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The Session-by-Session Association Between Therapeutic Alliance Ruptures and Outcomes in
Outpatient Psychotherapy

by

Elizabeth A. Penix

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Dr. Joshua Swift,
Major Advisor

Dr. Samuel Peer,
Committee Member

Dr. Chad Yates,
Graduate Faculty Representative

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The Session-by-Session Association Between Therapeutic Alliance Ruptures and Outcomes in
Outpatient Psychotherapy

Thesis Abstract – Idaho State University (2020)

This study examined alliance rupture event frequency, how ruptures were linked to next-session psychotherapy outcomes, and potential moderators of that link. Archival data from 12,711 outpatient counseling clients were used. Using control chart methods, ruptures occurred for 29% of clients and in 9% of sessions. Experiencing more ruptures overall (i.e., between-client effects) was linked with worse outcomes, but experiencing an individual rupture event (i.e., within-client effects) was linked with better outcomes. After accounting for rupture resolution, clients with more unresolved ruptures and fewer resolved ruptures overall reported worse outcomes. The within-client effects of unresolved and resolved ruptures were not linked with outcomes. Therapist experience, pre-treatment interpersonal functioning, sessions completed, and the alliance moderated the rupture-outcome link; number of presenting problems did not. Findings highlight the importance of examining the session-by-session rupture-outcome link, disaggregating the between- and within-client effects of ruptures, accounting for rupture resolution, and examining moderators.

Keywords: therapeutic alliance, ruptures, psychotherapy outcomes, control charts

The Session-by-Session Association Between Therapeutic Alliance Ruptures and Outcomes in Outpatient Psychotherapy

To-date, the therapeutic alliance is among the most well-studied and robust predictors of psychotherapy outcomes ($r = .28$, 95% confidence interval [.26-.30]; Flückiger, Del Re, Wampold, & Horvath, 2018). Specifically, the alliance refers to the emotional bond between clients and therapists, as well as their mutual agreement upon treatment goals and activities (Bordin, 1979). However, less research has examined how fluctuations in the alliance, or rupture events, may be linked with outcomes. Alliance ruptures occur when there are difficulties initially developing the alliance or when there are decreases in alliance quality that occur after the alliance had been initially established (e.g., Eubanks, Muran, & Safran, 2018; Safran & Muran, 1996, 2000). Studies examining the frequency of these events suggest that they can occur in 3% (Chen, Atzil-Slonim, Bar-Kalifa, Hasson-Ohayon, & Refaeli, 2018) to 100% of sessions (Colli & Lingardi, 2009); however, less is known about how ruptures that occur in one session may be linked with next-session outcomes, or what factors may moderate this link. This study addresses these gaps by examining (1) the frequency of ruptures among outpatient psychotherapy clients, (2) the session-by-session rupture-outcome association, and (3) moderators of this association.

Outcomes of Rupture Events

Rupture events can have a negative impact on clients' and therapists' experiences in psychotherapy (Coutinho, Ribeiro, Hill, & Safran, 2011). Specifically, ruptures have been linked with significantly lower alliance scores (Muran et al., 2009), decreased session quality (Muran et al., 2009), and poorer outcomes overall (Coutinho, Ribeiro, Fernandes, Sousa, & Safran, 2014; Muran et al., 2009), to a moderate degree (i.e., $r_s = -.32$ -.35; Muran et al., 2009). However, there has been some inconsistency in the rupture-outcome findings, with one study finding no

significant relation between the two (Strauss et al., 2006).

While much of the rupture research has focused on overall rupture-outcome association, fewer studies have examined the session-by-session association (Chen et al., 2018; Rubel, Zilcha-Mano, Feils-Klaus, & Lutz, 2018). Addressing this gap is an important consideration, however, given that a significant session-by-session link may have different implications for clinical practice. Whereas a non-significant session-by-session link suggests that therapists may have additional sessions to attend to rupture events before they influence client outcomes, a significant link instead suggests that therapists should address the rupture event as soon as possible. Results from existing session-by-session studies suggest that ruptures are linked with more negative next-session outcomes, although effect sizes were small (Chen et al., 2018; Rubel et al., 2018). Further, this link may depend on rupture measurement methods, rupture resolution, and other potential moderators which have yet to be studied (e.g., therapist experience, presenting problems, interpersonal functioning, sessions completed, and alliance level).

Measurement of Rupture Events

Several measurement methods have been used to study ruptures, including observer-based methods, direct client and/or therapist self-report of rupture events, and indirect methods examining alliance fluctuations (Eubanks, Muran, & Safran, 2010). Although observer-based methods may be more sensitive to ruptures than indirect self-report methods (Larsson, Björkman, Nilsson, Falkenström, & Holmqvist, 2018), they do not capture the client's perceptions of whether a rupture took place and tend to be expensive, time-consuming, and unavailable in routine practice (Lingiardi & Colli, 2015). Further, direct self-report methods require clients and/or therapists to incorporate additional measures into routine practice, which is less feasible in applied settings. In contrast, indirect self-report methods utilize alliance measures that may

already be routinely used by therapists, such as the Session Rating Scale 3.0 (Duncan et al., 2003) or the revised, shortened Working Alliance Inventory (WAI-SR; Hatcher & Gillaspay, 2006). Additionally, examining ruptures by utilizing alliance measures already incorporated in routine clinical practice may provide insight into how clinicians can directly incorporate findings and clinical recommendations into practice. Given these advantages, indirect methods may have the most utility in measuring ruptures in applied settings.

Researchers have used various measurement strategies to indirectly assess ruptures, such as arbitrary point differences on alliance scales (e.g., one-point decrease on the WAI; Larsson, Falkenström, Andersson, & Holmqvist, 2018; Stevens, Muran, Safran, Gorman, & Winston, 2007), sample standard deviations (McLaughlin, Keller, Feeny, Youngstrom, & Zoellner, 2014; Strauss et al., 2006), and control chart methods (Coutinho et al., 2014; Larsson, Björkman, et al., 2018). Specifically, control chart methods use an individual client's scores to distinguish between a variety of rupture types. For example, one study (Larsson, Björkman, et al., 2018) adapted existing guidelines for using Shewhart control chart methods (Eubanks-Carter, Gorman, & Muran, 2012) to identify ruptures as occurring when an individual score was lower than two standard deviations below their mean (*ones*), the alliance was any amount below their mean for three or more consecutive units of time (*runs*), or the downward shift in alliance scores crossed their mean score (*trends*). Eubanks and colleagues (2012) recommended the use of control chart methods because they do not rely on arbitrary point-differences on measures, account for individual clients' response styles, are sensitive to changes over time, and can be used by clinicians in real-time. However, few (Coutinho, Ribeiro, Sousa, et al., 2014; Larsson, Björkman, et al., 2018) have examined the use of control chart methods, and the utility of this method in applied settings remains unknown.

In addition, it may be important to distinguish between the between- and within-client effects of ruptures when examining the rupture-outcome association. In the context of alliance ruptures, the between-client effects investigate whether clients with more ruptures overall experience different outcomes than clients with fewer ruptures overall. In contrast, the within-client effects examine whether an individual will report different outcomes after experiencing a rupture compared to when they do not. To our knowledge, only one study has attempted to disaggregate the two (Rubel et al., 2018). In this study, the between- and within-client effects of unresolved ruptures were both significant: clients who experienced more ruptures reported worse next-session outcomes than clients with fewer ruptures ($\beta = .10$), and when clients experienced a rupture, they reported worse next-session outcomes than when they did not ($\beta = .06$). These results have important practice implications: significant between-client effects suggest that interventions should target clients with more ruptures overall, whereas significant within-client effects suggest that interventions should instead target individual clients when they experience a rupture event.

Moderators of the Rupture-Outcome Association

Examining how the relationships between ruptures and outcomes may differ depending on moderators can also inform when it may be most important for clinicians to attune to rupture events. To date, only a few moderators have been studied. Specifically, outcome expectations (Westra, Constantino, & Aviram, 2011) have been found to moderate the overall rupture-outcome association. In terms of the session-by-session link, one study found that therapist recognition of the rupture was a moderator (Chen et al., 2018), but another study did not (Rubel et al., 2018).

In addition, the rupture-outcome association may differ depending on whether the rupture was resolved. Specifically, ruptures are considered resolved when the emotional bond between

the client and therapist has been restored and when the client and therapist reach mutual agreement on psychotherapy activities and goals (Eubanks, Muran, & Safran, 2018). While some studies examining the rupture-outcome association have not distinguished between the effects of unresolved versus resolved ruptures (Chen et al., 2018; Westra et al., 2011), other studies have (McLaughlin et al., 2014; Muran et al., 2009; Rubel et al., 2018). This distinction may be an important consideration given that unresolved ruptures have been associated with more negative outcomes (McLaughlin et al., 2014; Rubel et al., 2018), but resolved ruptures have been associated with more positive outcomes (Gersh et al., 2017; Larsson, Falkenström, et al., 2018; McLaughlin et al., 2014; Strauss et al., 2006). There is also meta-analytic support for the positive association between rupture-repair episodes and outcomes ($r = .29$; Eubanks, Muran, & Safran, 2018), but the only study examining the session-by-session link found that repairs were not linked with outcomes (Rubel et al., 2018). Thus, it is unclear how the session-by-session rupture association may differ for unresolved and resolved ruptures.

Further, little is known about moderators of the associations between unresolved and resolved ruptures and subsequent psychotherapy outcomes. To our knowledge, moderators of the link between unresolved ruptures and outcomes remain untested. Meta-analytic findings suggest that studies measuring the rupture repair-outcome link early in treatment did not find a significant link, but studies measuring that link over the course of treatment did (Eubanks, Muran, & Safran, 2018). However, they also found that personality pathology, therapist experience, treatment type, length of treatment, research team, and rupture measurement method (e.g., observer, therapist, client), did not moderate the rupture repair-outcome association. Nevertheless, replication of these findings related to potential moderators (e.g., rupture events in early versus later treatment sessions, therapist experience) is warranted given that these methods

utilized between- rather than within-study comparisons to test those moderators.

It is possible, however, that other variables may also moderate the rupture-outcome association. For example, it may be that aspects of presenting problem severity (e.g., number of presenting problems), a moderator of the alliance-outcome association (Lorenzo-Luaces, DeRubeis, & Webb, 2014; Zilcha-Mano & Errázuriz, 2015), could also influence the rupture-outcome association. In addition, pre-treatment interpersonal functioning has been found to moderate the association between alliance-development patterns and outcomes (Zilcha-Mano & Errázuriz, 2017). Further, expert therapists account for the strength of the alliance at the time of a rupture event to inform rupture resolution strategies (Eubanks, Burckell, & Goldfried, 2018). Thus, it is possible that the alliance may subsequently influence the relationship between rupture events and their link with outcomes. Taken together, research is needed to evaluate potential moderators of the rupture-outcome association, including presenting problem severity, pre-treatment interpersonal functioning, and the alliance.

Present Study

In sum, few have examined the session-by-session effects of rupture on outcomes. Only one study (Rubel et al., 2018) has investigated the between- and within-client effects of ruptures on next-session outcomes. Rubel et al. similarly utilized a large sample of clients ($N = 1,210$) and therapists ($N = 147$) in an outpatient psychotherapy setting; however, they used direct measures of rupture events. Using indirect measures, however, may be an important consideration given that they may be better suited for use in applied settings. Client presenting problems (e.g., symptoms related to affective disorders) and the type of alliance (e.g., brief measures) and outcome (e.g., symptom distress) measures used were similar across studies. However, therapists in that study were given feedback about client-rated outcomes, alliance scores, and ruptures.

Therapists in the present study were trained on how to use client-rated outcomes and alliance scores in treatment but were not provided with direct feedback about whether ruptures occurred. Last, Rubel et al. did not test moderators of the session-by-session rupture-outcome association beyond therapist recognition of whether a client reported that a rupture occurred. Therefore, additional research is needed to replicate their findings regarding the session-by-session rupture-outcome association, as well as to evaluate other potential moderators of that association. Using archival data from an outpatient counseling center in Canada, this study therefore aimed to (1) examine rupture events using control chart methods, (2) evaluate the session-by-session rupture-outcome association while disaggregating the between- and within-client effects of ruptures, and (3) explore potential moderators (therapist experience, number of presenting problems, pre-treatment interpersonal functioning, sessions completed, and alliance) of these associations.

We did not have specific hypotheses about the frequency of ruptures in our sample. Without accounting for rupture resolution status, we did expect that clients who experienced more ruptures overall would report worse psychotherapy outcomes in the next session (i.e., between-client effects) and that an individual client who experienced a rupture would report more negative outcomes in the next session (i.e., within client effects). We expected similar results for unresolved ruptures. For resolved ruptures, we hypothesized that clients who experienced more ruptures overall would report better outcomes than clients with fewer ruptures (i.e., between-client effects), and that clients would report more positive outcome when they experienced a resolved rupture than when they did not (i.e., within-client effects). Last, we did not have specific hypotheses about how potential moderators may influence the session-by-session rupture-outcome association given limited research examining potential moderators.

Method

Participants

Clients. The [deleted for masked review] Institutional Review Board approved the use of archival data from adult clients ($N = 22,774$) who attended psychotherapy at an outpatient mental health clinic (Calgary Counseling Centre: <https://calgarycounselling.com/>) in Canada from 2013 to 2017. Clients provided their informed consent to have their data used for research purposes. From this larger dataset, clients' data were included in this study if they completed three or more sessions ($n = 12,711$). Three sessions were necessary given that the control chart method of assessing ruptures relies on having alliance scores from at least three sessions. Client demographic characteristics are provided in Table 1.

Therapists. At intake, clients were assigned to complete treatment with residents ($n = 4,596$, 36%), full-time counselors ($n = 3,849$, 30%), interns ($n = 3,733$, 29%), clinical supervisors ($n = 526$, 4%), contract staff ($n = 5$, < 1%), or volunteers ($n = 2$, < 1%). The 272 therapists ($M_{age} = 33.09$ years, $SD = 11.69$) primarily identified as female ($n = 216$, 79%; male: $n = 46$, 17%; not reported: $n = 10$, 4%) and as having educational training in psychology ($n = 171$, 63%; social work: $n = 52$, 19%; not reported: $n = 49$, 18%). At this counseling center, therapists were trained on how to incorporate results from clients completing an outcome measure (OQ-45.2) before sessions and an alliance measure (SRS) towards the end of sessions into routine practice. Clinic policy suggests that OQ-45.2 and SRS scores should be collected at each therapy visit.

Measures

Psychotherapy outcomes. The 45-item Outcome Questionnaire (OQ-45.2) was used to measure broad functioning (Lambert et al., 1996). OQ-45.2 subscales measure overall symptom distress (Symptom Distress subscale), quality of interpersonal functioning (Interpersonal Relations subscale), and social functioning at work or school (Social Role subscale). All items

were rated on a 5-point Likert Scale (0 = *Never* to 4 = *Almost Always*). For the total score (range: 0–180), Symptom Distress (range: 0–100), Interpersonal Relations (range: 0–44), and Social Role (range: 0–36) subscales, higher scores indicate greater impairment. A total score of 64 or above has been identified as being indicative of clinically significant distress. Given that this study used archival data for which individual item scores were not available, internal reliability estimates cannot be estimated; however, previous estimates of internal reliability and test-retest reliability in clinical samples have been good to excellent (Cronbach's $\alpha = .93$; test-retest reliability = $.84$; Lambert et al., 1996). Studies have also found support for the concurrent (Lambert et al., 1996; Umphress, Lambert, Smart, Barlow, & Clouse, 1997), construct (Beckstead et al., 2003; Umphress et al., 1997), and discriminant (Lambert et al., 1996) validity of the measure.

