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The Relationship Between the Therapeutic Alliance and Social Anxiety Symptoms Along the Course of Internet-Delivered Cognitive Behavioral Treatment

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The therapeutic alliance is a consistent predictor of treatment outcome. In the present study, we examined whether the therapeutic alliance is associated with symptoms of social anxiety along the course of internet-delivered cognitive behavior therapy (ICBT) for social anxiety disorder (SAD). We examined data from a large treatment trial ($n = 182$) in which individuals with SAD reported on their social anxiety and alliance with the therapist each week during the treatment (for 11 weeks). We examined the total variance in alliance as well as within- and between-individual variances separately. Consistent with our hypotheses, we found that the total variance in alliance predicted the total variance in social anxiety in the following week. In addition, we found that within-individual variance in alliance was negatively associated with within-individual variance in social anxiety (in the following week). Thus, weekly increases in alliances were associated with weekly reductions in social anxiety in the following week. Finally, we found that between-individual variance in alliance was positively associated with between-individual variance in social anxiety such that individuals who were more socially anxious created stronger alliances with their therapists over the course of treatment. Our findings suggest that the therapeutic alliance is important in ICBT for SAD, that separating variance into within and between components may help identify different psychological processes, and that improving within-individual alliance may lead to reductions in symptoms of social anxiety.

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SOCIAL ANXIETY DISORDER (SAD) is a common disorder that can result in substantial functional impairment. It commonly appears at a young

age and may become chronic in the absence of treatment (Keller, 2006; Lijster et al., 2017; Stein & Stein, 2008). Moreover, SAD has a very large impact on day-to-day life; it is associated with high levels of distress, loneliness, and poor self-esteem (Iancu et al., 2015; Oren-Yagoda et al., 2022) and can interfere with work, school, and social life (Aderka et al., 2012).

TREATMENT FOR SAD

Cognitive behavior therapy (CBT) has been found to be effective in the treatment of SAD (Mayo-Wilson et al., 2014). In fact, a meta-analysis including 101 randomized-controlled treatment trials found that individual CBT had the largest effect size of any single psychological or pharmacological treatment (standardized mean difference compared to waitlist = −1.19; Mayo-Wilson et al., 2014). One medium for administering CBT that has become increasingly used over the last decade is internet-delivered CBT (ICBT; Andersson, 2016; Carlbring et al., 2018). This medium has several advantages compared to face-to-face therapy, including increased accessibility, lower costs, and shorter waiting lists (Andersson et al., 2019; Clark et al., 2023). ICBT has been found to be highly efficacious in treating SAD, and has been found to be as effective as face-to-face CBT for SAD (see Guo et al., 2021, for a meta-analysis). Finally, the benefits of ICBT for SAD were found to be stable and were maintained up to a year following treatment (Guo et al., 2021).

THE THERAPEUTIC ALLIANCE

One of the most consistent predictors of treatment outcome in psychotherapy is the therapeutic alliance (Horvath, 2001). The therapeutic alliance is defined as the quality of the collaborative relationship between client and therapist. The therapeutic alliance includes emotional aspects such as the trust, caring, liking, and respect between client and therapist, as well as cognitive aspects such as mutual agreement on the goals of therapy and the means that would help reach those goals (Horvath, 2001). A strong therapeutic alliance is one in which clients and therapists respect each other, work well with one another, like one another, and have a shared vision of treatment goals and the interventions needed to achieve these goals. The research literature on the therapeutic alliance is vast. For instance, in a recent meta-analysis, the authors compiled approximately 300 studies with 30,000 patients who received therapy (Flückiger et al., 2018). They found that the alliance was a modest but significant predictor of treatment outcome such that higher levels of alliance were associated with better outcomes ($r = 0.28$; Flückiger et al., 2018). This was found across treatments, settings, countries, and mediums of treatment delivery (e.g., face-to-face, phone, and internet-delivered; Flückiger et al., 2018).

