alliance			*Provider-rated Alliance*[b]		
	Est.	*SE*	*p*	Est.	*SE*	*p*
Parent-rated outcome[a]						
Early (Session 2)	-0.02	0.22	.91	0.26	0.17	.13
Mid (Session 7)	0.04	0.24	.88	0.16	0.19	.42
Post	-0.06	0.23	.79	0.10	0.18	.57
Youth-rated outcome[a,b]						
Early (Session 2)	0.34	0.21	.11	0.50**	0.18	.001
Mid (Session 7)	0.29	0.26	.28	0.73**	0.22	.001
Post	0.09	0.29	.74	0.82**	0.24	.001

Note. [a]*Initial symptom severity was added as a covariate in each of the models.* [b]*Gender was added as a covariate for models including youth-rated outcome and provider-rated alliance.* $^{**}p < .01$.

CHAPTER IV.

Advancing Understanding of Treatment Outcomes for Youth Internalizing Problems in Community Settings: The Roles of Therapeutic Alliance and Treatment Engagement

Abstract

The current study examined the role of therapeutic alliance and engagement on treatment outcomes in youth (N = 115; 59% female) receiving usual care services for anxiety or depression. Specific analyses included: (1) the associations between alliance, motivation, attendance, and youth outcomes; (2) the indirect effects of alliance on outcomes through session attendance and youth motivation; and (3) the moderating effects of age, ethnicity, and problem type on the alliance-outcome association. Findings revealed that session attendance predicted outcomes and provider-rated alliance predicted youth motivation. Youth age significantly moderated the alliance-outcome association, with alliance more predictive of improved outcomes in older youths. Results imply that increasing session attendance in usual care is important to enhance outcomes. Results also highlight the need for incorporating developmental considerations into models of youth engagement and outcome.

Keywords: therapeutic alliance; engagement; child/adolescent; anxiety; depression; usual care

Introduction

Decades of research demonstrate that evidence-based practices (EBPs) for child and adolescent (youth) internalizing problems produce moderate-to-large effects in tightly controlled efficacy trials conducted in academic settings (Weisz et al., 1995; Silverman & Hinshaw, 2008; Freeman et al., 2014; Higa-McMillan et al., 2016; Weersing et al., 2017). Replication of the moderate-to-large effects in effectiveness trials conducted in community-based, usual care settings has proven difficult, with some studies showing no differences between EBPs and usual care and other studies favoring UC over EBPs (Weisz, Jensen-Doss, & Hawley, 2006; Weisz, Ugueto, Cheron, & Herren, 2013). The replication difficulty highlights the need to identify variables associated with outcomes in usual care settings and advance knowledge on the mechanisms by which youth in usual care respond to treatment. This study addresses that need by evaluating therapeutic processes and treatment engagement as predictors of outcomes in youths who received community-based, usual care for anxiety and/or depression in an effectiveness trial (Bickman et al., 2016).

Theoretical models of the relation between therapeutic processes and youth outcomes highlight the influence of therapeutic alliance on treatment engagement and outcome (Karver et al., 2005; Constantino, Castonguay, Zack, & DeGeorge, 2010). In line with these models, systematic reviews and meta-analyses consistently document significant associations between therapeutic alliance and youth treatment outcomes (McLeod, 2011; Karver et al., 2018). Less is known about variables that may explain or moderate the alliance-outcome association. Moreover, most studies on alliance-outcome associations in youth psychotherapy have examined these relations in the context of tightly-controlled

efficacy trials in academic settings. Far less is known about the relations between therapeutic processes, treatment engagement, and outcomes in the context of effectiveness trials in community-based settings. For example, in a recent meta-analysis by Karver and colleagues (2018), 54 effect sizes were derived from efficacy trials compared to only 12 effect sizes from effectiveness trials. Additionally, we are aware of only three studies in the youth literature that examined alliance-outcome associations in usual care settings (Hawley & Weisz, 2005; McLeod & Weisz, 2005; Hawley & Garland, 2008). Findings across studies suggest that therapeutic alliance contributes to positive youth outcomes in usual care settings. However, none of the studies examined alliance-outcome mediators (i.e., the mechanisms by which alliance contributes to outcomes) or moderators (i.e., factors that might affect the strength of the alliance-outcome association). Thus, factors that explain or influence alliance-outcome associations in usual care settings remain unknown. Below, we describe multiple factors that might explain or influence alliance-outcome associations in usual care settings.