Therapeutic alliance. The Session Rating Scale 3.0 (SRS) is a 4-item alliance measure based on Bordin's (1979) conceptualization of the alliance (Duncan et al., 2003). The use of this brief measure is advantageous for applied settings given that it is short, cost-effective, easy to administer and interpret, and may be more likely to be used in routine clinical practice compared to longer alliance measures (Campbell & Hemsley, 2009; Duncan et al., 2003). Items are rated on a continuous scale from 1 to 10 and summed (ranging from 4 to 40), with higher scores reflecting a stronger alliance. Given that individual item scores were not available from this archival dataset, estimates of reliability for this measure also cannot be reported; however, Cronbach's alphas for the measure have been found to range from $.88$ – $.93$ by others (Campbell & Hemsley, 2009; Duncan et al., 2003). Studies have also found support for the measure's test-retest reliability, concurrent validity, and predictive validity (Campbell & Hemsley, 2009; Duncan et al., 2003; Miller, Duncan, Brown, Sorrell, & Chalk, 2006).

Analytic Strategy

Operationalizing rupture event types. The present study applied Shewhart control chart methods (Larsson, Björkman, et al., 2018) for identifying alliance ruptures (Eubanks-Carter et al., 2012). Specifically, ruptures could occur when an individual's session alliance score (i.e., SRS) was lower than two standard deviations below that individual's own mean alliance score (*ones*), the alliance score was any amount below the individual's mean for three or more consecutive sessions (*runs*), or the downward shift in alliance scores crossed the individual's mean score (*trends*). In terms of rupture repairs, *ones* were repaired when the alliance increased to within two standard deviations of the mean, *runs* were repaired when the alliance increased to above the mean, and *trends* were repaired when the alliance began to increase.

Between- and within-client effects. To examine the between-client effects of ruptures, the ratio between the number of sessions with ruptures and total number of sessions was calculated for each client (Rubel et al., 2018). A client with three ruptures in 10 sessions, for example, would have a score of 0.3. For the within-client effects, the between-client score was subtracted from 0 if no rupture occurred. If a rupture did occur, the ratio was subtracted from 1. Accounting for the between-client effects (i.e., subtracting the between-client ratio from 0 and 1) when calculating the within-client effects is necessary to ensure the disaggregation of different effect types (Rubel et al., 2018). Using the previous example of a client with three ruptures within 10 sessions, the within-client variable would be $0 - 0.3 = -0.3$ if a rupture did not occur and $1 - 0.3 = 0.7$ if a rupture did occur. This process for calculating the between- and within-client effects was used first to assess ruptures regardless of resolution status, and then to assess both unresolved and resolved ruptures in the data set.

Moderator variables. For therapist experience, therapists were categorized into trainee

(resident, interns) and experienced therapists (clinical supervisors, contract staff, and full-time counselors). The number of presenting concerns listed at the time of intake was coded as a continuous variable. Pre-treatment interpersonal functioning was measured using the OQ-45.2's Interpersonal Relations subscale score (Lambert et al., 1996) that was obtained at the client's intake session. The number of sessions completed was a continuous variable that assessed how many sessions had been attended at the time of the rupture event. The SRS score at the time of the rupture event was used to measure the alliance.

Statistical models. This study utilized previous methods for examining the session-by-session link between rupture events and outcomes (Rubel et al., 2018). Variables were standardized prior to conducting each model to obtain standardized regression coefficients (Baldwin, Imel, Braithwaite, & Atkins, 2014; Rubel et al., 2018). We examined whether the following were associated with ratings of outcomes (OQ) at the next session ($s+1$) from the client (c) treated by a particular therapist (t ; OQ_{s+1ct}): the psychotherapy outcome score from the previous session (OQ_{sct}), the within-client effects of a rupture ($WC_RUPTURE_{sct}$), the between-client effects of a rupture ($BC_RUPTURE_{ct}$), and an error term specific to each psychotherapy session (e_{sct}). To account for the nesting of clients within therapists and sessions within clients, random terms u_{00t} and r_{0ct} were included in the model, respectively (Rubel et al., 2018). Thus, the full multilevel model can be expressed as the following equation, where γ_{000} represents the overall grand mean for OQ-45.2 scores, γ_{100} represents the effect of outcomes in one session on outcomes in the next session (i.e., the autoregressive effects of outcomes), γ_{200} represents the within-client effects of ruptures, and γ_{010} represents the between-client effects:

$$OQ_{s+1ct} = (\gamma_{000} + u_{00t} + r_{0ct}) + \gamma_{100} * OQ_{sct} + \gamma_{200} * WC_RUPTURE_{sct} + \gamma_{010} * BC_RUPTURE_{ct} + e_{sct}$$

Taken together, these methods were used to examine the session-by-session link between (1) rupture events regardless of resolution status, (2) unresolved ruptures, and (3) resolved ruptures and next-session outcomes. Moderation analyses were conducted by examining each potential moderator's interaction with the between-client and within-client effects of ruptures.

Results

On average, clients completed 6.98 sessions ($SD = 5.66$, range: 3–94) and reported 1.52 ($SD = 0.66$, range: 1–3) presenting concerns at intake. The mean alliance rating for all sessions was 39.03 ($SD = 2.54$, range: 1–40). At intake, the average pre-treatment interpersonal functioning score was 18.89 ($SD = 6.92$, range: 0–43) and the average pre-treatment total OQ-45.2 score was 78.11 ($SD = 25.53$, range: 0–165).

Prevalence of Rupture Events

The first aim of this study was to examine the frequency of rupture events in the sample (Table 2). Overall, 3,717 (29%) clients experienced at least one rupture; however, only 6,129 (9%) of the sessions were characterized by any rupture event. Of those, 1,784 (29%) were unresolved and 4,345 (71%) were resolved. Out of the total number of sessions, 2,410 (4%) were characterized by a *ones* rupture ($n_{unresolved\ ruptures} = 289$, 12%; $n_{resolved\ ruptures} = 2,121$, 88%), 1,025 (1%) by a *runs* rupture ($n_{unresolved\ ruptures} = 479$, 47%; $n_{resolved\ ruptures} = 546$, 53%), and 3,364 (4%) by a *trends* rupture ($n_{unresolved\ ruptures} = 1,147$, 34%; $n_{resolved\ ruptures} = 2,217$, 66%).

Session-by-Session Link Between Rupture Events and Outcomes

The second aim of this study was to examine the session-by-session link between rupture events and outcomes. Given that the link was investigated first for any rupture event, and then separately for unresolved and resolved ruptures, the Bonferroni-corrected alpha level used was .017. After controlling for nesting and the OQ-45.2 score for a given session, the between-

($\beta = .03$, $SE = .00$, $p < .001$) and within-client effects ($\beta = -.01$, $SE = .00$, $p = .008$) of experiencing any type of rupture were significantly yet trivially linked with next-session outcomes. Specifically, clients reporting more ruptures overall had trivially more negative outcome scores for each session (i.e., between-client effects). In contrast, at an individual level, reporting a rupture for a given session was associated with trivially better next-session outcomes compared to reporting that a rupture did not occur for a given session (i.e., within-client effects). For unresolved ruptures, however, the between- ($\beta = .02$, $SE = .00$, $p < .001$) but not within-client effects ($\beta = -.01$, $SE = .00$, $p = .03$) of unresolved ruptures were significantly yet trivially linked with outcomes. Specifically, clients with more unresolved ruptures reported poorer outcomes compared to clients with trivially fewer unresolved ruptures. For resolved ruptures, the between- ($\beta = -.01$, $SE = .00$, $p < .001$) but not within-client effects ($\beta = .00$, $SE = .00$, $p = .12$) of resolved ruptures were significantly yet trivially linked with outcomes. In terms of the between-client effects, clients who reported more resolved ruptures reported trivially better outcomes.

Moderators of the Session-by-Session Link

The third aim of this study was to explore moderators of the rupture-outcome association. Given that each moderator was tested in separate models for unresolved and resolved ruptures, the Bonferroni-corrected alpha level used was .025.

Therapist experience. For unresolved ruptures, therapist experience did not interact with the between-client effects of unresolved ruptures on next-session outcomes ($\beta = -.01$, $SE = .01$, $p = .29$), but did interact significantly yet trivially with the within-client effects ($\beta = -.03$, $SE = .01$, $p < .001$). Specifically, when a client with an experienced therapist reported an unresolved rupture (i.e., within-client effects), they reported trivially better next-session outcomes. However, a client with a trainee therapist who experienced an unresolved rupture reported worse next-

session outcomes. Further, the three-way interaction between experience, between-client effects, and within-client effects was statistically significant, yet trivial in magnitude ($\beta = .01$, $SE = .00$, $p = .02$; Figure 1, panel a). Although clients with experienced therapists who reported an unresolved rupture experienced trivially better outcomes, clients reported a larger increase in outcomes after an unresolved rupture when they reported more unresolved ruptures overall compared to when they reported fewer unresolved ruptures. Clients with trainee therapists who reported an unresolved rupture reported worse outcomes, but clients with trainee therapists who had more unresolved ruptures overall reported a larger decrease in outcomes after an unresolved rupture than those who had fewer unresolved ruptures.

For resolved ruptures, therapist experience interacted with between-client effects of ruptures ($\beta = -.02$, $SE = .01$, $p = .003$): clients with more resolved ruptures overall reported better outcomes than clients with fewer resolved ruptures, but this effect was significantly yet trivially stronger for clients with experienced therapists as opposed to trainee therapists. Experience also significantly yet trivially moderated the association between the within-client effects of resolved ruptures and outcomes ($\beta = -.02$, $SE = 0.01$, $p < .001$), such that clients with experienced therapists reported better outcomes after a resolved rupture but clients with trainee therapists reported worse outcomes after a resolved rupture. The three-way interaction was significant, but trivial ($\beta = -.01$, $SE = .00$, $p = .02$; Figure 1, panel b). Specifically, clients with experienced therapists reported better outcomes after a resolved rupture, but clients with fewer resolved ruptures overall reported a larger increase in outcomes compared to clients with more resolved ruptures. This pattern differed for clients with trainee therapists: clients with trainee therapists and had more resolved ruptures overall reported a larger decrease in outcomes after a rupture than clients who had fewer resolved ruptures.

Number of presenting concerns. The number of presenting concerns did not interact with the between-client effects ($\beta = .00$, $SE = .00$, $p = .56$), within-client effects ($\beta = .00$, $SE = .00$, $p = .65$), or combination of between- and within-client effects ($\beta = .00$, $SE = .00$, $p = .13$) for unresolved ruptures. Similarly, the number of concerns did not interact with the between-client effects ($\beta = -.00$, $SE = .01$, $p = .56$), within-client effects ($\beta = .00$, $SE = .00$, $p = .58$), or combination of both effect types ($\beta = .00$, $SE = .00$, $p = .03$) for resolved ruptures.

Pre-treatment interpersonal functioning. Regarding unresolved ruptures, pre-treatment interpersonal functioning did not interact with the between-client effects ($\beta = .01$, $SE = .00$, $p = .15$) but did interact significantly yet trivially with the within-client effects ($\beta = .01$, $SE = 0.00$, $p = .02$; Figure 2, panel a). Specifically, clients with worse functioning reported poorer outcomes after an unresolved rupture. However, clients with better functioning reported better outcomes after a rupture. The three-way interaction was not significant ($\beta = .00$, $SE = 0.00$, $p = .44$).

Similarly, pre-treatment interpersonal functioning did not interact with the between-client effects of resolved ruptures ($\beta = .00$, $SE = .00$, $p = .42$) but did interact significantly yet trivially with the within-client effects ($\beta = .01$, $SE = .00$, $p = .02$; Figure 2, panel b). For clients with better functioning, experiencing a resolved rupture was linked with better outcomes. For clients with worse functioning, experiencing a resolved rupture was linked with worse outcomes. The three-way interaction was not significant ($\beta = .00$, $SE = .00$, $p = .49$).

Sessions completed. In terms of unresolved ruptures, the number of sessions completed at the time of the rupture interacted significantly yet trivially with the between- ($\beta = .01$, $SE = .00$, $p < .001$; Figure 3, panel a) but not within-client effects ($\beta = .00$, $SE = .00$, $p = .25$) of unresolved ruptures on outcomes. Specifically, clients with higher ratios of unresolved ruptures reported worse outcomes overall compared to clients with lower ratios. However, the effect of

having more unresolved ruptures overall was more pronounced for ruptures occurring later in treatment. There was not a three-way interaction ($\beta = .00$, $SE = .00$, $p = .63$).

For resolved ruptures, sessions completed did not interact with the between- ($\beta = -.01$, $SE = .00$, $p = .05$) or within-client effects ($\beta = .01$, $SE = .00$, $p = .03$) of resolved ruptures on outcomes. However, there was a significant yet trivial three-way interaction ($\beta = .02$, $SE = .01$, $p = .009$; Figure 3, panel b). For sessions occurring early in treatment, experiencing a resolved rupture was linked with better outcomes, but clients with fewer resolved ruptures overall reported a larger increase in outcomes after a rupture than clients with more resolved ruptures. For sessions occurring later in treatment, clients with fewer resolved ruptures reported worse outcomes after a resolved rupture. However, clients with more resolved ruptures reported better outcomes after a resolved rupture later in treatment.

Therapeutic alliance. Given that the distribution of alliance scores was negatively skewed, log-transformed scores were used. For unresolved ruptures, the interactions between the alliance and between-client effects ($\beta = .00$, $SE = .00$, $p = .19$) and within-client effects ($\beta = .00$, $SE = .00$, $p = .08$) were not significant. However, the three-way interaction was significant but trivial ($\beta = .00$, $SE = .00$, $p = .003$; Figure 4). Specifically, clients reported better outcomes after an unresolved rupture, but the clients who reported the greatest increase in outcomes after an unresolved rupture were those with lower alliance scores who reported few ruptures overall, followed by those with lower alliance scores and more ruptures overall, those with higher alliance scores and more ruptures overall, and then those with higher alliance scores and fewer ruptures overall.

In terms of resolved ruptures, the alliance did not interact with the between- ($\beta = .01$, $SE = .00$, $p = .03$) or within-client effects of ruptures ($\beta = .00$, $SE = .00$, $p = .05$). There was not a

significant three-way interaction between the alliance, between-client effects, and within-client effects ($\beta = .00$, $SE = .00$, $p = .87$).

Discussion

The first aim of this study was to examine the frequency of alliance ruptures in a large sample of clients engaged in psychotherapy at an outpatient counseling center. Using control chart methods and the SRS to indirectly examine whether ruptures occurred with a sample that primarily identified as European-Canadian and women, we found that 29% of clients experienced a rupture. Of the 9% of sessions characterized by ruptures, the majority were repaired in the next session. Similar frequencies of rupture events have been found in other studies using control chart methods (Larsson, Björkman, et al., 2018; Larsson, Falkenström, et al., 2018), other indirect self-report methods (Stiles et al., 2004), direct self-report of ruptures (Eames & Roth, 2000), and observer-based methods (Coutinho, Ribeiro, Sousa, et al., 2014). These results suggest that ruptures might be relatively infrequent events in some samples; however, rupture frequency may be higher for other samples (e.g., Colli & Lingardi, 2009). Nevertheless, control chart methods may be one way for therapists in applied setting to assess for rupture events, although additional research comparing measurement strategies is needed.

Session-by-Session Link Between Rupture Events and Outcomes

The second aim of the study was to examine whether rupture events were linked with next-session outcomes. Specifically, clients reporting more ruptures of any type reported worse outcomes (i.e., between-client effects). Unexpectedly, when an individual client experienced a rupture, that individual client reported better next-session outcomes compared to sessions that did not follow a rupture (i.e., within-client effects).