The relationship between alliance and outcome has also been established in CBT specifically. For instance, in their meta-analysis, Flückiger et al. (2018) reported that the alliance significantly predicted outcome in studies of CBT ($n = 72$) and the magnitude of the association was not significantly different from the magnitude found for other therapies. The relationship between alliance and outcome was also found in internet-delivered treatments. Specifically, although earlier reviews found mixed results (Berger, 2017) or reported findings based on a very small number of studies (Pihlaja et al., 2018), more recent meta-analyses based on larger samples have found that the therapeutic alliance significantly predicts treatment outcome in internet interventions (see Kaiser et al., 2021 for a meta-analysis).

The literature on the alliance during treatments for SAD has been limited and somewhat mixed. Specifically, earlier studies did not find an alliance-outcome relationship (Andersson et al., 2012; Mörtberg, 2014; Woody & Adessky, 2002), but more recent ones with larger sample sizes (e.g., $n = 267$ in Altmann et al., 2020) found significant alliance-outcome relationships (Altmann et al., 2020; Clark et al., 2023; Haug et al., 2016; Kaiser et al., 2021; Kivity et al., 2021).

Only three studies have examined the therapeutic alliance in ICBT for SAD. Andersson et al. (2012) reported that the therapeutic alliance in their ICBT was high but did not significantly predict treatment outcome. Lindegaard et al. (2020) examined both psychodynamic and cognitive-behavior internet-delivered treatments for SAD. They found that when analyzing the treatments together, the therapeutic alliance measured at Session 3 significantly predicted outcome. Importantly, the sample in this study was small and included only 13 participants who received ICBT. Finally, Clark et al. (2023) found that the therapeutic alliance in their ICBT for SAD (measured after Session 2) predicted treatment outcome in internet-delivered treatment for SAD. Thus, studies on alliance in ICBT for SAD are scarce, and findings are mixed.

DISENTANGLING WITHIN AND BETWEEN COMPONENTS

Recently, researchers have suggested that separating the variance in psychological constructs into within and between variances may shed light on complex relationships that are obscured when the total variance is examined (Zilcha-Mano, 2017). For instance, within-individual avoidance and anxiety have a negative relationship between them (if I avoid a certain anxiety-provoking situation, my anxiety immediately drops). However, between-individual avoidance and anxiety have a positive relationship between them (individuals who generally avoid an anxiety-provoking situation experience more anxiety of that situation compared to others who have lower levels of avoidance). Thus, examining within and between variances may help identify more nuanced associations as well as processes occurring in opposite directions. Specifically in the context of the therapeutic alliance, separating the total variance in alliance into within and between components may help elucidate the alliance-social anxiety relationship and could potentially explain some of the mixed findings in the literature.

Only a single study has examined within and between components of the therapeutic alliance in treatment for SAD (Kivity et al., 2021). Importantly, Kivity et al. (2021) examined within-individual alliance throughout the course of treatment, but examined between-individual variance only in early alliance (defined as the alliance in the first 3 sessions). In that study, both within and between components were found to significantly predict outcome in face-to-face CBT, but not in attention bias modification (which relies on computer-delivered interventions without substantial therapist contact). Kivity et al. (2021) suggested that due to the limited role that therapists play in attention bias modification and the larger role of technology in that treatment, alliance did not predict outcome as it did in CBT.

GAPS IN THE LITERATURE

The literature on the therapeutic alliance in ICBT for SAD has a number of significant gaps. First, only three studies have examined the therapeutic alliance in ICBT for SAD (Andersson et al., 2012; Clark et al., 2023; Lindegaard et al., 2020). Thus, additional studies are needed to enhance our understanding of the alliance in ICBT for SAD. Second, recent advances in our understanding of the therapeutic alliance indicate that separating the alliance into within and between components may be important for creating a nuanced and multifaceted picture of this construct. However, only a single study has utilized this distinction in SAD, and that study focused on face-to-face CBT and attention bias modification for SAD (Kivity et al., 2021). No previous study has examined within and between components of the alliance in ICBT for SAD. Examining ICBT is extremely important as this treatment modality is becoming increasingly used, and due to unique features of ICBT that can affect the alliance, such as relying on text-based communication, not having sessions, and being able to engage the treatment from home. Third, all previous studies on the alliance in ICBT for SAD have used a single measurement of the therapeutic alliance at the beginning of treatment. However, repeated measurements of the alliance can help us understand temporal processes occurring during treatment.