Alliance, Engagement, and Outcomes in Interventions for Internalizing Problems

Therapeutic alliance refers to the emotional and collaborative bond between providers and patients (Bordin, 1979; DiGiuseppe, Linscott, & Jilton, 1996), and has been theorized to enhance youth outcomes by increasing youth engagement in services (Karver et al., 2018). Increasing youth engagement in services is a critical endeavor, especially in community-based settings given high levels of attrition (e.g., studies have found that the modal number of treatment sessions attended in community-based settings ranges from 1 to 4; Miller, Southam-Gerow, & Allin, 2008; de Haan et al., 2013) and the absence of incentives that are often present in efficacy trials (e.g., compensation for

participation). Specific engagement variables that alliance is theorized to influence include session attendance and youth motivation (Hawley & Weisz, 2005; Shirk et al., 2008; Chu, Suveg, Creed, & Kendall, 2010). That is, youths who perceive a strong emotional bond and collaborative relationship with their provider are expected to attend sessions more regularly and experience greater motivation to work on their problems. In turn, session attendance and youth motivation lead to improved outcomes (Karver et al., 2005; Wergeland et al., 2016; Angold et al., 2000). Thus, therapeutic alliance is proposed to indirectly influence outcomes by increasing youth motivation and session attendance.

Further, the therapeutic alliance may be particularly important for enhancing motivation in youth with internalizing disorders, given that evidence-based interventions for internalizing problems often involve putting youth in situations they actively avoid (e.g., exposures for anxiety) or have low motivation to complete (e.g., behavioral activation for depression). Thus, the therapeutic alliance may promote youth engagement in assigned and particularly challenging tasks for youth with internalizing problems, thereby enhancing outcomes.

In spite of the strong theoretical basis for how alliance may contribute to outcomes, very few empirical studies have examined mediators of the alliance-outcome association, and those that have attempted to examine alliance-outcome mediators (e.g., treatment dose, treatment satisfaction, homework compliance) have not found significant mediation effects (Shirk et al., 2008; Capaldi, 2010; Avny, 2011; Anderson et al., 2012). However, results from these studies should be interpreted cautiously given that studies of alliance-outcome mediators have had small sample sizes and/or have been limited in alliance and outcome measurements (Karver et al., 2018). Additional testing of

theoretically-derived mediators of the alliance-outcome association will provide novel insights on how therapeutic alliance contributes to outcomes, and whether therapeutic alliance can be leveraged to target youth engagement in community-based services.

Moderating Effect of Youth Characteristics on the Alliance-Outcome Association

Although therapeutic alliance is considered a "nonspecific" or "common" therapy factor that is influential across all individuals, there is growing evidence that the strength of the alliance-outcome association may differ based on youth characteristics (Chu et al., 2010; Anderson et al., 2012; McLeod, 2011; Karver et al., 2018). Below, we describe youth age, ethnicity, and problem type as characteristics that may moderate the strength of the alliance-outcome association in youth psychotherapy.

Youth Age

In a prior meta-analysis examining the influence of alliance on outcomes across youth disorder types and treatments, McLeod (2011) found larger alliance-outcome associations among children under 13 compared to adolescents 13 and older. Within treatments for internalizing disorders, McLeod et al. (2017) similarly found that alliance-outcome associations were larger in younger children compared to adolescents in a sample of youths receiving cognitive behavioral therapy (CBT) for anxiety. However, in a sample of youths receiving internet-based CBT for anxiety disorders, Anderson et al. (2012) found that alliance was a significant predictor of outcome for adolescents but not younger children. This intriguing finding is consistent with the possibility that older youths tend to seek more autonomy, and in doing so may be more resistant to authority figures (e.g., the provider) and the therapeutic process (DiGiuseppe, Linscott, & Jilton, 1996; Castro-Blanco, North, & Karver, 2010). However, the mixed findings point to the

need to further examine the role of age in the alliance-outcome association among youth with internalizing problems.

Ethnicity

Research indicates that minority racial and ethnic status is associated with treatment dropout (Kouyoumdjian, Zamboanga, Hansen, 2003; Kendall & Sugarman, 1997). One potential reason for the increased dropout rates among ethnic minority groups is a poor alliance with the treatment provider (Vazquez, 2007). Poor therapeutic alliance between treatment providers and ethnic minority individuals may be partially attributed to discrepancies between cultural beliefs and conventional mental health service delivery in the United States. For example, cultural beliefs that tend to be collectivistic and place value on social networks above individual needs, as are present in some ethnic minority groups including Hispanic, may conflict with conventional forms of individual therapy in the United States (Alegria et al., 2002). Thus, having a provider who is perceived to be trustworthy, empathic, and collaborative may be especially important in facilitating treatment engagement among Hispanic patients, which subsequently enhances outcomes.