Given that the rupture-outcome association may differ depending on whether the rupture

was unresolved or resolved (Eubanks, Muran, & Safran, 2018; Rubel et al., 2018), the present study further differentiated between those two rupture types in our statistical models. For the between-client effects of unresolved ruptures, clients who reported more unresolved ruptures overall reported worse session-by-session outcomes. This pattern is consistent with previous session-by-session findings for the between-client effects of unresolved ruptures (Rubel et al., 2018) and the overall relationship between ruptures and outcomes (McLaughlin et al., 2014). However, the sizes for the between-client effects of unresolved ruptures were trivial in this study (β 's < .03) and small in the other session-by-session study (Rubel et al., 2018). Notably, these effect sizes are smaller than the effects of rupture events found elsewhere (e.g., Eubanks, Muran, & Safran, 2018; Muran et al., 2009). These effect sizes may be discrepant because the session-by-session studies control for same-session outcomes to mitigate autoregression, which may have decreased effect sizes for rupture effects as a result.

Unlike the between-client effects of unresolved ruptures, the within-client effects were not linked with next-session outcomes. This finding contradicts results from Rubel et al. (2018), who found that unresolved ruptures were linked with worse next-session outcomes. However, the effect sizes that they reported for the within-client effects were also smaller than the effect sizes that they reported for the between-client effects, which is similar to what the present study found. Nevertheless, it is unclear why the within-client effects of unresolved ruptures were not linked with next-session outcomes in our study. One explanation is that the two studies differed in terms of moderator variables (e.g., therapist experience, interpersonal functioning) that influenced the relationship between the within-client effects of unresolved ruptures and outcomes.

A similar pattern of effects emerged for resolved ruptures: whereas the between-client effects were significant but trivial, the within-client effects were not significant. Specifically,

clients who reported more resolved ruptures overall reported better outcomes. Although Rubel and colleagues did not find a link between the between-client effects of resolved ruptures and outcomes, the link that the present study found is consistent—in direction but not magnitude—with the meta-analytic association between resolved ruptures and overall outcomes (Eubanks, Muran, & Safran, 2018). However, the lack of association between the within-client effects of ruptures and outcomes is consistent with Rubel et al.'s findings. Thus, it may be that the cumulative effects of experiencing multiple resolved ruptures are more strongly linked to outcomes than the effects of experiencing a single resolved rupture.

Nevertheless, the trivial links between the between-client effects of unresolved and resolved ruptures suggest that monitoring those fluctuations using control chart methods may not be helpful for anticipating changes in outcomes at an individual level. It is possible that monitoring those alliance fluctuations are helpful at a clinic- or societal-level, instead. For example, if therapists at one clinic implement control chart methods to monitor alliance ruptures, those therapists may increase their attunement to rupture events. In turn, attunement has been found to mitigate the negative effects of ruptures on next-session outcomes (Chen et al., 2018), and clinic outcomes (e.g., symptom improvement, retention) may in turn improve. Thus, to better understand the utility of control chart methods, future studies may explore whether implementing control chart methods to assess rupture events may be linked with such outcomes.

Moderators of the Session-by-Session Link

The third aim of this study was to examine moderators of the rupture-outcome link, including (1) therapist experience, (2) number of presenting concerns, (3) pre-treatment interpersonal functioning, (4) sessions completed, and (5) the alliance. For all moderators, effect sizes were trivial even though they were statistically significant. This difficulty in detecting

moderator effects – even those that are based in theory – has been noted by other social science (e.g., McClelland & Judd, 1993) and treatment outcome researchers (e.g., Schneider, Arch, & Wolitzky-Taylor, 2015). Specifically, problems detecting moderator effects are especially likely among studies in applied versus experimental settings and among samples with more heterogeneity (McClelland & Judd, 1993; Schneider et al., 2015). These limitations likely apply to the present study, which utilized routinely collected data from an outpatient clinic and a sample of clients with a diverse range of presenting problems, respectively. As a result, some authors have suggested that even small effect sizes from applied studies can be meaningful (McClelland & Judd, 1993). Even though findings from the present study may be meaningful, they should be interpreted with caution.

First, clients with experienced therapists reported trivially better outcomes after unresolved and resolved ruptures. In contrast, clients with trainee therapists reported trivially worse next-session outcomes after reporting either rupture type. These results contradict findings from a meta-analysis that found experience was not a moderator of the resolved rupture-outcome link (Eubanks, Muran, & Safran, 2018). Contradictory findings may be a result of study methodology, as the meta-analysis utilized a between-study approach by comparing samples with trainee therapists to samples with experienced therapists, whereas the present study used within-study comparisons. It is unclear, however, why clients with trainee therapists experienced more difficulty with navigating ruptures in this study. Given that this center requires therapists to monitor alliance scores and outcomes, it may be that experienced therapists had more exposure to utilizing routine outcome monitoring skills – and therefore navigating changes in alliance and outcome scores – than trainee therapists.

Second, the number of presenting concerns at intake did not moderate the session-by-

session association for either unresolved or resolved ruptures. To our knowledge, we are the first to examine the number of concerns as a moderator of the rupture-outcome link. Other studies have examined the role of the severity of presenting concerns in predicting the alliance-outcome association, but it is unclear whether the alliance-outcome association is stronger for clients with less (Lorenzo-Luaces et al., 2014) or more severe symptoms (Lorenzo-Luaces et al., 2014; Zilcha-Mano & Errázuriz, 2015). Nevertheless, these findings suggest that therapists should equally attend to rupture events regardless of their clients' number of presenting concerns.

Third, clients' pre-treatment interpersonal functioning moderated the session-by-session rupture-outcome association for unresolved and resolved ruptures. After experiencing either rupture type, clients reporting better interpersonal functioning at intake experienced trivially better outcomes. In contrast, clients reporting poorer interpersonal functioning reported trivially worse outcomes after a rupture event. In line with these findings, Zilcha-Mano and Errázuriz (2017) found that the association between alliance development patterns and outcomes in the first three sessions may differ depending on interpersonal functioning. Although authors have suggested that therapists address clients' maladaptive interpersonal schemas during rupture events to lead to client change (Safran & Muran, 2000), findings from this study suggest that therapists should monitor outcomes after doing so, particularly for clients with impaired interpersonal functioning.

Fourth, we found that the rupture-outcome association differed depending on the number of sessions completed. Clients who reported more unresolved ruptures overall reported trivially worse outcomes later in treatment than they did earlier in treatment. In terms of resolved ruptures, clients reported trivially better outcomes after a rupture (1) early in treatment or (2) later in treatment among clients who reported more resolved ruptures overall. However, clients

who reported fewer resolved ruptures overall and experienced a resolved rupture later in treatment reported trivially worse next-session outcomes. Previously, only one meta-analysis examined the number of treatment sessions as a moderator and that study found that the link between more resolved ruptures and better overall outcomes was stronger later in treatment (Eubanks, Muran, & Safran, 2018). Findings from the present study suggest that the role of rupture timing in explaining next-session outcomes may be more complicated than those meta-analytic findings suggest and may require therapists to also attune to how frequently ruptures occur.

Last, the degree to which clients reported better outcomes after an unresolved rupture depended trivially on the alliance. Specifically, the clients who benefitted the most from an unresolved rupture in terms of outcomes were those with weaker alliances and fewer ruptures overall. However, the alliance did not moderate the rupture-outcome association for resolved ruptures. It is unknown why clients with lower alliance scores and fewer unresolved ruptures benefitted the most from an unresolved rupture. One possibility is that therapists may particularly notice when clients who have lower alliance levels and experience fewer ruptures overall then experience a rupture event. Even though the rupture may not be fully resolved in the next session, it may be that those clients who still return in the next session differ from other clients in terms of other variables linked to outcomes (e.g., greater outcome expectations).

Limitations

This study had a number of limitations. Given that the present study used control chart methods, only data from clients attending three or more sessions were used. This approach limits the generalizability of study findings to clients who attend therapy for one or two sessions. In addition, the parameters for control chart ruptures (e.g., two standard deviations below the mean

to detect a *ones* rupture, requirement for below-average alliance scores for three consecutive sessions to detect a *runs* rupture, decrease crossing the mean alliance score to detect a *trends* rupture) are arbitrary, and it is unknown how modifying those parameters may affect rupture measurement. However, control chart methods using alliance scores may be more feasible for use in applied settings and session-by-session methods provide more information about the immediate link between ruptures and outcomes. Given that the present study used data from an applied setting, it is likely that there were sessions for which clients did not complete the SRS or OQ-45.2 that were not reported in the dataset. Further, although therapists were trained to administer the OQ-45.2 and SRS in a similar fashion, the degree to which administration varied between therapists (e.g., discussion of both measures with clients) is unknown. Nevertheless, the use of this large dataset enhances the generalizability of study findings to other applied practice settings. Further, it is unclear whether variable time between sessions (e.g., 1 week, 2 weeks) may be a confounding factor. Additionally, this study used OQ-45.2 measures to assess outcomes; however, it is unclear how rupture events may also influence disorder-specific outcomes or treatment retention. There was also limited information available about therapists in this study and the client sample primarily consisted of individuals who identified as European-Canadian women. Thus, the generalizability of study findings to other therapists is unknown, and it is unclear whether findings apply to more diverse client populations. However, the use of a large sample suggests that findings may apply to different practice settings and treatment types.

Conclusions and Future Directions

This study was the first to utilize a large sample of outpatient psychotherapy clients to examine the frequency of rupture events using a brief alliance measure and control chart methods. These methods may be suitable for use in routine practice given that they are cost-

effective, utilize methods readily available to therapists in a range of settings, minimize the burden of implementing new measures into treatment, and are sensitive to alliance fluctuations that therapists can monitor in real time. However, the effect sizes corresponding to the associations between those fluctuations in the alliance and session-by-session outcomes were trivial. Thus, it is unclear whether monitoring alliance ruptures using control charts may help therapists attune to rupture events in order to anticipate changes in next-session outcomes.

In addition, more research is needed to determine the utility of incorporating control chart methods in practice. In the future, studies may more directly evaluate the utility of using control chart methods in routine practice (e.g., comparing process and outcome variables between clients who have therapists who do and do not use control chart methods to monitor ruptures). For example, therapists could use control chart methods by using a spreadsheet (e.g., in Microsoft Excel) to graph alliance scores over time, the mean alliance score, and two standard deviations below the mean. Therapists may then attune to those scores that are more than two standard deviations below the mean (i.e., *ones* rupture), scores below the mean for three or more consecutive sessions (i.e., *runs* rupture), and decreases in scores that cross the mean (i.e., *trends* rupture). Findings from this study suggest that those future studies may also evaluate whether therapists implementing these methods into practice should prioritize attending to clients who tend to have more unresolved ruptures overall (i.e., between-client effects) compared to individual rupture events (i.e., within-client effects). Results from this study's moderation analyses highlight how future research examining moderators of the rupture-outcome association is warranted, and studies may investigate whether therapists should attend to individual rupture events if they occur with trainee therapists, during sessions later in treatment, and with clients with poor interpersonal functioning.

Further investigating the link between ruptures measured using control chart methods and psychotherapy outcomes may have implications for clinical practice. In this study, clients with trainee therapists who experienced ruptures of any type reported trivially worse next-session outcomes. However, it is unclear how trainee and experienced therapists may differ in terms of their rupture resolution strategies, and how those differences may contribute to the impact of rupture events on client outcomes. To better understand this association, studies may identify differences in how therapists with varying degrees of experience navigate ruptures (e.g., use of outcome monitoring skills, direct discussion of ruptures with clients, leveraging outcome expectations) and whether those differences moderate the rupture-outcome association. Better understanding whether trainee therapists experience more difficulty navigating rupture events and identifying differences between trainee and experienced therapists could have important practice implications. For example, if trainee therapists were more likely to have difficulty navigating rupture events, those therapists and their supervisors may focus on processing those events and building rupture resolution skills during supervision.

Additionally, results from future studies examining moderators of the session-by-session rupture-outcome association can inform routine outcome monitoring efforts. For example, this study found that poor interpersonal functioning at intake was linked with trivially poorer outcomes after a rupture event. Thus, if future studies found that interpersonal functioning was a moderator, therapists may utilize outcome measures that also assess interpersonal functioning when incorporating routine outcome monitoring into practice. Similarly, the alliance was a trivial moderator in this study. Given future replication of this finding, it may be helpful for therapists to monitor both the total alliance score and rupture events. Thus, it may be advantageous for clinicians to use alliance measures to indirectly assess ruptures as opposed to utilizing only a

direct rupture measure, although additional research is needed (e.g., sensitivity to rupture events, feasibility in routine practice). Research evaluating the utility of these approaches can provide therapists with additional guidance for navigating session-by-session shifts in the alliance and outcomes.

Findings from the present study also highlight aspects of the session-by-session association that warrant further research. Specifically, this study found that the rupture-outcome association differed trivially depending on the type of effects (between- versus within-client effects) and rupture resolution status. Differences in effect sizes for the type of rupture effects and rupture resolution status were also found in another session-by-session study (Rubel et al., 2018). Thus, studies may further explore how differentiating between these constructs can influence the link between ruptures and outcomes. Whereas this study focused on ruptures in one session and how they related to next-session outcomes (i.e., lag +1), future studies may also investigate how rupture events are linked with same-session outcomes (i.e., lag 0) or previous session outcomes (e.g., lag -1). In addition, studies can examine whether rupture events are linked with the post-treatment maintenance of gains made in psychotherapy.

Last, future research identifying moderators of the rupture-outcome association may facilitate therapists' ability to tailor treatment to client needs. For example, pending further replication, findings from our study suggest that therapists may attune to potential negative outcomes after ruptures occur with: trainee therapists, clients with poor interpersonal functioning, clients with more unresolved ruptures who are in later treatment phases, and clients with few resolved ruptures who have a resolved rupture later in treatment. Additionally, therapists may anticipate better outcomes after ruptures occur with: experienced therapists, clients with better interpersonal functioning, clients in earlier treatment phases, clients with more

resolved ruptures who have a resolved rupture later in treatment, and clients with low alliance levels. Research evaluating other moderators can be used to further inform therapists' efforts to tailor rupture navigation strategies to client needs.