THE PRESENT STUDY

The present study was designed to address these gaps. We examined a large ($n = 182$) and recent randomized controlled trial of ICBT for SAD (NCT03709615) that was found to be highly effective in reducing symptoms of SAD (pre-post Cohen's $d = 1.63$; Shalom et al., 2024). We assessed alliance and symptoms weekly during the treatment and examined both total alliance (without disentangling within and between components) as well as separate within and between components of the alliance. We hypothesized that increases in the therapeutic alliance would predict subsequent reductions in social anxiety symptoms. This is based on the large literature that found alliance to predict outcomes in psychotherapy (Flückiger et al., 2018) as well as a recent study of ICBT for SAD that found a significant alliance-outcome association (Clark et al., 2023). We also explored whether within and between components of the alliance (separately) predict social anxiety symptoms during ICBT for SAD without an explicit hypothesis. This is because only a single study examined these components and their relationship to social anxiety symptoms (Kivity et al., 2021). Moreover, Kivity et al. (2021) examined face-to-face CBT and it is not clear whether the findings extend to ICBT.

Method

PARTICIPANTS

Participants included 182 adults who participated in a preregistered randomized controlled trial of Internet-delivered CBT (ICBT) for SAD (ClinicalTrials.gov Identifier: NCT03709615). All participants were diagnosed with primary SAD according to DSM-5 criteria (American

Psychiatric Association, 2013) and inter-rater agreement for a diagnosis of SAD in our lab has been found to be high (κ = .86; Shalom et al., 2020). Exclusion criteria included (a) high levels of suicidal ideation, (b) past or current psychotic episodes, (c) current substance use disorders, (d) concurrent psychological treatment, (e) changes to pharmacological treatment in the 3 months before the study, or during the study. Some participants had comorbid diagnoses in addition to primary SAD, and specifically major depressive disorder (n = 54, 29.7%), generalized anxiety disorder (n = 25, 13.7%), panic disorder (n = 13, 7.1%), obsessive-compulsive disorder (n = 4, 2.2%), and posttraumatic stress disorder (n = 4, 2.2%).

PROCEDURE

An online research web page was used to recruit participants. The study was advertised on social media sites relevant to SAD, such as SAD forums, and SAD-related Facebook pages, as well as in public and private mental health clinics. The initial screening was conducted online through the web page, and included the Mini-SPIN (Connor et al., 2001), a 3-item self-administered screening tool derived from the Social Phobia Inventory (Connor et al., 2000). Participants who received high scores underwent an additional phone screening, and those who were found eligible were invited to the social anxiety research lab at the University of Haifa. In the lab, participants completed self-report measures as well as a diagnostic assessment: the Anxiety and Related Disorders Interview Schedule for DSM–5 (ADIS; Brown & Barlow, 2014). The interviews were conducted by licensed psychologists and graduate clinical psychology students trained in the administration of the ADIS. The interviews were videotaped and supervised by a senior licensed clinical psychologist. Participants who received a primary diagnosis of SAD and met inclusion criteria signed an informed consent form and began the study.

Participants were randomized to either treatment (ICBT for 11 weeks) or waitlist (for 11 weeks). Importantly, all participants randomized to the waitlist condition received ICBT following the waitlist period. A flow chart is provided in the supplementary materials. As the groups (immediate ICBT vs. waitlist/delayed ICBT) did not significantly differ in their outcome or alliance during ICBT, we analyzed data from the ICBT phase for all participants together.