Problem Type

The alliance-outcome association may be stronger for youth in treatment for depression compared to those in treatment for anxiety because youth with depression may have lower initial motivation to complete intervention activities (Brody, 2009) and may subsequently rely more on the alliance as an initial motivational incentive to complete therapeutic tasks. By contrast, youth in treatment for anxiety may have greater initial motivation for treatment (Chu et al., 2014) and need not rely on therapeutic alliance as motivation for treatment participation. We are unaware of prior research that has tested

the moderating effect of internalizing problem type on alliance-outcome associations in youth. The current study is the first to test this hypothesis.

Present Study

The purpose of the present study is to conduct a secondary data analysis to examine the relation between therapeutic alliance, treatment motivation, session attendance, and outcomes in youth receiving treatment for anxiety and/or depression in a community-based effectiveness trial (Bickman et al., 2016). Specifically, we aim to investigate whether alliance influences outcomes indirectly through youth motivation and session attendance. We also aim to examine the moderating effect of youth characteristics (youth age, ethnicity, problem type) on the alliance-outcome association. Based on theory and prior research, we hypothesize that the alliance-outcome association will be larger for youths who are older, Hispanic, and in treatment for depression. Findings from this study will provide insights on potential intervention targets to consider in community-based services for youth (e.g., targeting youth motivation by improving the alliance). Findings on the moderating effect of age, ethnicity, and/or problem type will also provide guidance for personalizing community-based mental health services for internalizing problems.

Method

Participants

Participants included children and adolescents who were enrolled in a randomized effectiveness trial evaluating the effect of measurement feedback on youth outcomes in community-based outpatient mental health clinics (Bickman et al., 2016). Given the present study's focus on alliance-outcome associations in children and adolescents with internalizing problems, we performed analyses on a subset of participants (N = 115; 59%

female) who received intervention for anxiety (N = 29; 25.2%), depression (N = 71; 61.7%), or both (N = 15; 13%). Participants included in the study ranged from 11 to 20 years old; 17.4% were Hispanic, 59.1% White, 16.5% Black, 3.5% Multiracial, 0.9% Asian, 15.7% Other, and 4.3% did not indicate their race or ethnicity. Time in treatment ranged from 0 to 510 days, with session attendance (i.e., percentage of scheduled sessions attended) ranging from 46% to 100% (M = 82.62%, SD = 13.10). The majority of providers involved in the study (90%) had attained either a Master's (80%) or doctoral degree (10%) and were expected to deliver evidence-based practices by their agencies.

Measures

Therapeutic Alliance

Therapeutic alliance was assessed using the Therapeutic Alliance Quality Scale – Youth (TAQS-Y; Bickman et al., 2010) and Therapeutic Alliance Quality Rating Scale – Clinician (TAQR-C; Bickman et al., 2010). The TAQS-Y is a 5-item measure that assesses the bond (2 items) and collaborative relationship (3 items) between the provider and youth from the perspective of the youth. The TAQR-Clinician is a 4-item measure that assesses the provider's perspective of the relationship with the youth (2 items) and the provider's perception of how the youth perceives the alliance (2 items). Across both measures, higher scores reflect higher alliance. The TAQS-Y and TAQR-C have satisfactory Cronbach's alpha (0.85; Bickman et al., 2010). Given our interest in the predictive effect of alliance on outcomes, we analyzed data using first session youth- and provider-ratings of alliance.

Youth Motivation

Youth motivation refers to the youth's recognition of problems, attitudes towards the value of the intervention, and readiness and commitment to change (Ryan & Deci, 2000; Norcross, Krebs, & Prochaska, 2011). In the current study, motivation was measured using the Motivation for Youth's Treatment Scale (MYTS; Breda & Riemer, 2012), an 8-item self-report scale that assesses youth's problem recognition (4 items) and readiness for intervention participation (4 items) during the previous two weeks. Items are rated on a 5-point Likert scale from "Not at all" to "Totally." Higher MYTS scores reflect higher levels of motivation. The MYTS has demonstrated acceptable Cronbach's alpha (0.82-0.83; Bickman et al., 2010). Because youths in the current sample had a different number of sessions scheduled at different frequencies, we calculated their average motivation scores over time to obtain an average motivation score.