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Table 1

Demographics of Clients (N = 12,711) Attending Outpatient Psychotherapy in Canada

Characteristic	<i>n</i>	(%)
Gender		
Female	7,574	(60)
Male	4,945	(39)
Not specified	192	(1)
Race/Ethnicity		
Caucasian or European	9,123	(72)
South Asian (e.g., East Indian)	370	(3)
Latin American	266	(2)
Other	1,588	(12)
Not specified	1,364	(11)
Relationship status		
Single	5,193	(41)
Married	1,987	(16)
Separated or divorced	1,205	(10)
Common-law relationship	894	(7)
Other	819	(6)
Not specified	2,613	(21)
Highest educational degree		
Attended some high school	985	(8)
Graduated high school	1,773	(14)
Some college, technical school, or university	3,019	(23)
College or technical school	1,937	(15)
Undergraduate university	2,664	(21)
Graduate degree	902	(7)
Not specified	1,431	(11)
Employment		
Full-time	5,251	(41)
Part-time	1,626	(13)
Not employed, seeking work	1,556	(12)
Not employed, not seeking work	697	(6)
Full-time students	777	(6)
Other	1,550	(12)
Not specified	1,254	(10)
Presenting concerns		
Depression	2,859	(23)
Anxiety	2,588	(20)
Stress	2,265	(18)
Marital or other relationship problems	2,258	(18)
	<i>M</i>	(<i>SD</i>)
Age (years)	34.31	(11.60)
Total gross income (Canadian dollars)	\$43,373.83	(\$72,602.61)

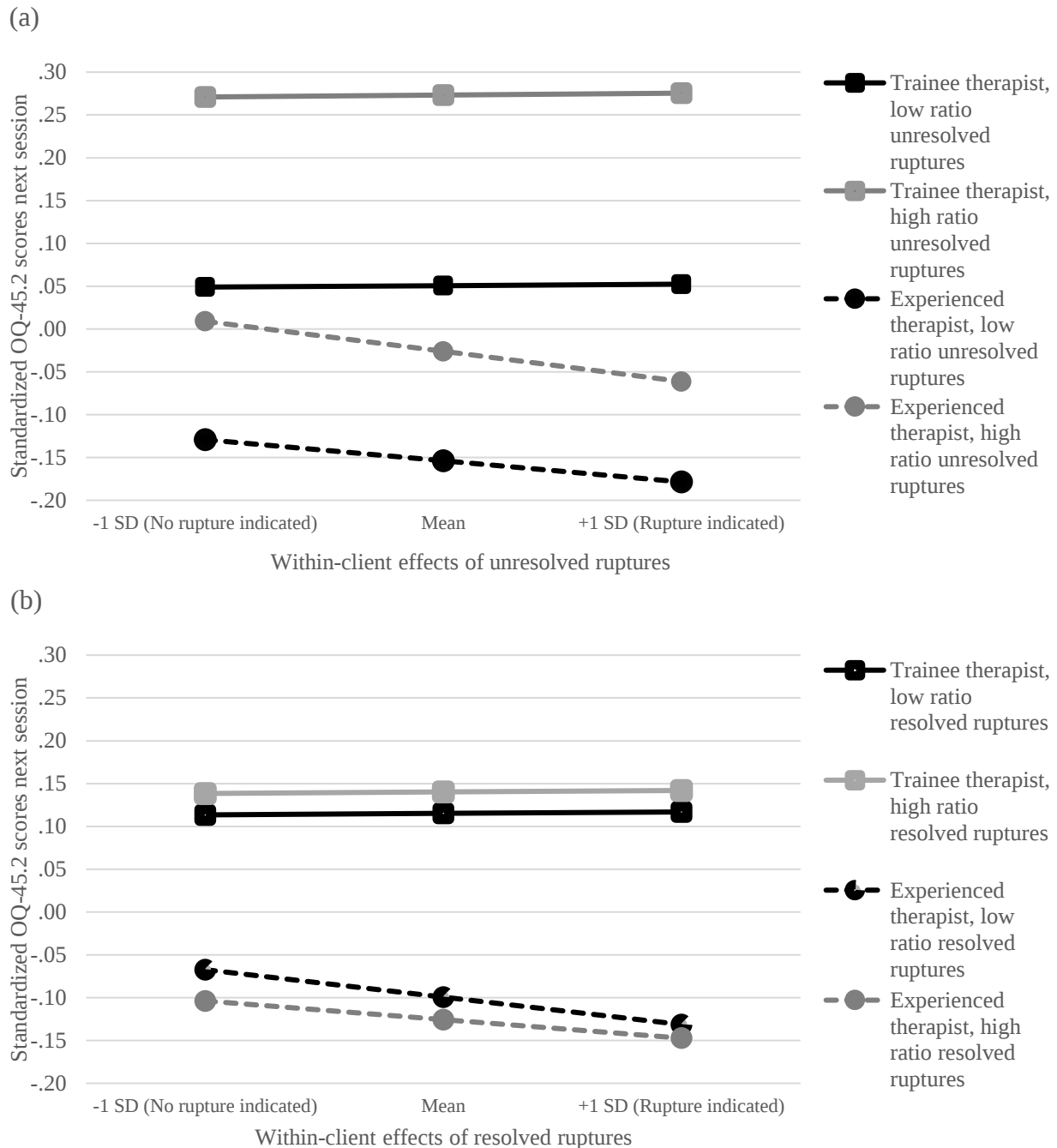


Figure 1. The relationship between unresolved (panel a) and resolved ruptures (panel b) and standardized, next-session OQ-45.2 scores differed depending on three-way interaction between the within-client effects of ruptures (i.e., whether a rupture was indicated for an individual client), between-client effects of ruptures (i.e., overall ratio of ruptures), and clinician experience. Lower predicted OQ-45.2 scores indicated better psychotherapy outcomes in the next session; higher within-client effects indicated that a rupture took place for an individual client.

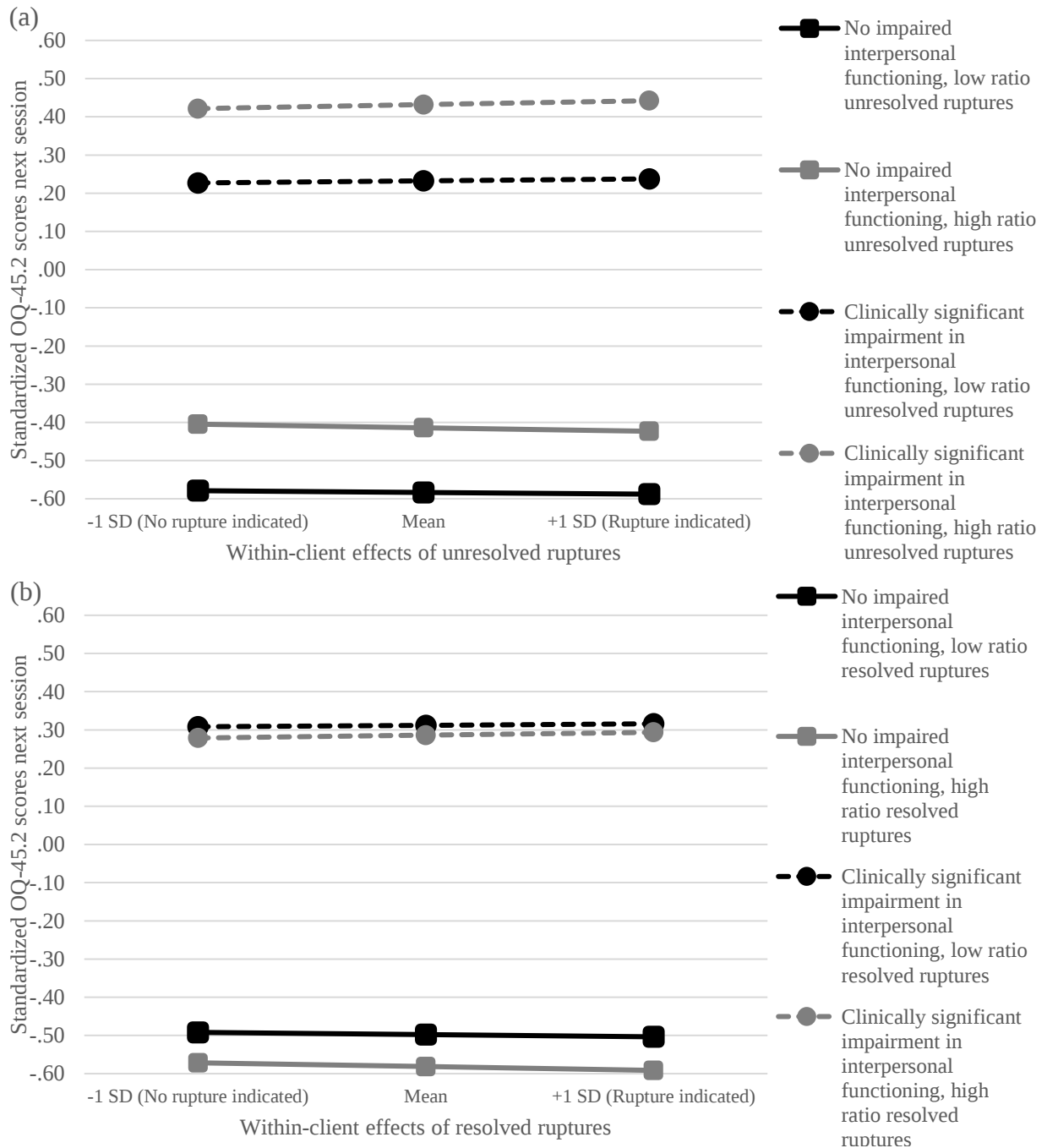


Figure 2. The relationship between unresolved (panel a) and resolved ruptures (panel b) and standardized, next-session OQ-45.2 scores differed depending on the interactions between pre-treatment interpersonal functioning and the within-client effects of ruptures. Lower predicted OQ-45.2 scores indicated better outcomes in the next session; higher within-client effects indicated that a rupture took place for an individual client. Clients were categorized into groups that did not have impaired interpersonal functioning (Interpersonal Relations score < 15) and groups that did (Interpersonal Relations score ≥ 15 ; Duncan et al., 2003).

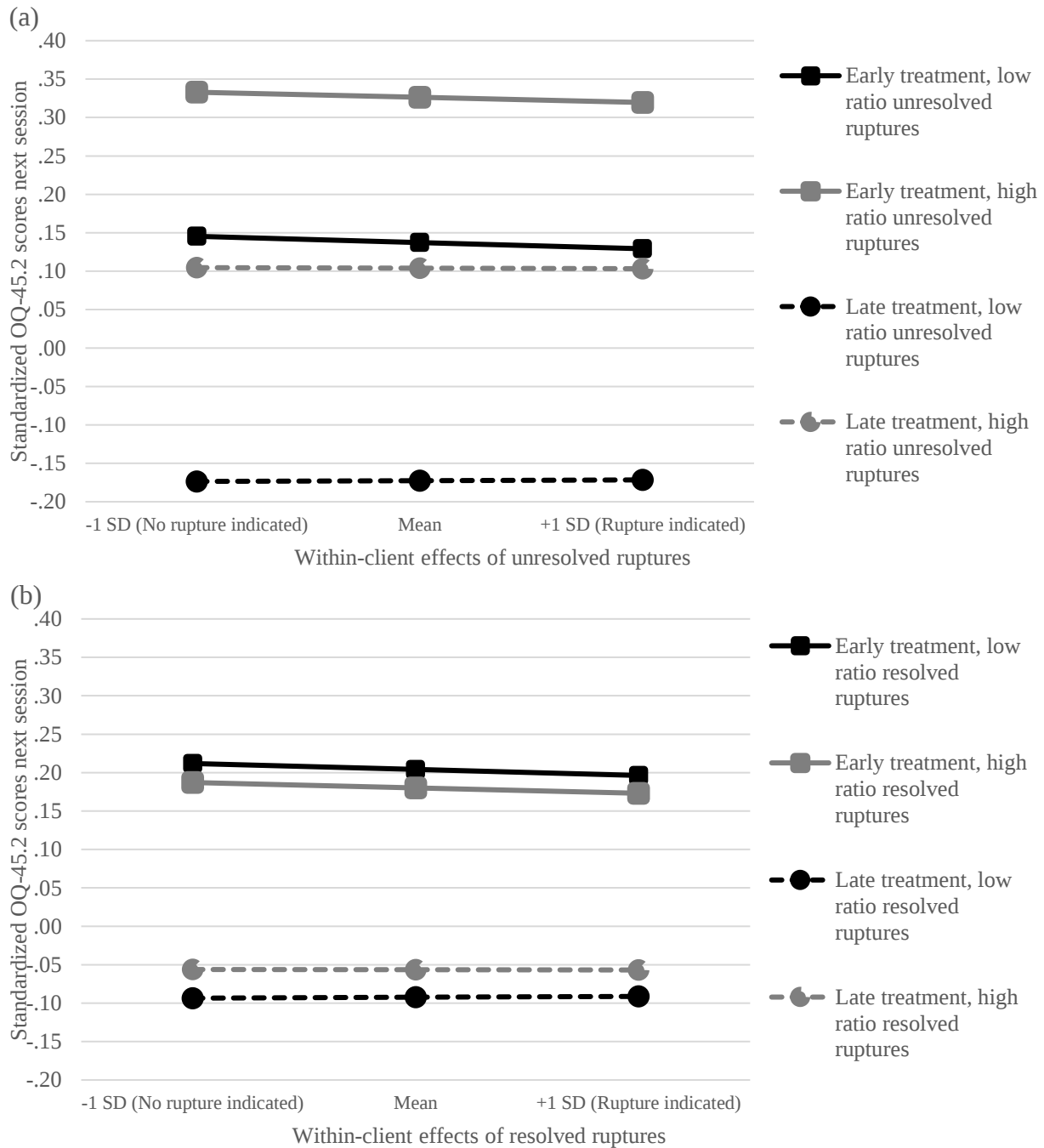


Figure 3. The relationship between unresolved ruptures (panel a) and standardized, next-session OQ-45.2 scores depended on the interaction between the sessions completed and the between-client effects of unresolved ruptures. The relationship between resolved ruptures (panel b) and OQ-45.2 scores differed depending on the interactions between within-client effects of ruptures, between-client effects of ruptures, and the number of sessions completed. Lower predicted OQ-45.2 scores indicated worse psychotherapy outcomes in the next session; higher within-client effects indicate that a rupture took place for an individual client. For interpretation, sessions were categorized into early treatment sessions (less than halfway through treatment) and late treatment sessions (greater than halfway) in the figure.

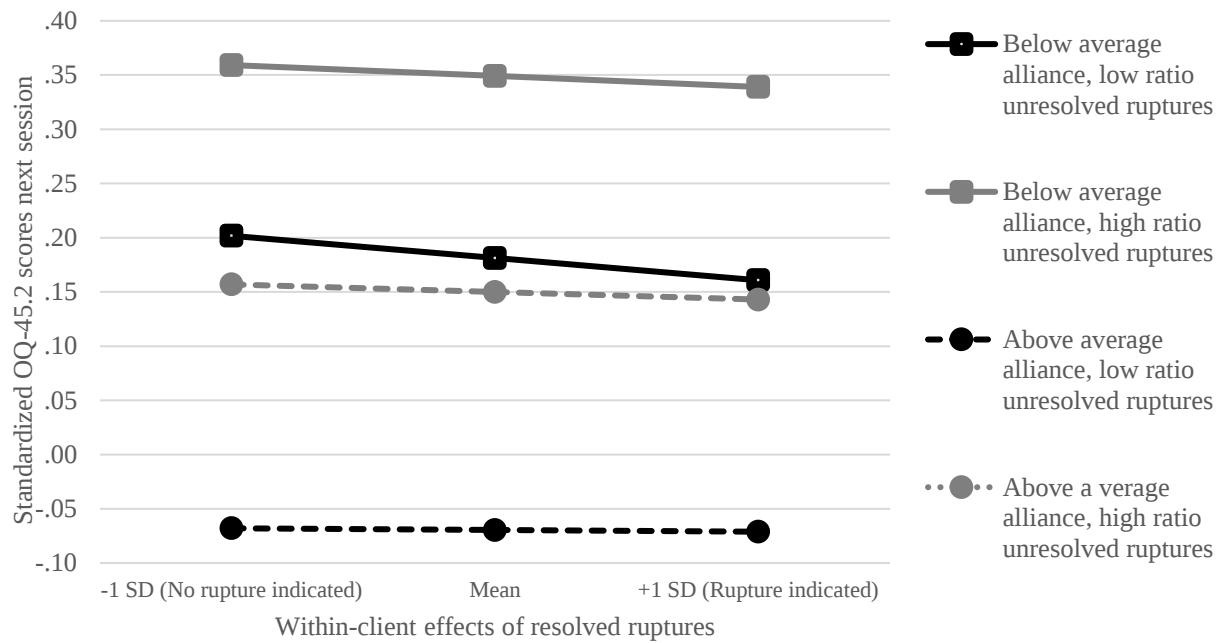


Figure 4. The relationship between resolved ruptures and standardized, next-session OQ-45.2 scores differed depending on within-client effects of ruptures (i.e., whether a rupture was indicated for an individual client), between-client effects of ruptures (i.e., overall ratio of ruptures for the client), and the strength of the alliance when the rupture occurred. Lower predicted OQ-45.2 scores indicated worse psychotherapy outcomes in the next session; higher within-client effects indicated that a rupture took place for an individual client. The alliance score for a given session was categorized into having either an alliance score for a given session that was either below or above that client’s mean alliance score for their course of treatment for interpretation purposes.