TREATMENT

The ICBT in the present study was based on the protocol of Andersson et al. (2006), which has ample empirical support (see Kampmann et al., 2016, for a meta-analysis). The treatment consisted of 8 treatment modules corresponding to common CBT interventions (e.g., psychoeducation, cognitive restructuring, attention allocation, exposure, relapse prevention) that were administered over the course of 11 weeks. Each module included text that could be accessed via the treatment's internet platform as well as a task related to the module. For instance, the first exposure module (choosing and planning exposures) included explanations on the rationale behind exposure, the importance of choosing exposures that one thinks are difficult and challenging yet are possible and achievable, and the importance of planning exposures and defining success in terms of one's own actions (rather than others' responses or the anxiety experienced—which are both out of participants' control). In the first exposure module, participants' task (or homework assignment) was to upload a plan for an exposure using an exposure-planning form.

Each week during the treatment, therapists initiated correspondence with patients to discuss progress and/or difficulties, give encouragement and provide feedback on treatment tasks (i.e., the homework assignments). For instance, therapists could comment on the participants' exposure and suggest changes if the exposure seemed too difficult or unfeasible, or if it was not properly defined ("I'll give the presentation and I won't get a single word wrong. Everyone will say the presentation was wonderful."). After therapists' correspondence, participants could change their uploaded materials and respond to therapists by text. This resulted in a text-based discussion around module content. Once the task/homework was completed and discussed, therapists opened the next module (in the case of exposure planning, the following module was focused on the processing of completed exposures). Thus, the treatment included the components of CBT using text and correspondence with the therapist, but without live sessions.

Each week, participants completed the SPIN, which served as the weekly in-therapy measurement. Therapists were graduate students in clinical psychology who received training in administering the ICBT program prior to the study. An experienced clinical psychologist with over 15 years of experience in diagnosing and treating SAD (the corresponding author) trained therapists as well as provided ongoing supervision throughout the course of the study.

MEASURES

To assess weekly therapeutic alliance, we used the revised Working Alliance Inventory–Short version (WAI-SR; Hatcher & Gillaspy, 2006) adapted for internet-based therapies (Andersson et al., 2012). The WAI-SR includes 12 items rated by patients on a 1 to 5 scale, and has three subscales: bond, goals, and task. The WAI-SR has been found to have high reliability and internal consistency (Hatcher & Gillaspy, 2006). In the present study, internal consistency was high (Cronbach's $\alpha = 0.94$)

To assess weekly levels of social anxiety symptoms, we used the Social Phobia Inventory (SPIN; Connor et al., 2000). The SPIN is composed of 17 items scored on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). It was found to have good test-retest reliability and internal consistency (Antony et al., 2006; Connor et al., 2000; Radomsky et al., 2006) as well as to be sensitive to treatment change (Antony et al., 2006). In the present study, internal consistency was high (Cronbach's $\alpha = 0.85$).

To assess our primary treatment outcome (i.e., pre-post differences in social anxiety), we used the self-report version of the Liebowitz Social Anxiety Scale (LSAS–SR; Baker et al., 2002). The LSAS-SR describes 24 types of social interactions and performance situations and participants rate the degree to which they fear and avoid these situations on a scale of 0 to 3 (0 = *none*, 3 = *severe*; 0 = *never*, 3 = *usually*; for fear and avoidance respectively). The LSAS-SR was found to have high internal consistency, to correlate highly with other measures of social anxiety, and to be sensitive to treatment change (Baker et al., 2002).[1] In the present study, internal consistency was high (Cronbach's $\alpha = 0.92$).