Youth Symptom Severity

The Symptoms and Functioning Severity Scale – Short Form (SFSS; Athay, Riemer, & Bickman, 2012) is a 13-item assessment of the youth's global symptom severity in the previous two weeks across multiple problem domains (e.g., anxiety, depression, attention, conduct). Items are rated on a 5-point Likert scale ranging from "Never" to "Very Often." Higher scores correspond to greater symptom severity. The SFSS demonstrates acceptable Cronbach's alpha (0.89-0.93; Bickman et al., 2010). Given large amounts of missing data in provider- and caregiver-ratings of youth symptom severity for youth included in the present study, we restricted our analyses to youth-reported SFSS ratings.

Procedures

Youth demographic information (age, sex, race, ethnicity, disorder type) was collected at intake. Treatment process (e.g., therapeutic alliance, youth motivation) and outcome variables (symptom severity) were collected every session using the Peabody Treatment Progress Battery (Bickman et al., 2010). In the primary outcome trial, providers were randomized to receive feedback on their patients' scores after every session or every 6 months. Session attendance was tracked through the participants' billing records. Session attendance was operationalized as the percentage of sessions scheduled that were attended. Thus, if youths scheduled 4 sessions with a provider and attended 4 sessions, their attendance rate would be considered 100%, whereas youths who attended 10 out of 20 scheduled sessions would have a 50% attendance rate. In the present study, "initial symptom severity" refers to youth SFSS scores at intake. "Outcome" refers to youth SFSS scores at their last assessed visit. Additional information about the study design and procedures are provided in Bickman and colleagues (2016).

Data Analytic Plan

Missing data occurred for the TAQS-Y (20.9%), TAQR-C (21.7%), MYTS (5.2%), and SFSS (22.6%). Analysis of missing data patterns yielded a significant association between missingness on the MYTS and ethnicity ($r = 0.40$, $p < .001$). Specifically, Hispanic participants were more likely to have missing MYTS data after applying Holm-Bonferroni corrections (Holm, 1979). To address missing data bias, data were estimated using multiple imputation (N = 20 imputations) using the Blimp software package (Enders, Du, & Keller, 2019; Enders, Keller & Levy, 2018; Keller & Enders, 2020).

Given the variability in the number of treatment sessions attended and length of time in treatment, the number of days between the intake and last visit ("treatment length") was added as a covariate in each of the models. Initial symptom severity (pre-treatment SFSS scores) and treatment condition were also included as covariates in each of the models.

To test the indirect effect of alliance on outcomes through youth motivation and session attendance, we conducted an indirect effects test with bootstrapping (Preacher & Hayes, 2004). Bootstrapping is a nonparametric resampling procedure that involves repeatedly sampling the data and estimating the indirect effect in the resampled datasets (Preacher & Hayes, 2008). The bootstrapping procedure produces a point estimate for the indirect path. The indirect path is the product of path *a* (the effect of the independent variable on the proposed mediator) and path *b* (the effect of the proposed mediator on the dependent variable). A significant indirect effect occurs if the indirect path is significant.

To test the moderating effect of age, ethnicity, and problem type on the alliance-outcome association, we tested moderated regressions using procedures outlined by Aiken and West (1991). Specifically, we employed ordinary least squares regression to examine the effect of the independent variable, X (alliance) on the dependent variable, Y (youth outcome); the effect of each moderator (M) on Y; and the interaction between X and M on Y (i.e., the effect of X*M on Y). Significant interactions were probed by computing the conditional effect of X on Y at different values of M (i.e., 1 SD below mean, mean, 1 SD above mean). We applied Holm-Bonferroni adjustments to control for the possibility of family-wise error rates (Holm, 1979).

Bivariate correlations, indirect effects, and moderation analyses were conducted in the R statistical program (R Core Team, 2017), lavaan package (Roseel, 2012). The R statistical program employs rules specified by Rubin (1987) to pool the point and standard error estimates across multiply imputed datasets.