Appendix

Chapter I: Literature Review Introduction

Findings from meta-analytic studies suggest that psychotherapy is generally effective as a mental health intervention across a range of client populations (Bradley, Greene, Russ, Dutra, & Westen, 2005; Leichsenring & Leibing, 2003; Shadish, Matt, Navarro, & Phillips, 2000; Weisz, Weiss, Han, Granger, & Morton, 1995; Westen & Morrison, 2001). However, research also indicates that psychotherapy does not work for everyone (Lambert, 2013). For example, approximately one out of five clients prematurely discontinue treatment (Swift & Greenberg, 2012), which is associated with less positive treatment outcomes (Lampropoulos, 2010). In addition, many clients who complete a full course of psychotherapy continue to experience symptoms even after treatment completion (Bradley et al., 2005), and treatment gains may not be sustained in the long-term (Westen & Morrison, 2001). Further, it has been estimated that about 8% of clients will actually get worse while in treatment (Lambert, 2013).

Previous research has considered a range of approaches to further enhance psychotherapy effectiveness. One approach entails developing evidence-based treatments specific to one diagnosis that (1) are informed by underlying theoretical principles, (2) include a corresponding treatment manual, and (3) demonstrate efficacy in reducing symptoms in clinical trials (Chambless & Ollendick, 2001). A second method builds on this first protocol-specific approach by reviewing multiple disorder-specific evidence-based treatments and identifying the overlapping treatment techniques, or common elements, that are utilized across those treatment packages (e.g., exposure techniques, cognitive restructuring; Chorpita, Becker, & Daleiden, 2007; Chorpita, Daleiden, & Weisz, 2005). Whereas these first two approaches focus on psychotherapy techniques that target specific symptoms, a third approach includes examining

common factors that are associated with psychotherapy effectiveness regardless of psychotherapeutic approach or client diagnosis (Barth et al., 2012).

When considering the three approaches, the existing literature indicates that accounting for the common factors explains a greater amount of variance in psychotherapy outcomes than accounting for specific psychotherapy techniques (Lambert & Barley, 2001; Wampold & Imel, 2015). Among the common factors, the variable that has received the most attention in the psychotherapy research literature is the therapeutic alliance (Lambert & Barley, 2001). The therapeutic alliance has been defined as the emotional bond between the therapist and client, an agreement upon goals for psychotherapy, and an agreement upon the activities used to achieve those goals (Bordin, 1979). The existing research (reviewed below) suggests that the therapeutic alliance is a robust predictor of psychotherapy outcomes across a range of client populations (e.g., Flückiger, Del Re, Wampold, & Horvath, 2018; Horvath, Del Re, Flückiger, & Symonds, 2011).

Given the robust relationship between the therapeutic alliance and treatment outcomes, research has focused on further understanding and leveraging the alliance-outcome association to enhance psychotherapy effectiveness. For example, some have suggested that clinicians should incorporate certain characteristics (e.g., empathy, warmth, trustworthiness, honesty) and therapy techniques (e.g., reflection, highlighting previous psychotherapy success, focusing on the client's experience) that are associated with greater alliance quality into their practice (Ackerman & Hilsenroth, 2003). Others have developed a therapist training (Safran et al., 2014) and treatment package (brief relational therapy; Muran, Safran, Samstag, & Winston, 2005; Safran & Muran, 2000) that specifically target the therapeutic alliance to enhance outcomes. Also along these lines, reviewing and discussing client feedback, including information related to the therapeutic

alliance, has been associated with more positive psychotherapy outcomes (Lambert, Whipple, & Kleinstäuber, 2018). Thus, future research examining the alliance-outcome association may further inform a range of psychotherapy trainings and interventions that seek to improve clients' experiences in psychotherapy.

In summary, the therapeutic alliance has been identified as an important relational variable for psychotherapy (Flückiger et al., 2018) and efforts to further examine the alliance-outcome association may inform and enhance therapists' ability to use alliance-enhancing strategies in treatment (Eubanks, Muran, & Safran, 2018). Specifically, developing a better understanding of how fluctuations in the alliance relate to next-session outcomes provides a more comprehensive, dynamic understanding of the alliance-outcome. This approach provides greater insight into how clinicians should navigate such fluctuations in the alliance as well as inform clinical interventions that rely on monitoring changes in psychotherapy outcomes over time (e.g., routine outcome monitoring). Therefore, the present study aims to determine (1) the degree to which fluctuations in the therapeutic alliance occur among clients receiving services in outpatient psychotherapy, (2) the session-by-session link between alliance fluctuations and psychotherapy outcomes, and (3) factors that influence the strength of this link.

Chapter II: Literature Review

Conceptualizations of the Therapeutic Alliance

Definition. Definitions and writings on the therapeutic alliance date back to early psychoanalytic writings (e.g., Freud, 1913; Greenson, 1967; Menninger, 1958; Zetzel, 1956). For example, Freud (1913) first discussed the importance of the relationship between the client and therapist when he described the role and potential benefits of transference. Later psychoanalytic theorists further developed the field's understanding of the therapeutic alliance by differentiating

between transference and the collaborative nature of the therapist-client relationship (Greenson, 1967; Zetzel, 1956), which was coined the “alliance” (Sterba, 1934). In further developing the psychoanalytic understanding of the therapeutic alliance, Luborsky (1976) distinguished between two types of alliance development, including client beliefs about the helpful nature of the therapist-client relationship (Type I) and the therapeutic process (Type II). Early understandings of the therapeutic alliance were not exclusive to the psychoanalytic approach. For example, Carl Roger’s writings on client-centered therapy were also key in developing the field’s conceptualization for the therapeutic alliance. In his writings, Rogers (1951) emphasized how the therapist’s ability to embody empathy, congruence, and unconditional positive regard were essential elements to developing the alliance in psychotherapy.

The concept of the therapeutic alliance was later more broadly applied to psychotherapy by Bordin (1979) when he developed a pan-theoretical definition. According to this definition, the therapeutic alliance is characterized by three components: (1) the emotional bond between the therapist and client, (2) mutual agreement upon treatment goals, and (3) agreement upon the activities or tasks used to achieve those goals. This definition has been the most widely accepted and utilized conceptualization of the alliance in past 40 years of psychotherapy research (Flückiger et al., 2018).

In putting forth a definition of the therapeutic alliance, Bordin (1979) also proposed that the alliance is a core feature associated with psychotherapy change and effectiveness regardless of psychotherapy type. However, he acknowledged that the manner in which the therapeutic alliance is utilized in treatment may differ by psychotherapy type. Subsequent research has since evaluated this claim that there would be a significant relationship between the therapeutic alliance and outcomes (e.g., symptom improvement, retention in psychotherapy) regardless of

approach. Consistent with Bordin's (1979) pan-theoretical conceptualization, numerous meta-analyses encompassing a range of psychotherapy approaches have found a robust relationship between greater therapeutic alliance and more positive outcomes in psychotherapy with adult (e.g., Flückiger et al., 2018; Flückiger, Del Re, Wampold, Symonds, & Horvath, 2012; Horvath & Bedi, 2002; Horvath et al., 2011) and youth (e.g., Karver, Handelsman, Fields, & Bickman, 2006; McLeod, 2011; Shirk & Karver, 2003) clients. For example, a recent meta-analysis of over 295 studies found an overall correlation between the therapeutic alliance and adult psychotherapy outcomes that remained significant regardless of treatment approach, patient characteristics, country of origin, alliance rater perspective (e.g., patient, therapist, observer), and measures utilized (Flückiger et al., 2018). Although estimates of the effect size for the alliance-outcome association are relatively large for process and outcome research, the estimates are only moderate in size. Further, these estimates primarily rely on correlational data; thus, the causal nature of the alliance-outcome association is unknown. Notably, these studies are also limited in that they have primarily focused on outcomes as improvement in symptoms, functioning, and treatment retention (e.g., Flückiger et al., 2018); however, less is known about how the alliance may influence other outcomes such as the maintenance of gains made in therapy.

Trait- and state-like components of the alliance. More recently, researchers have distinguished between the trait- and state-like components of the therapeutic alliance when examining the alliance-outcome association (Zilcha-Mano, 2017). The trait-like component of the therapeutic alliance refers more broadly to the client's ability to develop relationships (Zilcha-Mano, 2017), and has been operationalized as the between-client effects of the alliance in previous alliance-outcome literature (Zilcha-Mano & Errázuriz, 2015). Specifically, this component refers to the effect of the alliance *between* clients (Baldwin, Wampold, & Imel, 2007)

and speaks to whether clients with greater alliance ratings obtain better psychotherapy outcomes compared to clients with lower alliance ratings.

Whereas the trait-like component of the therapeutic alliance refers more broadly to the client's ability to develop relationships, the state-like component refers to temporal fluctuations in the alliance for individual clients (Zilcha-Mano, 2017). The state-like component has been operationalized as the within-client effects of alliance on psychotherapy outcomes (Zilcha-Mano & Errázuriz, 2015). Examining the within-client effects of the alliance provides insight into whether therapists can modify the alliance with an individual client that will result in subsequent changes in that client's psychotherapy outcomes.

Previous studies that have evaluated the between and within-client effects of the alliance have found that both between (e.g., Crits-Christoph, Gibbons, Hamilton, Ring-Kurtz, & Gallop, 2011; Hoffart, Øktedalen, Langkaas, & Wampold, 2013; Zilcha-Mano & Errázuriz, 2015; Zilcha-Mano et al., 2016) and within-client effects (e.g., Crits-Christoph et al., 2011; Falkenström, Ekeblad, & Holmqvist, 2016; Falkenström, Granström, & Holmqvist, 2013; Hoffart et al., 2013; Marker, Comer, Abramova, & Kendall, 2013; Zilcha-Mano & Errázuriz, 2015; Zilcha-Mano et al., 2016; Zilcha-Mano et al., 2015) significantly predict psychotherapy outcomes. These findings that examine the within-client effects add to the previous literature by indicating that enhancing an individual's perceptions of the alliance results in more positive outcomes. Thus, the significant within-client effects of the alliance provide additional support for the potential clinical utility of training therapists to improve the therapeutic alliance with individual clients (Safran et al., 2014) and treatments that specifically target the therapeutic alliance (Muran et al., 2005; Safran & Muran, 2000).

Alliance-Outcome Association

Several meta-analyses examining the link between the therapeutic alliance and psychotherapy outcomes have found a robust relationship between the two (Flückiger et al., 2018; Flückiger et al., 2012; Horvath & Bedi, 2002; Horvath et al., 2011; Horvath & Symonds, 1991). For example, in one often-cited meta-analysis, Horvath et al. (2011) found a moderate effect of the alliance on psychotherapy outcomes ($r = .275$) using data from approximately 200 studies comprised of over 14,000 treatments. This effect size is among the strongest in the psychotherapy outcome literature (Wampold, 2001), this relationship persisted regardless of a number of factors. Specifically, the alliance-outcome association remained significant regardless of the therapeutic alliance measure used, the individual that rated the alliance (e.g., client, therapist, independent observer), the time at which the alliance was assessed, and publication type (Horvath et al., 2011).

Although Horvath and colleagues (2011) found no evidence that the alliance-outcome association varied by a number of measurement variables, others have suggested that the strength of the association may vary based on treatment variables – specifically, the type of psychotherapy provided. First, some researchers have argued that the alliance-outcome association may be less relevant to cognitive behavioral therapies (e.g., Feeley, DeRubeis, & Gelfand, 1999; Gaston, Thompson, Gallagher, Cournoyer, & Gagnon, 1998; Safran & Wallner, 1991). Although these treatments more strongly emphasize the collaborative aspect of the alliance compared to other treatments (Raue & Goldfried, 1994), cognitive behavioral therapies tend to specifically target other orientation-specific mechanisms of change (Castonguay, Constantino, McAleavey, & Goldfried, 2011) and view the alliance as a necessary but not sufficient mechanism of change (e.g., Beck, Rush, Shaw, & Emery, 1979; DeRubeis, Brotman,

& Gibbons, 2005; Friedberg & Gorman, 2007). Second, the strength of the alliance-outcome association may be greater for studies evaluating alliance-focused treatments or for studies led by alliance researchers, given that the degree to which a researcher aligns themselves with a particular treatment can influence clinical trial results (Luborsky et al., 1999; Wampold, 2001).

One meta-analysis examined both of these possibilities (Flückiger et al., 2012). Specifically, the authors found that the alliance-outcome association was significant regardless of whether a cognitive-behavioral therapy was used, which is also consistent with findings from a more recent meta-analysis (Flückiger et al., 2018). Further, although the strength of the alliance-outcome association was greater in the early phase of psychotherapy for studies conducted by alliance researchers (i.e., authors who published an alliance-related measure or evaluated treatments targeting the alliance), these differences became non-significant over the course of psychotherapy (Flückiger et al., 2012). Thus, the alliance is an important predictor of psychotherapy outcomes regardless of how specific psychotherapies leverage the therapeutic alliance to promote positive treatment outcomes.

More recently, Flückiger and colleagues (2018) expanded upon previous meta-analyses by including approximately 300 studies examining the alliance-outcome association in both face-to-face and Internet-based psychotherapy. The strength of the alliance-outcome associations were similar for both face-to-face ($r = .278$) and Internet-based ($r = .275$) delivery methods. In addition, the therapeutic alliance remained significantly associated with psychotherapy outcomes regardless of study methodology (e.g., study year, research design, alliance and outcome measures), psychotherapy type, and client diagnosis. Moreover, Flückiger et al. (2018) examined whether the strength of the alliance-outcome association differed depending on whether researchers did (i.e., partial correlations) or did not (i.e., zero-order correlations) control for

potentially confounding variables that could better explain the alliance-outcome association. The magnitude of the alliance-outcome association did not significantly differ depending on whether such characteristics were controlled for. This finding underscores the robust nature of the alliance-outcome association and also provides preliminary evidence countering suggestions that the alliance-outcome association may instead be better explained by increases in the alliance after early symptom changes or based on initial symptom severity (DeRubeis & Feeley, 1990).

Factors influencing the strength of the alliance-outcome association. Although the therapeutic alliance is a robust predictor of psychotherapy outcomes, meta-analyses of the alliance-outcome association have reported significant variability in this association (Flückiger et al., 2018; Flückiger et al., 2012; Horvath et al., 2011). This variability may be partially accounted for by other factors that influence the strength of the alliance-outcome association. Identifying these moderators of the alliance-outcome association may provide guidance for tailoring treatment to meet individual client needs (Zilcha-Mano & Errázuriz, 2015). Although previous research on moderators of the alliance-outcome association is limited (Zilcha-Mano & Errázuriz, 2015), studies have evaluated the influence of methodological, client, therapist, and treatment factors.