ANALYTIC STRATEGY

To examine the temporal relationship between alliance and symptoms along the course of ICBT we used hierarchical linear modeling (HLM). This is because the temporal data created a multilevel structure with repeated measures (Level 1 units) nested within individuals (Level 2 units). To disentangle within and between components of the therapeutic alliance, we followed the guidelines of Hamaker and Muthén (2020) and centered alliance ratings around the average for each individual (creating a level-1 within component) while the average levels of each individual formed a level 2 between component. Importantly, these within and between components are completely independent (Hamaker & Muthén, 2020). Missing data (146 measurements; 7.3%) were not imputed as HLM can handle missing data effectively without the need for imputation (Raudenbush, 2001). Moreover, imputation might have resulted in an artificial inflation of the alliance-social anxiety link as it uses existing data to impute missing data. Thus, we based analyses on all existing data points. Additional information on missing data can be found in the supplementary materials.

Results

SAMPLE CHARACTERISTICS

Our sample included 182 participants who sought and received ICBT for SAD: 84 men (46.2%) and 98 women (53.8%). Participants' mean age was 31.5 ($SD = 8.9$). Of the total sample, 43.2% of participants were single, 19.8% were in a relationship, 32.4% were married, and 4.5% were divorced. Moreover, 23.9% were high school graduates, 58.7% had a bachelor's degree, 16.5% had a master's degree, and 0.9% had a Ph.D. Participants' mean LSAS scores at pretreatment were 81.88 ($SD = 20.23$). Levels of social anxiety and therapeutic alliance along the course of ICBT are presented in Table 1.

THE RELATIONSHIP BETWEEN (TOTAL LEVELS) OF ALLIANCE AND SOCIAL ANXIETY SYMPTOMS

To examine whether total (i.e., within + between) therapeutic alliance prospectively predicted social anxiety symptoms, we estimated a multilevel model. The independent variables were total social anxiety symptoms at time *t* and total therapeutic alliance at time *t*, and the dependent variable was total social anxiety symptoms at time *t+1*. Thus, we examined whether the therapeutic alliance in a given session predicted social anxiety symptoms in the following session, above and beyond social anxiety symptoms on a given session. All variables were continuous Level-1 variables.

We found that social anxiety symptoms at time *t* significantly predicted social anxiety symptoms at time *t+1* ($B = 0.935$, $SE = 0.010$, $t_{(1458)} = 94.37$, $p < .001$, 95% $CI = 0.915$ to 0.954). Specifically, the association was positive, suggesting that higher levels of social anxiety symptoms at time *t* were associated with higher levels of social anxiety symptoms at time *t*+1. We also found that the ther-

[1] We used the LSAS for pre and post measurements, and the SPIN for weekly measurements, because the SPIN is shorter and we wanted to reduce participant burden as well as increase the quality of responses (participants faced with long and repetitive measures may "disengage" and complete measures less accurately).

Table 1
Social Anxiety Symptoms and Therapeutic Alliance over the Course of ICBT

Week	Social Anxiety Symptoms (Between-Individuals; Average Levels)		Therapeutic Alliance (Between-Individuals; Average Levels)		Social Anxiety Symptoms (Within-Individuals; Change from Previous Week[a])		Therapeutic Alliance (Within-Individuals; Change from Previous Week[a])	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1	44.79	11.16	36.19	11.45	-	-	-	-
2	43.55	10.86	41.05	9.92	4.06	3.43	7.49	6.35
3	42.35	11.06	42.49	10.86	3.96	3.66	4.63	4.81
4	40.50	11.49	43.76	10.39	3.92	3.50	4.09	4.76
5	38.91	11.04	44.69	9.75	3.43	3.07	3.49	3.53
6	37.31	11.28	46.53	9.40	3.76	3.38	3.10	3.29
7	35.25	11.07	46.12	10.26	3.56	3.56	3.09	3.72
8	34.21	11.80	46.26	10.08	3.58	3.20	2.98	3.59
9	31.36	12.37	46.79	11.01	3.91	3.45	3.23	5.46
10	29.66	12.12	47.11	10.70	3.98	3.25	3.48	7.05
11	28.72	12.53	46.86	10.70	3.51	3.18	2.91	6.25