Results

Means, standard deviations, and bivariate correlations between variables are presented in *Table 1*. Demographic variables (youth age, ethnicity, internalizing problem type) were not correlated with youth- or provider-rated alliance, youth motivation, or youth symptom severity. Higher youth-rated alliance was associated with higher provider-rated alliance and higher youth motivation. Higher youth motivation was also associated with higher youth symptom severity at pre- and end-of-treatment. Higher symptom severity at the end of the treatment was associated with lower session attendance and higher symptom severity at pre-treatment. Longer treatment length (i.e., days between intake at last assessed visit) was associated with improved outcomes (i.e., lower end-of-treatment symptom severity), older age, and being Hispanic.

Indirect Effect Models: Youth Motivation and Session Attendance

The indirect paths between therapeutic alliance and outcomes through youth motivation and session attendance were not significant according to youth- or provider-ratings of alliance (see *Tables 2* and *3* for path estimates). The path between provider-ratings of alliance and youth motivation (path *a*; *Table 2*) was significant: provider-ratings of alliance predicted youth motivation while controlling for symptom severity at pre-treatment and treatment length. No other path in either model was significant.

Interaction Models: Age, Ethnicity, and Internalizing Problem Type

Youth age moderated the association between alliance and outcome according to provider-ratings of alliance (*Table 4*). Follow-up analyses of simple slopes revealed a negatively- trending direction in the association between alliance and outcome among older youths (1 *SD* above mean age) and youths at the mean age of the sample (estimates = -1.92 and -0.10, *p*s = .06 and .88, respectively), and a positively-trending direction between alliance and outcome among younger youths (1 *SD* below mean age) (estimate = 1.63, $p = .09$). Ethnicity and internalizing problem type did not moderate the alliance-outcome association according to either alliance informant (*Table 4*).

Discussion

This study examined the relations between therapeutic alliance, engagement, and outcomes in youths receiving usual care services for anxiety and depression in a community-based setting. Therapeutic alliance was not associated with outcomes, a point we return to below. Both indicators of treatment engagement were associated with outcomes, albeit in different ways. As expected, higher session attendance was associated with lower symptom severity at the end of treatment. Unexpectedly, youth motivation was associated with greater symptom severity at the end of treatment.

The significant association between session attendance and youth outcomes aligns with prior research (e.g., Angold et al., 2000; Nock & Ferriter, 2005) and highlights the importance of boosting session attendance (i.e., decreasing the number of cancellations and no-shows) in usual care settings. Although an unexpected finding, higher motivation may have been associated with greater end-of-treatment symptom severity because youth may have greater motivation to change when they are in greater distress. In addition, motivation (i.e., problem recognition and treatment readiness) alone may not be sufficient

for driving symptom reduction in youth receiving usual care services. For example, youths may indicate that they have a problem and are ready for treatment, but then fail to complete therapy assignments, miss treatment sessions, etc. According to the transtheoretical model of behavior change (DiClemente & Prochaska, 1998), these youths would fall into the "contemplation" and "preparation" stages of change but fall short on "action" (i.e., overt behavioral changes to address the problem). Future research into engagement may prioritize measurement of variables that correspond with "action" (e.g., homework compliance, session attendance, in-session participation) in addition to motivation as predictors of outcome in usual care services.

Therapeutic alliance was not associated with youth outcomes, which leaves open the possibility that alliance may not contribute to outcomes in some usual care settings. Alternatively, it may be that a strong therapeutic alliance is helpful but not sufficient for driving symptom reduction. In this alternative scenario, intermediate variables may explain an indirect effect of alliance on outcomes, even in the absence of a significant alliance-outcome association (Hayes & Rockwood, 2017). In the current study, we examined youth motivation and session attendance as potential explanatory variables in the alliance-outcome association and found that neither of the indirect path models were significant. Individual path estimates revealed that provider ratings of alliance predicted higher youth motivation, and session attendance was not predicted by alliance. Given that parents typically bring youth to treatment sessions, session attendance may be better explained by parent-provider alliance than youth-provider alliance (Hawley & Weisz, 2005; Shirk et al., 2008). Altogether, our findings suggest that having a strong youth-provider alliance predicts higher youth motivation in treatment; however, strong alliance

and high motivation may not be sufficient to produce positive outcomes in usual care settings.

Consistent with prior research (Anderson et al., 2012), youth age moderated the alliance-outcome association, with higher alliance trending towards positive outcomes for older youths and negative outcomes for younger youths. Adolescents with growing autonomy may value therapist bond and collaboration more than children and may subsequently demonstrate increased willingness to engage in therapy when a strong alliance is established. Children may rely on parents (instead of providers) for support in therapy and so may rely less on therapeutic alliance for therapy engagement (Anderson et al., 2012). Even though the overall interaction effect was significant, the simple slopes across the older and younger age groups were at the trend-level (*p*s = .09, .06); therefore, these results should be interpreted with caution.