In terms of study methodology, the strength of the link between alliance and psychotherapy outcomes has not been found to differ by the type of research design employed (e.g., randomized controlled trials; Flückiger et al., 2018; Flückiger et al., 2012). Although the type of alliance measure used is not associated with the strength of the alliance-outcome relationship, the type of outcome measure used may influence the strength of that relationship (Flückiger et al., 2018). Specifically, Flückiger and colleagues found that studies using disorder-specific outcomes exhibited a smaller alliance-outcome association than studies using non-

specific measures, although others have not found this link (Flückiger et al., 2012; Martin, Garske, & Davis, 2000). Additional research examining the association between methodological factors and the alliance-outcome association may inform future research (e.g., study design, measure selection); however, identifying client, treatment, and therapist factors that moderate this association may be of greater clinical utility for tailoring treatment to individual clients (Zilcha-Mano & Errázuriz, 2015).

In terms of client factors, previous mental health history, diagnosis, and symptom severity may moderate the alliance-outcome association. Specifically, one study found that the alliance was associated with cognitive therapy outcomes for only clients who reported fewer than three previous depressive episodes (Lorenzo-Luaces, DeRubeis, & Webb, 2014). Conversely, clients with more severe symptoms tend to have larger alliance-outcome association than clients with less severe symptoms (Lorenzo-Luaces et al., 2014; Zilcha-Mano & Errázuriz, 2015). In addition to the severity of client concerns, the type of concerns experienced may also influence the strength of the alliance-outcome association. For example, personality-related symptoms have been linked to the strength of the alliance-outcome association (Falkenström et al., 2013). Findings from one meta-analysis further suggest that adults with substance use and eating disorders tend to have a smaller alliance-outcome association compared to adults with other mental health diagnoses (Flückiger et al., 2018). Additionally, another study found that the fluctuations in the therapeutic alliance from session-to-session were only associated with psychotherapy outcomes when the client reported greater life satisfaction for that session (Zilcha-Mano, Lipsitz, & Errázuriz, 2018).

Regarding therapist and treatment factors, several studies have found no relationship between therapist orientation and the strength of the alliance-outcome association (Falkenström

et al., 2013; Horvath et al., 2011; Zilcha-Mano & Errázuriz, 2015). However, the strength of the alliance-outcome association was greater when therapists were provided feedback on client ratings of the therapeutic alliance (Zilcha-Mano & Errázuriz, 2015), underscoring the potential clinical utility of routine outcome monitoring. Last, Zilcha-Mano and Errázuriz (2015) also found that the strength of the link between the therapeutic alliance and psychotherapy outcomes was greater for treatments with a longer duration.

Dyadic conceptualization of the alliance-outcome association. Although the alliance-outcome association persists regardless of alliance rater perspective (client, therapist, or observer), client and therapist ratings of the alliance often differ from one another (Atzil-Slonim et al., 2015; Bachelor & Salamé, 2000; Compare, Tasca, Lo Coco, & Kivlighan, 2016; Fitzpatrick, Iwakabe, & Stalikas, 2005; Kivlighan & Shaughnessy, 2000; Laws et al., 2017; Marmarosh & Kivlighan, 2012; Tryon, Blackwell, & Hammel, 2007; Zilcha-Mano et al., 2016). Previous research has operationalized agreement levels in alliance ratings in a number of ways, including: (1) the absolute (Fitzpatrick et al., 2005; Kivlighan, 2007; Zilcha-Mano et al., 2016) or relative (Atzil-Slonim et al., 2015; Chen, Rafaeli, et al., 2018; Compare et al., 2016; Fitzpatrick et al., 2005; Kivlighan & Marmarosh, 2018) discrepancy between client and therapist ratings; (2) the temporal congruence (i.e., correlation in ratings over time) between client and therapist ratings (Atzil-Slonim et al., 2015; Chen, Rafaeli, et al., 2018; Compare et al., 2016; Kivlighan & Marmarosh, 2018; Rozmarin et al., 2008); and (3) pooled sums of client and therapist alliance ratings (Zilcha-Mano et al., 2016). In addition to these three methods, others have used more sophisticated modeling techniques to examine agreement level, such as polynomial regression and response surface analysis (Marmarosh & Kivlighan, 2012; Zilcha-Mano et al., 2016).

In terms of overall agreement, clients and therapists typically rate the alliance positively (Atzil-Slonim et al., 2015); however, clients tend to rate the alliance more highly than therapists (Atzil-Slonim et al., 2015; Chen, Rafaeli, et al., 2018; Fitzpatrick et al., 2005; Tryon et al., 2007). One explanation for this underestimation effect is that therapists may be comparing the alliance with one client to alliance levels associated with other clients (Atzil-Slonim et al., 2015). Findings from one study provide preliminary support for this suggestion, as therapists tended to perceive an individual client's alliance ratings based on the overall group ratings of the alliance (Compare et al., 2016). Importantly, the therapist's ability to perceive the alliance with an individual client instead of basing perceptions on overall group alliance ratings was associated with more positive psychotherapy outcomes (Compare et al., 2016). It is also possible that clients are also comparing their alliance with their therapist to the alliance levels associated with other medical professionals (e.g., primary care physician) who are less likely to utilize a collaborative approach (Tryon et al., 2007).

Alternatively, Marmarosh and Kivlighan (2012) proposed that this underestimation effect corresponds with a "better safe than sorry" approach that may serve a protective function. Specifically, therapists who underestimate the alliance may be more likely to attune to and address potential ruptures in the therapeutic alliance, an ability which has in turn been found to moderate the relationship between alliance ruptures and negative psychotherapy outcomes in the next session (Chen, Atzil-Slonim, Bar-Kalifa, Hasson-Ohayon, & Refaeli, 2018). Moreover, one study found that greater discrepancy between client and therapist alliance ratings was associated with greater accuracy in tracking changes in clients' perceptions of the alliance over time (Atzil-Slonim et al., 2015). This "better safe than sorry" approach is also in line with the error management theory (Haselton & Buss, 2000), in which false-negative judgments (e.g., therapist

underestimation of the alliance) have fewer consequences (e.g., premature termination from psychotherapy) than false-positive judgments (e.g., therapist overestimation of the alliance) for certain settings. Thus, ascertaining client ratings of the alliance in psychotherapy may be one situation for which false-negative judgments are advantageous, as they may foster greater awareness of client perceptions of the alliance over time.

Studies examining the potential benefits of therapist attunement to client alliance ratings have found mixed results. For example, several studies have found that the discrepancy between therapist and client ratings of the alliance are not associated with psychotherapy outcomes (Fitzpatrick et al., 2005; Laws et al., 2017; Zilcha-Mano et al., 2016), whereas another study found that absolute discrepancy between ratings was associated with perceptions of psychotherapy session depth (Kivlighan, 2007). Further, one study that used polynomial regression and response surface analysis found that therapist and client agreement was associated with more positive psychotherapy outcomes (Marmarosh & Kivlighan, 2012); however, another study using similar methods found no association (Zilcha-Mano et al., 2016). Other studies found links between positive psychotherapy outcomes and greater convergence (Laws et al., 2017; Rozmarin et al., 2008) and higher pooled ratings of the alliance (i.e., when both the therapist and client perceived a positive therapeutic alliance; Zilcha-Mano et al., 2016).

Although additional research providing insight into these mixed results is needed, findings from these studies highlight therapist attunement to clients' alliance ratings as one potential target for enhancing psychotherapy effectiveness. Specifically, there is room for improvement in therapist attunement given that agreement levels vary (Atzil-Slonim et al., 2015) and that not all dyads' ratings of the alliance converge over the course of treatment (Fitzpatrick et al., 2005). Additionally, therapist variables, including therapist affiliation (Chen, Rafaeli, et

al., 2018) and therapist attachment style (Kivlighan & Marmarosh, 2018), moderate the discrepancy and congruence between client and therapist ratings of the alliance. Specifically, intervention efforts may specifically target these and other therapist variables that moderate agreement levels. Further, enhancing therapist attunement to clients' alliance development trajectories may also be helpful given that certain trajectories are associated with more positive treatment outcomes (Zilcha-Mano & Errázuriz, 2017). Research examining the link between alliance development trajectories and psychotherapy outcomes may provide therapists with additional insight into how certain patterns of change in the alliance (e.g., direction, rate of change, variability) may influence later alliance levels and psychotherapy outcomes.

Dynamic conceptualization of the alliance-outcome association. Historically, the alliance was measured as though it was a stable construct: many studies only examined the alliance at one psychotherapy session, typically the third (Horvath & Symonds, 1991; Kivlighan & Shaughnessy, 1995). This method has been criticized as arbitrary (Kivlighan & Shaughnessy, 1995), and examining alliance ratings over the course of multiple sessions has been shown to explain more variance in psychotherapy outcomes than using ratings from only one session (Crits-Christoph et al., 2011). More recently, researchers have increasingly recognized the importance of assessing the alliance as a dynamic construct by evaluating global patterns of alliance development (e.g., Smits, Stinckens, Luyckx, & Claes, 2016; Adler, Shahar, Dolev, & Zilcha-Mano, 2018; Zilcha-Mano, 2017; Zilcha-Mano & Errázuriz, 2017).

Gelso and Carter (1994) were the first to propose a model for the alliance that is consistent with this dynamic conceptualization of the alliance. Specifically, the alliance was thought to develop in a quadratic, high-low-high pattern. In other words, the alliance was thought to be relatively strong in early sessions, followed by a phase characterized by a weakened

alliance that is eventually strengthened in later sessions (Gelso & Carter, 1994). Although some studies have documented this high-low-high pattern (Kivlighan & Shaughnessy, 2000; Kramer, de Roten, Beretta, Michel, & Despland, 2009), others have not (Dinger, Strack, Sachsse, & Schauenburg, 2009; Kivlighan & Shaughnessy, 1995; Stevens, Muran, Safran, Gorman, & Winston, 2007; Stiles et al., 2004). One study found that only the emotional bond component of the therapeutic alliance followed this high-low-high pattern (Smits, Stinckens, Luyckx, & Claes, 2016), suggesting that developmental patterns may vary by alliance component (e.g., emotional bond, agreement on therapeutic tasks and approach).

In addition to this quadratic pattern, other studies have found a linear relationship between alliance ratings and treatment progression (Adler, Shahar, Dolev, & Zilcha-Mano, 2018; Kivlighan & Shaughnessy, 2000; Kramer et al., 2009; Stevens et al., 2007; Zilcha-Mano & Errázuriz, 2017). However, findings from one study indicate that there may be more than one type of linear developmental pattern. Specifically, Stevens and colleagues (2007) found two types of linear growth: individuals who experienced a steady increase in alliance ratings over time (linear-stable) and individuals who experienced an initial decrease in scores that later increased and stabilized later in treatment (late-linear). Although some clients experience linear increases in the alliance over time, other clients experience decreases in the alliance as therapy progresses (Hersoug, Høglend, Havik, & Monsen, 2010) or maintain a stable alliance over time (Hersoug et al., 2010; Kivlighan & Shaughnessy, 2000; Kramer et al., 2009; Stiles et al., 2004). In addition, other clients experience fluctuations in alliance ratings (Stevens et al., 2007; Stiles et al., 2004; Strauss et al., 2006; Zilcha-Mano & Errázuriz, 2017).

Accounting for trajectories of alliance development may be an important consideration, as several studies have found that certain trajectories are associated with greater psychotherapy

outcomes (Kivlighan & Shaughnessy, 1995; Kramer et al., 2009; Stevens et al., 2007; Zilcha-Mano & Errázuriz, 2017). Specifically, trajectories characterized by a linear relationship (Kivlighan & Shaughnessy, 1995; Kramer et al., 2009) and fluctuations in the alliance (Stiles et al., 2004; Strauss et al., 2006) have been associated with more positive outcomes. These fluctuations in alliance ratings are consistent with therapeutic alliance ruptures, which are characterized by disagreements between the client and therapist regarding specific components of the alliance (Safran & Muran, 2000). The repair of such ruptures has also been associated with more positive psychotherapy outcomes (Eubanks, Muran, & Safran, 2018), and this association is discussed in greater detail below.

Findings from Zilcha-Mano and Errázuriz (2017) suggest that other factors may moderate the association between alliance development trajectories and psychotherapy outcomes. Specifically, they found three patterns of early alliance development: a gradual increase in alliance ratings over time, a resolved rupture, and an unresolved rupture. Two of these patterns – gradual increase and resolved ruptures – were associated with better outcomes for clients with better baseline interpersonal functioning. The third pattern, unresolved ruptures early in treatment, was associated with better outcomes only for clients who reported greater interpersonal difficulties at baseline (Zilcha-Mano & Errázuriz, 2017). Although moderators of the relationships between alliance developmental patterns and subsequent outcomes are understudied, findings from this study highlight their potential importance in understanding the alliance-outcome relationship.

In addition to examining developmental trajectories over time, research has examined whether the strength of the alliance-outcome association varies over the course of psychotherapy. Studies have evaluated whether the association is greater in earlier versus later treatment

sessions. The alliance-outcome association may be particularly salient in earlier sessions given that the alliance rapidly develops within the first several sessions and may be clearly established by the third psychotherapy session (Despland, de Roten, Despars, Stigler, & Perry, 2001). Additionally, greater alliance scores early in treatment are associated with greater symptom gains (Strauss et al., 2006). However, findings from meta-analytic studies evaluating the alliance-outcome association in youth (McLeod, 2011; Shirk & Karver, 2003) and adult psychotherapy (Flückiger et al., 2018; Flückiger et al., 2012; Horvath et al., 2011) suggest that the alliance-outcome association may be stronger in later rather than earlier psychotherapy sessions. Previous studies have found decreases in the alliance mid-treatment (e.g., Eubanks-Carter, Gorman, & Muran, 2012; Kivlighan & Shaughnessy, 2000; Kramer et al., 2009). Thus, therapists' ability to resolve conflicts that occur in the middle and later sessions of psychotherapy may be a more critical predictor of overall psychotherapy outcomes than initial alliance ratings.

Therapeutic Alliance Ruptures

Definition. When Bordin (1979) introduced his conceptualization of the therapeutic alliance, he highlighted the importance of navigating conflicts that might negatively impact this aspect of the therapeutic relationship. Safran and colleagues (Safran, 1993; Safran & Muran, 1996, 2000) later expanded on this emphasis by introducing the concept of therapeutic alliance ruptures. Specifically, ruptures occur when the therapist experiences difficulty initially developing the therapeutic alliance or when there are decreases in therapeutic alliance quality that occur after the alliance had been initially established (Eubanks, Muran, & Safran, 2018; Safran & Muran, 1996, 2000; Samstag, Muran, & Safran, 2004). Additionally, alliance ruptures may be related to any of the three alliance components, including a lack of agreement on

treatment goals, lack of agreement on psychotherapy activities, or a strain in the emotional bond between the client and therapist (Eubanks, Muran, & Safran, 2018).

Two categories of client responses to rupture events have been proposed: confrontation and withdrawal ruptures (Safran & Muran, 1996, 2000). Confrontation ruptures are characterized by the client's active expression of dissatisfaction or negative sentiments (e.g., voicing complaints about therapy activities, refusing to accept therapist feedback). In contrast, withdrawal ruptures are characterized by the client's avoidance of engaging with emotions, the therapist, or therapeutic process (e.g., body language suggesting disengagement such as avoiding eye contact, talking about other topics to avoid a therapist's question). Ruptures may also present as a mixture of both confrontation and withdrawal ruptures (Safran & Muran, 2000).

Precipitating factors. To date, few studies have investigated causes of alliance ruptures. In one qualitative study that focused on clients diagnosed with personality disorders, participating clients reported a range of precipitating factors they perceived as leading to alliance ruptures (Coutinho, Ribeiro, Hill, & Safran, 2011). Clients who experienced both confrontation and withdrawal ruptures reported factors that included talking about emotionally distressing topics, negative feelings towards attending the session, or therapists' engagement in activities that the client did not agree with. Additionally, clients reported that challenges processing negative emotions and having unmet expectations regarding their therapists' interpersonal behaviors as other sources of ruptures. Those clients who specifically reported withdrawal ruptures also reported discussing interpersonal interactions with significant others (e.g., parents) as causes of ruptures (Coutinho et al., 2011). Although this study addresses a critical gap in the literature, additional research is needed to examine whether these results generalize to other client populations (e.g., clients without personality disorders, inpatient samples).