Note. Social anxiety symptoms measured using the SPIN (Social Phobia Inventory; Connor et al., 2000). Therapeutic Alliance measured using the WAI-SR (Working Alliance Inventory – Short Form; Hatcher & Gillaspy, 2006).
[a] Change from the previous week was calculated in absolute values to avoid positive and negative changes cancelling each other out.

apeutic alliance at time *t* significantly predicted social anxiety symptoms at time *t+1* ($B = -0.038$, $SE = 0.011$, $t_{(1458)} = -3.384$, $p = .001$, 95% $CI = -0.060$ to -0.016). The association was negative, suggesting that higher levels of the therapeutic alliance at time *t* were associated with lower levels of social anxiety symptoms at time *t*+1. Thus, when considering the total variance (within + between), the therapeutic alliance prospectively predicted social anxiety symptoms above and beyond previous social anxiety symptoms along the course of ICBT for SAD. This is consistent with our hypothesis.

PREDICTING WITHIN-INDIVIDUAL SOCIAL ANXIETY FROM WITHIN-INDIVIDUAL AND BETWEEN-INDIVIDUAL ALLIANCE

To examine whether within-individual and between-individual measures of alliance predict within-individual social anxiety symptoms, we estimated a multilevel model. The independent variables were as follows: within-individual social anxiety symptoms at time *t*, within-individual therapeutic alliance at time *t,* and between-individual therapeutic alliance. The dependent variable was within-individual social anxiety symptoms at time *t+1*[2]. Thus, we examined whether within and between alliance predicted subsequent social anxiety above and beyond previous social anxiety. All variables were continuous Level-1 variables, except between-individual therapeutic alliance, which was a continuous Level-2 variable (the average alliance across all measurements).

We found that within-individual social anxiety symptoms at time *t* significantly predicted within-individual social anxiety symptoms at time *t+1* ($B = 0.770$, $SE = 0.018$, $t_{(1457)} = 43.773$, $p < .001$, 95% $CI = 0.736$ to 0.805). The association was positive such that higher levels of within-individual social anxiety symptoms at time *t* were associated with higher levels of within-individual social anxiety symptoms at time *t*+1. We also found that within-individual therapeutic alliance at time *t* significantly predicted within-individual social anxiety symptoms at time *t+1* ($B = -0.060$, $SE = 0.021$, $t_{(1457)} = -2.913$, $p = .004$, 95% $CI = -0.101$ to -0.020). This association was negative such that higher levels of the therapeutic alliance at time *t* were associated with lower levels of social anxiety symptoms at time *t* +1. Thus, within-individual alliance predicted sub-

[2] We did not enter between-individual social anxiety as an additional independent variable as it is by definition independent of within-individual social anxiety.

sequent within-individual social anxiety symptoms above and beyond previous within-individual social anxiety symptoms. Finally, we found that between-individual therapeutic alliance did not significantly predict within-individual social anxiety symptoms at time *t+1* ($B = -0.028$, $SE = 0.017$, $t_{(1457)} = -1.69$, $p = .091$, 95% $CI = -0.061$ to 0.005).

In sum, these findings suggest that within-individual therapeutic alliance predicted subsequent within-individual social anxiety symptoms above and beyond previous within-individual social anxiety, but between-individual therapeutic alliance did not.

PREDICTING BETWEEN-INDIVIDUAL SOCIAL ANXIETY FROM WITHIN-INDIVIDUAL AND BETWEEN-INDIVIDUAL ALLIANCE

In the previous section, we examined whether within- and between-individual alliance predicted *within-individual* social anxiety. In this analysis, we examined whether within- and between-individual alliance predicted *between-individual* social anxiety. The independent variables were within-individual and between-individual therapeutic alliance, and the dependent variable was between-individual social anxiety symptoms. Within-individual alliance was a continuous Level-1 variable, and between-individual alliance and social anxiety were continuous Level-2 variables (the average alliance across all measurements and the average social anxiety across all measurements respectively).