Youth ethnicity and problem type did not moderate the alliance-outcome association. These findings suggest that the strength of alliance-outcome association is similar across ethnic groups and internalizing problem types. However, the relatively small sample size in the Hispanic (N = 20) and anxiety (N = 29) groups limited statistical power to detect small interaction effects. Thus, additional study on the moderating effect of ethnicity and problem type on the alliance-outcome association with larger samples is warranted.

Strengths and Limitations

This study has several strengths and limitations. Strengths include the use of a clinically-referred sample of youths treated in community-based, usual care settings (i.e., a clinically representative sample); multi-informant (youth, provider) reports of alliance; and use of a specific subpopulation of youths (youths with internalizing problems), which

permits us to draw conclusions about alliance and engagement in youths with internalizing problems, specifically.

Regarding limitations, because youths had a different number of sessions scheduled at different frequencies, we calculated their average motivation scores across time. Calculating average motivation scores limits our ability to establish temporal precedence. Thus, our results suggest that alliance predicted a youth's *average* level of treatment motivation, not motivation at a later time. Second, we relied solely on youth ratings of outcome and did not have access to observer ratings of alliance. Given known informant discrepancies in the youth psychopathology literature (De Los Reyes & Kazdin, 2005), it is important to obtain multiple perspectives of outcomes and alliance when possible. Additionally, observer ratings of alliance provide complementary information and address limitations in youth- or provider-report (e.g., demand characteristics, social desirability, etc.) (McLeod & Weisz, 2005). Third, data were not available on other important domains of youth outcome (e.g., functional impairment).

Practice Implications and Future Directions

Given the predictive effect of session attendance on outcomes, targeting session attendance rates represents a promising variable to target in usual care services. Session attendance may be targeted by assessing and resolving barriers to treatment prior to treatment initiation, measuring patient strengths and needs, soliciting youth and parent commitment to the intervention early-on, and sending appointment reminders on a consistent basis (Lefforge, Donohue, & Strada, 2007; Becker et al., 2015).

Therapy engagement is a multicomponent construct that has been conceptualized as including attitudinal, behavioral, facilitative, and socializing dimensions (Lindsey et

al., 2014). In the present study, youth motivation (an attitudinal engagement construct) and session attendance (a behavioral engagement construct) influenced outcomes in unique ways. Future research may examine how other engagement variables (e.g., treatment expectations, in-session involvement, out-of-session homework compliance) differentially predict outcomes or work together to influence outcomes in youth receiving community-based mental health care. Such information would inform theory (e.g., providing insights on the unique role of different engagement dimensions on youth outcomes) and practice (e.g., providing insights on which engagement constructs providers should prioritize or focus on most).

Although alliance did not predict outcomes in our sample, age significantly moderated the alliance-outcome effect. This finding highlights the need to consider how youth developmental stage may differentially influence other engagement-outcome effects. For example, intrinsic motivation may promote behavioral engagement (e.g., homework compliance) in older youths, whereas younger youths may rely more on extrinsic motivation (e.g., rewards) for behavioral engagement. In order to prevent the masking of such effects, we encourage future research to incorporate developmental considerations into models of engagement and outcome in usual care.

Conclusions

Findings from the current study provide novel insights on variables related to outcomes in youths receiving community-based mental health services for anxiety and/or depression. Results suggest that boosting session attendance is important to outcome, alliance and motivation may not be sufficient to drive symptom reduction, and age influences the association between alliance and outcome. Future research should consider

the role of additional engagement variables on outcomes and incorporate developmental considerations into models of youth engagement and outcomes.