Prevalence. The prevalence of therapeutic alliance ruptures ranges from 3.2% (Chen, Atzil-Slonim, et al., 2018) to 100% (Colli & Lingardi, 2009). However, the prevalence of ruptures varies by a number of factors, including rupture type, method for identifying ruptures, and client characteristics. For example, clients may experience both type of ruptures (Sommerfeld, Orbach, Zim, & Mikulincer, 2008), but withdrawal ruptures tend to occur more frequently than confrontation ruptures (Coutinho, Ribeiro, Sousa, & Safran, 2014; Eubanks, Lubitz, Muran, & Safran, 2018; Larsson, Björkman, Nilsson, Falkenström, & Holmqvist, 2018; Sommerfeld et al., 2008). In terms of rupture identification methods, clients tend to report fewer ruptures than their therapists, although the effects of the clients' rupture ratings on outcomes were stronger than the effects of therapists' rupture ratings on client-reported outcomes (Rubel, Zilcha-Mano, Feils-Klaus, & Lutz, 2018). Thus, even though clients may be less likely to report ruptures than their therapist, their perceptions of the in-session ruptures better predict outcomes than their therapists' perceptions.

Additionally, previous studies have examined whether certain client characteristics are associated with a greater likelihood of experiencing alliance ruptures. For example, one study found that clients with a preoccupied attachment to their therapist were at greater risk of experiencing rupture events (Eames & Roth, 2000). In contrast, clients with a dismissing attachment to their therapists were less likely to experience rupture events (Eames & Roth, 2000). Another study found that clients diagnosed with personality disorders reported a greater intensity of alliance ruptures compared to clients without personality disorders (Tufekcioglu, Muran, Safran, & Winston, 2013). Taken together, these findings suggest that accounting for rupture characteristics, clients' perceptions of rupture events, and client characteristics are important considerations when examining therapeutic alliance ruptures.

Outcomes of rupture events. Although the limited research that exists suggests that precipitating factors for ruptures vary by client and context (Coutinho et al., 2011), clients have more universally reported that experiencing an alliance rupture is uncomfortable and distressing (Bartholomew, Gundel, & Scheel, 2017; Coutinho et al., 2011). Specifically, clients have reported that they felt sad, helpless, and confused after a rupture occurred (Coutinho et al., 2011). Clients who experience rupture events are also more likely to be disengaged from treatment, mistrust their therapists, become more distressed, and minimize their hope for successfully completing therapy (Bartholomew et al., 2017). Taken together, these findings underscore the importance of therapists' ability to navigate distressing rupture events.

Qualitative findings suggest that therapists also experience their own negative reactions to rupture events (Aspland, Llewelyn, Hardy, Barkham, & Stiles, 2008; Coutinho et al., 2011). Aspland and colleagues, for example, found that some therapists take rupture events personally, and experience anxiety when attempting to navigate those events. Another study found that therapists reported a range of reactions to rupture events, including feelings of confusion, guilt, incompetence, and tension (Coutinho et al., 2011). Thus, rupture events not only influence clients' experiences in therapy, but therapists' experiences as well.

Quantitative findings also highlight the potential negative impact of such events on the short- and long-term outcomes of psychotherapy. Specifically, ruptures that occur in one session have been associated with more negative psychotherapy outcomes in the next session (Chen, Atzil-Slonim et al., 2018; Rubel et al., 2018). Recently, Rubel and colleagues (2018) examined the between- (i.e., whether clients who experience ruptures report more negative outcomes compared to clients who do not) and within-client effects of ruptures (i.e., whether a rupture event for one client results in more negative outcomes for that client) on psychotherapy

outcomes in the next session. In their study, they used direct client- and therapist-report regarding whether ruptures occurred among a sample of therapy dyads attending outpatient psychotherapy. Specifically, they found significant between-client effects of ruptures on outcomes: individuals who experienced in-session ruptures reported worse psychotherapy outcomes at the next session compared to individuals who did not experience ruptures. Additionally, there were significant within-client effects of ruptures on outcomes: clients who experienced a rupture in one session later reported poorer psychotherapy outcomes in the next session (Rubel et al., 2018). Although these studies highlight the potential importance of considering therapeutic alliance ruptures on a session-by-session basis, limited studies have examined the rupture-outcome association using such methods.

Other studies have examined whether rupture events influence psychotherapy outcomes overall (e.g., Coutinho, Ribeiro, Fernandes, Sousa, & Safran, 2014; Muran et al., 2009; Strauss et al., 2006). One study found no association between ruptures and psychotherapy outcomes (Strauss et al., 2006). In contrast, another study found that reporting more intense rupture events was linked with lower therapeutic alliance scores, reduced session quality ratings, and lower interpersonal functioning scores (Muran et al., 2009). Results from Coutinho and colleagues (2014) also suggest that experiencing alliance ruptures may be associated with a greater likelihood of prematurely terminating psychotherapy.

Taken together, findings from qualitative and quantitative research indicate that therapeutic alliance ruptures may be negatively associated with both short- and long-term outcomes in psychotherapy. To date, most quantitative research has focused on the long-term outcomes of psychotherapy (e.g., Coutinho, Ribeiro, Fernandes, et al., 2014; Muran et al., 2009; Strauss et al., 2006). Although such findings highlight the need for clinicians to address ruptures

overall, those findings do not provide insight into how clinicians may navigate individual fluctuations in the therapeutic alliance that occur on a session-by-session basis. Findings from the few studies that do address the association between ruptures in one session and psychotherapy outcomes in the next session highlight the importance of considering rupture events on a session- rather than an overall treatment-level (Chen, Atzil-Slonim, et al., 2018; Rubel et al., 2018).

Rupture resolution. Given that rupture events can be distressing for both clients and therapists (Aspland et al., 2008; Bartholomew et al., 2017; Coutinho et al., 2011) and are linked to less positive psychotherapy outcomes (e.g., Rubel et al., 2018), addressing therapeutic alliance ruptures may be one method for improving clients' experiences in psychotherapy. Successfully resolving such rifts in the therapeutic alliance is thought to provide an emotionally corrective experience for clients (Safran, 1993). Specifically, rupture events are considered resolved when the emotional bond between the client and therapist has been restored and when the client and therapist resume collaborating to complete mutually agreed-upon psychotherapy activities and treatment goals (Eubanks, Muran, & Safran, 2018).

Although experiencing rupture events can lead to worse psychotherapy outcomes (Chen, Atzil-Slonim, et al., 2018; Muran et al., 2009; Rubel et al., 2018), the resolution of those events may improve clients' experiences within psychotherapy in the short and long term. One study found that therapist recognition of a rupture event in one session mitigated the risk of clients' experiencing more negative outcomes in the next session (Chen, Atzil-Slonim, et al., 2018). However, another study did not find a direct association between rupture resolution that occurred in one session and psychotherapy outcomes in the next session (Rubel et al., 2018). Thus, it

remains unclear whether resolving rupture events mitigates the potentially negative effects of rupture events on psychotherapy outcomes in the next session.

However, studies have more consistently found a positive association between repaired alliance ruptures and overall psychotherapy outcomes (Eubanks, Muran, & Safran, 2018; Gersh et al., 2017; Larsson, Falkenström, Andersson, & Holmqvist, 2018; McLaughlin, Keller, Feeny, Youngstrom, & Zoellner, 2014; Strauss et al., 2006), although some studies have not (Haugen, Werth, Foster, & Owen, 2017; Stevens et al., 2007). Meta-analyses examining this link have also found a positive association between rupture-repair episodes and psychotherapy outcomes (Eubanks, Muran, & Safran, 2018; Safran, Muran, & Eubanks-Carter, 2011). Together, these studies highlight the benefits of resolving rupture events overall.

Nevertheless, there are several limitations associated with the methods used for many of the studies examining the link between rupture resolution and outcomes. First, some studies (McLaughlin et al., 2014; Muran et al., 2009; Stevens et al., 2007; Strauss et al., 2006) focus only on the between-client effects (Zilcha-Mano & Errázuriz, 2015) of rupture-repair episodes and outcomes. In other words, they compared whether clients who experienced rupture-repair episodes reported better psychotherapy outcomes to clients who did not experience rupture-repair episodes. Within-client effects (Zilcha-Mano & Errázuriz, 2015) also constitute an important consideration, as they speak to whether rupture-repair episodes enhance psychotherapy outcomes for one individual client. Second, studies have primarily examined whether rupture-repair episodes enhanced psychotherapy outcomes overall (Eubanks, Muran, & Safran, 2018; Safran et al., 2011) without examining whether rupture-repair episodes enhanced psychotherapy outcomes on a session-by-session basis. To our knowledge, only one study has addressed both of these limitations by evaluating the session-by-session link between rupture resolution and

outcomes while disaggregating between- and within-client effects (Rubel et al., 2018). The finding that there was no link between rupture resolution and psychotherapy outcomes in that study – even after accounting for between- and within-client effects - contrasts the meta-analytic link between rupture-repair episodes and outcomes overall (Eubanks, Muran, & Safran, 2018; Safran et al., 2011). Resolving these contradictory findings would provide additional insight into how rupture events relate to clients’ individual experiences in psychotherapy and how therapists may navigate such events.

Factors affecting the strength of the rupture-outcome association. Few studies have examined whether client and therapist characteristics are associated with the rupture-outcome link (Chen, Atzil-Slonim, et al., 2018; Eubanks, Muran, & Safran, 2018; Westra, Constantino, & Aviram, 2011). In terms of client factors, one study found that outcome expectations mediated the relationship between alliance ruptures and post-treatment outcomes among clients diagnosed with generalized anxiety disorder (Westra et al., 2011). Although expert therapists reported that fostering client hope was not an effective means of resolving ruptures (Eubanks, Burckell, & Goldfried, 2018), these findings instead highlight the enhancement of outcome expectations as one potential strategy for rupture resolution (Bartholomew et al., 2017). Regarding therapist factors, whether the therapist realized that a rupture occurred in one session better accounted for variance in psychotherapy outcomes at the next session than whether a rupture occurred (Chen, Atzil-Slonim, et al., 2018).

Findings from a recent meta-analysis underscore the need to further identify additional moderators given the substantial heterogeneity in effect sizes when examining the link between rupture resolution and psychotherapy outcomes (Eubanks, Muran, & Safran, 2018). The authors found that several potential moderators, including client personality disorder, therapist

experience, treatment type (e.g., cognitive behavioral, psychodynamic), length of treatment, research team, and method used for rupture identification (e.g., observer, therapist, client), did not moderate the rupture repair-outcome association. The only significant moderator was the timing of measurement of the rupture repair-outcome association. Specifically, the association was not significant in studies measuring the association early in treatment but was significant in studies measuring the association across the course of treatment. The authors suggested the lack of significant moderators identified in this meta-analysis may be due to inadequate number of studies ($n = 11$) and thus power for detecting moderators (Eubanks, Muran, & Safran, 2018).

Taken together, few studies have examined moderators of the rupture-outcome association, and those studies that have been conducted have several limitations (Chen, Atzil-Slonim, et al., 2018; Eubanks, Muran, & Safran, 2018; Westra et al., 2011). First, the meta-analysis examining moderators of rupture resolution episodes and their association with psychotherapy outcomes examined moderators of the link between rupture repairs and psychotherapy outcomes (Eubanks, Muran, & Safran, 2018). It is unknown whether those findings apply to rupture events that remain unrepaired. This consideration may be important given that unresolved ruptures are associated with less positive psychotherapy outcomes compared to resolved ruptures (e.g., McLaughlin et al., 2014). Second, to our knowledge, only one study has examined moderators of the rupture-outcome association on a session-by-session basis (Chen, Atzil-Slonim, et al., 2018). However, examining moderators of the session-by-session rupture-outcome association is consistent with viewing the therapeutic alliance as a dynamic construct.

Addressing these gaps in the literature may also facilitate therapists' ability to use empirical findings from the literature to tailor their rupture resolution strategies to address client

needs. Specifically, preliminary findings suggest that therapists may already consider a variety of client and rupture characteristics when selecting rupture resolution strategies (Eubanks, Burckell & Goldfried, 2018). Thus, future research identifying factors that moderate the rupture-outcome association may provide an empirical basis for modifying resolution strategies for individual clients. For example, if the rupture-outcome association is stronger among clients with low therapeutic alliance scores, therapists may be particularly attentive to repairing rupture events with those clients. Further, given that existing rupture resolution trainings are largely ineffective (Eubanks, Muran, & Safran, 2018), identifying such moderators may provide insight into mechanisms for enhancing rupture resolution skills and intervention strategies. For example, if the strength of the rupture-outcome association is stronger for trainee therapists compared to experienced therapists, training programs and rupture interventions may focus on strengthening rupture resolution skills among less experienced therapists.

A number of potential moderators that may facilitate these efforts remain largely unexplored, including: therapist experience, presenting problem type, number of presenting problems, pre-treatment interpersonal functioning, number of sessions completed at the time of the rupture event, the strength of the therapeutic alliance, and whether the rupture was resolved. In terms of therapist experience, a recent meta-analysis found that trainee status did not moderate the link between rupture repair and psychotherapy outcomes overall (Eubanks, Muran, & Safran, 2018). However, this meta-analysis consisted of only 11 studies and did not examine the link between all rupture types and outcomes (e.g., unresolved ruptures). Findings from other studies highlight the potential importance of considering clinician experience when examining the rupture-outcome association on a session-by-session level (Chen, Atzil-Slonim, et al., 2018; Talbot, Ostiguy-Pion, Painchaud, Lafrance, & Descôteaux, 2019). Specifically, one study found

that trainee therapists were more accurate in detecting therapeutic alliance ruptures compared to more experienced mental health professionals (Talbot et al., 2019). This ability to detect whether ruptures occurred has been found to mitigate the potentially negative effects of alliance ruptures that occur in one session on psychotherapy outcomes in the next session (Chen, Atzil-Slonim, et al., 2018). Therefore, if trainee therapists are more attuned to ruptures than more experienced therapists, experience may also moderate the session-by-session rupture-outcome association.

Additionally, the client's type(s) of presenting problem may also influence the rupture-outcome link. Meta-analytic findings suggest that adults with substance use and eating disorders tend to have a smaller alliance-outcome association compared to adults with other mental health diagnoses (Flückiger et al., 2018); however, this association has not been examined in the context of the rupture-outcome association. Further, personality pathology may also moderate the rupture-outcome association. Specifically, previous findings indicate that greater personality pathology is linked with experiencing more intense rupture events in psychotherapy (Tufekcioglu et al., 2013). Although personality pathology has been found to moderate the strength of the association between the alliance and psychotherapy outcomes (Falkenström et al., 2013), personality pathology did not moderate the strength of the meta-analytic link between rupture repair and psychotherapy outcomes (Eubanks, Muran, & Safran, 2018). Overall, while preliminary findings are mixed, they highlight the importance of examining whether different types of presenting problems – including substance use, eating concerns, and personality pathology – may also moderate the rupture-outcome association on a session-by-session level.

The complexity of client concerns (e.g., comorbid diagnoses, more severe pathology) may also moderate the session-by-session rupture-outcome association. Although this link has not been examined in the context of the rupture-outcome association, some studies have

evaluated this link in the context of the overall alliance-outcome association (Lorenzo-Luaces et al., 2014; Zilcha-Mano & Errázuriz, 2015). On the one hand, findings from one study indicate that the alliance is associated with cognitive therapy outcomes for only clients who reported fewer than three previous depressive episodes (Lorenzo-Luaces et al., 2014). On the other hand, clients with more severe symptoms tend to have larger alliance-outcome association than clients with less severe symptoms (Lorenzo-Luaces et al., 2014; Zilcha-Mano & Errázuriz, 2015). Thus, it is not only unclear how the complexity of client concerns influences the alliance-outcome association, it is also unclear how such complexity influences the rupture-outcome association.

In addition to more complex presenting problems, preliminary findings from one study suggest that the relationship between ruptures and outcomes may vary depending on the client's level of pre-treatment interpersonal functioning (Zilcha-Mano & Errázuriz, 2017). These authors identified three different patterns of alliance development within the first three psychotherapy sessions, including a gradual increase in the alliance, a resolved rupture, and an unresolved rupture. For clients who reported better interpersonal functioning prior to treatment, experiencing a gradual increase in the alliance or a resolved rupture was linked with better psychotherapy outcomes. Counterintuitively, for clients who reported more severe impairment in interpersonal functioning, experiencing an unresolved rupture was associated with more positive psychotherapy outcomes (Zilcha-Mano & Errázuriz, 2017). Future research examining how interpersonal functioning interacts with the rupture-outcome association is needed to shed light on these findings.

The number of psychotherapy sessions completed may also moderate the rupture-outcome association. In the context of the alliance-outcome association more broadly, studies examining the association in early sessions have found smaller effect sizes than studies

examining the association in later sessions (Flückiger et al., 2018). Similarly, findings from a meta-analysis examining the link between rupture resolution and outcomes suggest that studies examining the link in early sessions have found smaller effect sizes than studies examining the link throughout psychotherapy (Eubanks, Muran, & Safran, 2018). Thus, the number of sessions completed may influence the strength of the association between rupture events in one session and outcomes in the next session.

Further, the strength of the therapeutic alliance may also influence the strength of the rupture-outcome association. Overall, clients may be more likely to voice their concerns within the context of a supportive therapeutic relationship (Binder & Strupp, 1997). Thus, it is possible that client-therapist dyads with a strong therapeutic alliance are more likely to successfully mitigate the risks associated with experiencing an alliance rupture by addressing potential concerns in session. Clients who have not developed a strong therapeutic alliance with their therapist may be less likely to discuss potential concerns, in turn increasing the likelihood of experiencing more negative outcomes as a result. Nevertheless, identifying the role of the existing therapeutic alliance in the rupture-outcome association is an important consideration given that therapists may use their assessment of the alliance to inform the rupture resolution strategies used with particular clients (Eubanks, Burckell, & Goldfried, 2018).

Last, the resolution of rupture events that occur in session may influence the way rupture events are associated with psychotherapy outcomes. As reviewed previously, unresolved ruptures are associated with negative psychotherapy outcomes (McLaughlin et al., 2014), whereas rupture repairs are associated with more positive psychotherapy outcomes (Eubanks, Muran, & Safran, 2018; Safran et al., 2011). Thus, compared to clients with no ruptures, those who experience unrepaired ruptures in one session may experience more negative outcomes in the next session;

compared to clients with no ruptures, those who experience repaired ruptures in one session may experience more positive outcomes in the next session.

Taken together, several factors may moderate the relationship between rupture events in one session and psychotherapy outcomes in the next session. Identifying these factors may provide evidence-based guidance for therapists and their supervisors as to when it may be particularly important to address rupture events that occur in session. Further, other clinics routinely collect client data on these proposed moderators (e.g., presenting problems, number of sessions completed, therapeutic alliance level). Examining whether these factors influence the strength of the rupture-outcome association may therefore provide clinicians and their supervisors with routinely-collected, objective data that can be used to inform how clinicians navigate ruptures in the therapeutic alliance. Thus, these moderators may provide more actionable guidance in clinical settings than other previously studied factors that are not routinely collected (e.g., outcome expectations).

Last, identifying moderators of the rupture-outcome association using variables that are routinely collected in applied clinical settings is consistent with recommendations for implementation and dissemination efforts in several ways: (1) minimizing time and financial burdens, (2) streamlining the data collection process, and (3) incorporating flexibility into implementation and dissemination efforts (Boswell, Kraus, Miller, & Lambert, 2015). First, identifying moderators that are already routinely collected from clients and their therapists decreases the need for therapists to administer additional measures to their clients. This advantage minimizes the potential time burden placed on clients (e.g., completing measures) and therapists (e.g., administration, scoring, presenting results). In addition, the utilization of existing infrastructure (e.g., electronic medical records systems) minimizes the potential financial and

administrative burdens (e.g., printing costs, modification of existing monitoring systems) placed on clinics. Second, the utilization of existing infrastructure also streamlines the collection of data for clients and their therapists. Third, Boswell and colleagues (2015) advocate for flexibility in order to accommodate client, therapist, and clinic needs. Identifying moderators of the rupture-outcome association may facilitate this flexibility when implementing and disseminating techniques for incorporating alliance assessment and routine outcome monitoring into practice. Specifically, identifying significant moderators adds to therapist judgment by alerting therapists to when they should be particularly attentive to rupture events that occur in session. Facilitating therapists' ability to prioritize such events in a flexible manner acknowledges that therapists may not always be able to consistently implement techniques with their clients given the barriers to uptake therapists routinely navigate in such applied settings (e.g., addressing disclosures that take place at the end of a session, client resistance to participating in the assessment of the alliance or routine outcome monitoring).

In summary, little is known about how alliance rupture events that occur in one session may be associated with changes in psychotherapy outcomes in the next session. Additionally, few studies have identified factors that may influence the strength of this association. Addressing these gaps in the literature may facilitate the provision of evidence-based guidance available to therapists and their supervisors who navigate such session-to-session fluctuations in the alliance, enhance alliance rupture resolution trainings, and facilitate implementation and dissemination efforts.

Chapter III: Measurement Strategies

Psychotherapy Outcomes

The 45-item Outcome Questionnaire (OQ-45.2) is a self-report measure of broad functioning that was developed to assess the effectiveness of mental health interventions over time in adult populations (Lambert et al., 1996). Items assessing overall symptom distress (Symptom Distress subscale), quality of interpersonal relationships (Interpersonal Relations subscale), and social functioning (Social Role subscale) are rated on a 5-point Likert Scale (0 = *Never* to 4 = *Almost Always*); total scores range from 0-180 with higher scores indicating greater impairment. Cronbach's alpha for total scores was .93 for clinical samples; test-retest reliability was .84 (Lambert et al., 1996). In a clinical sample, the internal consistency and test-retest reliability were also adequate for the Symptom Distress subscale (Cronbach's alpha = .92; $r = .91$), Interpersonal Relations subscale (Cronbach's alpha = .74; $r = .74$), and Social Role subscale (Cronbach's alpha = .70; $r = .71$; Lambert et al., 1996).

Moreover, the OQ-45.2 is sensitive to changes in distress over time (Lambert et al., 1996), which facilitates the use of the OQ-45.2 for routine outcome monitoring and researching changes in psychotherapy outcomes over time. Additionally, several studies have found support for the concurrent (Boswell, White, Sims, Harrist, & Romans, 2013; Lambert et al., 1996; Umphress, Lambert, Smart, Barlow, & Clouse, 1997), construct (Beckstead et al., 2003; Umphress et al., 1997), and discriminant (Lambert et al., 1996) validity of the measure.

The OQ-45 has been previously used in clinical practice settings (Lambert et al., 1996; Umphress et al., 1997). In one survey, the OQ-45 was among the most frequently used standardized measure of psychotherapy outcome in clinical practice (Hatfield & Ogles, 2004). The OQ-45 has also been used in psychotherapy process and outcome research, including studies

examining on the alliance-outcome association (Flückiger et al., 2018). Taken together, the OQ-45 is an ideal candidate for assessing outcomes over time in a non-disorder-specific psychotherapy setting given that the measure assesses overall distress, has adequate psychometric properties, is sensitive to change over time, and has been consistently used in clinical and research settings.

Therapeutic Alliance

Johnson (1995) developed the original 10-item Session Rating Scale (SRS) as a brief measure for assessing the therapeutic alliance in clinical settings. That version was later shortened to a 4-item visual analog scale (SRS 3.0) for which each item is rated on a continuous scale from 1-10 (Duncan et al., 2003). Individual items are summed (ranging from 4-40); higher scores reflect a stronger therapeutic alliance. Items are based on Bordin's (1979) conceptualization of the alliance and assess the therapist-client bond (i.e., "I felt heard, understood, and respected"), agreement on pertinent psychotherapy goals and tasks (i.e., "We worked on or talked about what I wanted to work on or talk about" & "The therapist's approach is a good fit for me"), and overall assessment of the psychotherapy session (i.e., "Overall, today's session was right for me").

In terms of reliability, Cronbach's alphas for the measure have been found to range from .88-.93 (Campbell & Hemsley, 2009; Duncan et al., 2003). Previous studies have also found support for the test-retest reliability (Duncan et al., 2003; Miller, Duncan, Brown, Sorrell, & Chalk, 2006) and concurrent validity (Campbell & Hemsley, 2009; Duncan et al., 2003) of the measure. Additionally, SRS 3.0 scores have been correlated with measures of psychotherapy outcomes (predictive validity) in previous research (Anker, Owen, Duncan, & Sparks, 2010; Campbell & Hemsley, 2009; Duncan et al., 2003; Miller et al., 2006).

Although SRS 3.0 scores have been correlated with other measures of the alliance (Campbell & Hemsley, 2009; Duncan et al., 2003), there are several advantages associated with utilizing the SRS 3.0, a brief alliance measure. Most clinicians are unlikely to use measures that require greater than five minutes to administer, score, and interpret (Brown, Dreis, & Nace, 1999). For example, Duncan and colleagues (2003) found that 96% of clinicians who used the SRS 3.0 incorporated the measure into practice, whereas only 29% of clinicians who used the longer Working Alliance Inventory (Horvath & Greenberg, 1989) incorporated the measure into practice. Additionally, the SRS 3.0 is cost-effective and easy to administer and interpret (Campbell & Hemsley, 2009). Finally, by conducting research with measures that are more likely to be used in clinical settings, therapists may be more likely to perceive study findings and clinical recommendations as relevant to their own practice.

Alliance Rupture Operationalization

Alliance rupture operationalization. Eubanks-Carter, Muran, and Safran (2010) identified three methods for assessing therapeutic alliance ruptures: (1) observer-based methods, (2) direct self-report, and (3) indirect self-report. For observer-based methods, external raters evaluate session content for the presence of alliance ruptures (e.g., Colli & Lingardi, 2009; Larsson, Björkman, et al., 2018; Sommerfeld et al., 2008). This method identifies ruptures that the client or therapist may not be aware of, and one study found that observer-based methods were more sensitive to ruptures than indirect self-report methods (Larsson, Björkman, et al., 2018). However, observer-based methods do not capture the client's internal experience of ruptures that may not be observable to an external rater. Additionally, observer-based methods are expensive, time-consuming, and typically unavailable to therapists in applied settings (Lingardi & Colli, 2015).

Regarding direct self-report methods, clients (Eames & Roth, 2000; Muran et al., 2009; Sommerfeld et al., 2008) and/or therapists (Eames & Roth, 2000; Muran et al., 2009) complete measures directly assessing the presence, type, and perceptions of ruptures that occurred in session. Unlike self-report methods that directly assess ruptures, indirect self-report methods identify ruptures by examining fluctuations in therapeutic alliance measures (e.g., Larsson, Björkman, et al., 2018; Larsson, Falkenström, et al., 2018; Stevens et al., 2007; Stiles et al., 2004; Strauss et al., 2006). Although indirect self-report methods may overlook detailed events that occurred in session, these methods utilize measures that may already be routinely used by therapists (e.g., WAI, SRS 3.0), minimizing the potential client and therapist burden associated with incorporating a new measure into routine practice. Additionally, examining ruptures and rupture resolution processes with measures frequently used by clinicians may provide insight into how clinicians can directly incorporate findings and clinical recommendations into practice (e.g., how to monitor ruptures using client self-report methods on the SRS 3.0). Thus, the present study uses indirect self-report methods to examine alliance ruptures and resolution in an archival dataset.

Studies using indirect self-report methods (Larsson, Björkman, et al., 2018; Larsson, Falkenström, et al., 2018; Stevens et al., 2007; Stiles et al., 2004; Strauss et al., 2006) have varied in how they have utilized these measures to identify ruptures in the therapeutic alliance. Specifically, Eubanks-Carter, Gorman, and Muran (2012) identified four possible approaches for assessing alliance ruptures: partitioning methods, regression methods, criterion-based methods, and control charts. Partitioning methods evaluate significant shifts in alliance levels by identifying clusters of data with approximately the same mean, whereas regression methods evaluate significant shifts by examining changes in slope (Eubanks-Carter et al., 2012). Although

both of these methods are slightly less sensitive to outliers than other methods, the intensive calculations required preclude these methods from being used to monitor changes in the alliance in real-time and in clinical settings (Eubanks-Carter et al., 2012). Additionally, to our knowledge, these methods have not been used in the literature to examine therapeutic alliance ruptures.

In terms of criterion-based methods, some studies have used arbitrary point differences on alliance measures to operationalize ruptures (e.g., one-point decrease on the WAI) and rupture resolution (e.g., alliance score returns to within .25 points of original alliance level before the rupture occurred; increase has to occur within three sessions of the rupture; Larsson, Falkenström, et al., 2018; Stevens et al., 2007). Although this method does not account for individual variation in clients' response styles, using pre-established changes on specific alliance measures may more easily translate to clinical practice given that additional calculations are not needed. Others have used sample standard deviations to identify meaningful shifts in the alliance (McLaughlin et al., 2014; Strauss et al., 2006). For example, Strauss et al. (2006) used the sample's standard deviation of alliance scores as a measure of meaningful fluctuations in alliance: ruptures occurred when alliance scores decreased by one standard deviation, whereas rupture repairs occurred when the alliance increased by one standard deviation in later sessions.

Control chart methods, which evaluate changes in scores relative to the mean, have also been used to study therapeutic alliance ruptures (Coutinho, Ribeiro, Sousa, et al., 2014; Larsson, Björkman, et al., 2018). These methods can distinguish between a variety of rupture types (e.g., a score below two standard deviations of an individual's mean alliance score, downward trend in alliance scores over the course of several sessions). For example, one study (Larsson, Björkman, et al., 2018) adapted existing guidelines for using Shewhart Control Chart methods (Berk, 2014;

Eubanks-Carter et al., 2012) to identify ruptures as occurring when an individual score was lower than two standard deviations below the mean (*ones*), the alliance was any amount below the mean for three or more consecutive units of time (*runs*), or the downward shift in alliance scores crossed the mean score (*trends*). In terms of rupture repairs, *ones* were repaired when the alliance increased to within two standard deviations of the mean, *runs* were repaired when the alliance increased to above the mean, and *trends* were repaired when the alliance began to increase.

Unlike criterion-based approaches, control chart methods account for individual response styles since meaningful changes in the alliance are identified based on one individual's set of alliance scores. Of the four types of methods used to evaluate ruptures (partitioning, regression, criterion-based, and control charts), Eubanks and colleagues (2012) recommended the use of controls charts given their increased sensitivity to change and potential use with real-time data. Thus, the present study uses previously established control chart methods described above (Larsson, Björkman, et al., 2018) to identify ruptures based on *ones*, *runs*, or *trends* and to evaluate whether those ruptures were repaired.

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