Table 1. Bivariate Correlations, Means, and Standard Deviations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) TAQS-Y	--									
(2) TAQR-C	.29**	--								
(3) MYTS	.23*	.18	--							
(4) Attend.	-.10	.04	-.17	--						
(5) SFSS-pre	.08	-.08	0.39**	-.19	--					
(6) SFSS-last	.06	-.08	.33*	-.20*	.52**	--				
(7) Age	.12	-.05	.08	-.05	-.12	.16	--			
(8) Ethnicity	.06	-.07	.03	.03	.01	-.05	.15	--		
(9) Prob. Type	-.09	.03	-.03	0.12	-.02	-.03	.17	-.15	--	
(10) Treat. length	-.003	.04	.04	.18	.06	-.25*	0.22*	.26**	-.09	--
Mean	19.92	3.95	25.53	82.62	14.43	11.62	14.61	--	--	113.74
SD	4.53	0.54	5.99	13.10	4.06	4.13	2.22	--	--	102.24

*Note. TAQS-Y = Therapeutic Alliance Quality Scale – Youth. TAQR-C = Therapeutic Alliance Quality Rating Scale – Clinician. MYTS = Motivation for Youth's Treatment Scale. Attend. = Attendance rate. SFSS-pre = Symptoms and Functioning Severity Scale score at intake. SFSS-last = Symptoms and Functioning Severity Scale score at last assessed session. Treat. Length = Days in treatment between intake and last assessment timepoint. *p < .05, **p < .01.*

Table 2. Indirect Path Between Alliance and Outcome through Youth Motivation

	Youth-rated Alliance			*Provider-rated Alliance*		
Path	Estimate	*SE*	*p*	Estimate	*SE*	*p*
Alliance and motivation (*a*)	0.25	0.13	.06	2.31*	1.04	.03
Motivation and outcome (*b*)	0.10	0.07	.19	0.11	0.08	.16
Direct path between alliance and outcome (*c*')	-0.02	0.08	.86	-0.40	0.70	.58
Indirect path between alliance and outcome (*a***b*)	0.03	0.02	.11	0.26	0.26	.32

*Note. SE = standard error. Initial symptom severity and time in treatment were added as covariates in each of the path models. *p < .05.*

Table 3. Indirect Path Between Alliance and Outcome through Session Attendance

	Child-rated Alliance			*Provider-rated Alliance*		
Path	Estimate	*SE*	*p*	Estimate	*SE*	*p*
Alliance and attendance (*a*)	-0.23	0.28	.39	0.31	2.30	.89
Attendance and outcome (*b*)	-0.03	0.03	.41	-0.03	0.03	.40
Direct path between alliance and outcome (*c'*)	0.01	0.08	.95	-0.12	0.63	.85
Indirect path between alliance and outcome (*a*b*)	0.01	0.01	.59	-0.01	0.03	.71

Note. SE = standard error. Initial symptom severity and time in treatment were added as covariates in each of the path models.

Table 4. Interaction Models Examining Moderating Effect of Age, Ethnicity, and Problem Type on the Alliance-Outcome Association

	Youth-rated Alliance			*Provider-rated Alliance*		
	Estimate	*SE*	*p*	Estimate	*SE*	*p*
Youth Age						
Alliance	0.47	0.52	.38	11.20	4.	.02
Age	1.01	0.78	.20	3.40	1.25	.01
Alliance*age	-0.03	0.04	.36	-0.77	0.31	.01
Treatment Length	-0.02	0.004	.001	-0.02	0.004	<.0001
Initial severity	0.63	0.10	<.0001	0.60	0.10	<.0001
Ethnicity	0.24	0.81	.77	0.25	0.78	.75
Alliance						
Ethnicity	0.03	0.10	.73	-0.07	0.72	.92
Alliance*Ethnicity	1.60	3.96	.68	1.15	8.34	.89
Treatment Length	-0.12	0.20	.53	-0.50	2.12	.82
Initial severity	-0.02	0.004	<.0001	-0.02	0.004	<.0001
Problem Type	0.62	0.10	<.0001	0.61	0.10	<.0001
Alliance	0.24	0.83	.77	0.24	0.83	.77
Problem						
Alliance*Problem	0.07	0.24	.76	1.23	2.19	.58
Treatment Length	0.30	2.44	.91	2.61	4.61	.57
Initial severity	-0.03	0.12	.77	-0.74	1.14	.52

CHAPTER V.

Concluding Remarks

My dissertation portfolio presents three manuscripts that focus on the role of therapeutic alliance and engagement in interventions for youth internalizing disorders. The first manuscript, a systematic review and preliminary meta-analysis on alliance-outcome associations in interventions for youth internalizing disorders (Chapter II), highlighted the mixed findings on alliance-outcome associations and identified potential sources of heterogeneity that may explain the mixed findings. Potential sources of heterogeneity include internalizing problem type, timing of alliance and outcome measurements, intervention setting and type, and geographic location. Findings also highlighted the need for conducting experimental studies on mediators and moderators of alliance-outcome associations, given that studies of this nature would provide additional insights on why findings are mixed by determining *how*, *for whom*, and *under what circumstances* alliance contributes (or does not contribute) to outcomes.

The second and third manuscripts (Chapters III and IV) evaluated specific engagement variables, interventions, and youth characteristics that might explain and/or influence alliance-outcome associations in interventions for youth internalizing disorders. The second manuscript (Chapter III) examined one proposed mediator (session attendance) and two proposed moderators (intervention type, outcome measurement timing) of alliance-outcome associations in youths receiving cognitive-behavioral therapy (CBT) or client-centered therapy (CCT) for anxiety. The third manuscript (Chapter IV) examined two proposed mediators (session attendance, youth motivation) and three proposed moderators (age, ethnicity, problem type) of alliance-outcome associations in

youths receiving usual care services for anxiety or depression. Results from these two manuscripts suggested that boosting session attendance is important to outcome, the association between early provider perceptions of alliance and outcomes may be more complex than previously believed, and age influences the association between alliance and outcome, with stronger effects in older youths compared to younger youths.

Altogether, the manuscripts included in this dissertation portfolio provide novel insights into *how*, *for whom*, and *under what circumstances* therapeutic alliance may be leveraged to enhance outcomes. Findings from the three manuscripts provide a more nuanced understanding of alliance-outcome associations in interventions for youth internalizing disorders and suggest that therapeutic alliance, a "nonspecific" factor in treatment, may be "specific" in terms of *for whom* and *under what circumstances* it contributes to outcomes. Future research should consider the role of additional engagement variables on outcomes, evaluate why early provider perceptions of alliance might predict worse youth outcomes in CBT, and incorporate developmental considerations into models of youth engagement and outcomes.

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VITA

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2010-2013	B.A., Psychology University of California, Los Angeles (UCLA) Los Angeles, California
2013-2014	Clinic Coordinator Parenting and Children's Friendship Program, UCLA Los Angeles, California
2014-2016	Research Coordinator Child OCD, Anxiety, and Tic Disorders Program, UCLA Los Angeles, CA
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SELECTED PUBLICATIONS AND PRESENTATIONS

Bose, D., & Pettit, J.W. (2018). Depression. In *Child & Adolescent Psychotherapy: Components of Evidence-Based Treatments for Youth and their Parents*. Cambridge University Press.

Bose, D., Arencibia, D., Costales, G., Viswesvaran, C., Bickman, L., & Pettit, J.W. (May 2020). The alliance-outcome relationship in psychosocial interventions for youth internalizing disorders: A systematic review and meta-analysis. In D. Bose & N. Hong (Chairs), *Alliance-Outcome Associations in Psychosocial Interventions for Youth across Clinical Populations and Intervention Formats*. Symposium accepted at the Association for Psychological Science Convention. (Convention cancelled).

Bose, D., Park, A.L., Regan, J., Chorpita, B.F., Weisz, J.R., & the Research Network on Youth Mental Health. (November 2014). Association between treatment plan and provider adherence to evidence-based treatment protocols. Poster presented at the 48th Annual Convention of the Association of Behavioral and Cognitive Therapies (ABCT), Dissemination and Implementation Special Interest Group Exposition, Philadelphia, PA.

Bose, D., Vaclavik, D., Buitron, V., Rey, Y., Silverman, W.K., & Pettit, J.W. (2019). Attentional control and threat-related attention bias partially explain the association between maternal psychological control and youth anxiety severity. *Cognitive Therapy and Research, 43*(2), 427-437.

Bose, D., Yaroslavsky, I., Rey, Y., Bechor, M., Bar-Haim, Y., Pine, D., Silverman, W.K., & Pettit, J.W. (November 2020). Trajectories of response to attention bias modification for youth anxiety. In D. Bose & A. Das (Chairs), *Cognitive Bias Modification: Novel Strategies to Improve Access and Outcomes in Children, Adolescents, and Adults.* Symposium presented at the 54th Annual Convention of the Association of Behavioral and Cognitive Therapies (ABCT). Virtual Convention.

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Park, A.L., Ebesutani, C., Bose, D., & Chorpita, B.F. (2016). Psychometric properties of a Spanish translation of the Revised Child Anxiety and Depression Scale – Parent version. *Journal of Psychopathology and Behavioral Assessment, 38*(2), 307-319.

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