We found that within-individual alliance was not significantly associated with between-individual social anxiety symptoms ($B = 0.012$, $SE = 0.037$, $t_{(130.53)} = 0.324$, $p = .746$, 95% $CI = -0.061$ to 0.084), but between-individual alliance was significantly associated with between-individual social anxiety symptoms ($B = 0.115$, $SE = 0.031$, $t_{(1604.99)} = 3.668$, $p < .001$, 95% $CI = 0.054$ to 0.177). Importantly, this association was positive such that higher average levels of therapeutic alliance across all measurements were associated with higher average levels of social anxiety across all measurements.

In sum, the association between within-individual alliance and within-individual social anxiety (reported in the previous section) was negative, whereas the association between between-individual alliance and between-individual social anxiety (reported in this section) was positive.

ADDITIONAL ANALYSES

We also examined whether between- and within-individual social anxiety symptoms predicted within- and between-individual therapeutic alliance. These analyses are reported in the supplementary materials. We found that within-individual social anxiety symptoms measured in a given session did not significantly predict within-individual therapeutic alliance in the following session.

Discussion

In the present study we examined whether the therapeutic alliance is associated with symptoms of social anxiety along the course of internet-delivered CBT for SAD. We examined data from a large treatment trial ($n = 182$) in which individuals with SAD reported on their social anxiety and alliance with the therapist each week during the treatment (for 11 weeks).

Consistent with our hypothesis, we found that when examining total variances (within + between), therapeutic alliance predicted subsequent social anxiety. This is in line with previous studies that have found a significant alliance–social anxiety relationship during treatment for SAD when examining total variances (Altmann et al., 2020; Haug et al., 2016; Kaiser et al., 2021; Kivity et al., 2021), including two studies on internet-delivered treatment (Clark et al., 2023; Lindegaard et al., 2020). However, other studies have not found such a relationship (Andersson et al., 2012; Mörtberg, 2014; Woody & Adessky, 2002). Thus, our findings are in line with some previous findings but not others due to the mixed and inconsistent literature. A number of reasons for these divergent findings can be considered. First, the alliance-outcome relationship in general and the alliance–social anxiety relationship more specifically may be small in magnitude and therefore may not be found in small samples due to low statistical power. Along these lines, our study as well as other studies that found an alliance–social anxiety relationship examined relatively large samples (e.g., $n = 182$ in the present study; $n = 267$ in Altmann et al., 2020). In addition, different analytic choices and statistical analyses may have also contributed to these divergent findings (see supplementary materials for an extended discussion of this). Finally, another potential explanation for the mixed findings in the literature is that examining total variances (as opposed to analyzing within and between components separately) may obscure different psychological process that operate in opposite directions. This is examined in our exploratory analyses.

We explored within and between components of the alliance and their effects on social anxiety. We found that the within component of the therapeutic

alliance predicted subsequent within-individual social anxiety but the between component did not. Put differently, our findings indicate that if individuals reported higher alliance during a given week (compared to their own average), their social anxiety in the following week significantly decreased (compared to their own average). This finding is consistent with Kivity et al. (2021), who found that within-individual therapeutic alliance predicted subsequent change in social anxiety symptoms. Importantly, we also found that the between component of the therapeutic alliance was associated with between-individual social anxiety but the within component was not. Interestingly, the direction of this association was positive, such that individuals with higher levels of social anxiety across all measurements (compared to others) also had higher levels of the therapeutic alliance across all measurements (compared to others).

One potential explanation for the positive between-individual association is that individuals with higher social anxiety are more fearful of others' negative reactions and rejection (e.g., Zimmer-Gembeck et al., 2021) and therefore make an extra effort to create positive relationships with others. Put differently, the more socially anxious one is, the more agreeable one can become in order to reduce the probability of rejection, and this can lead to elevated alliance with the therapist as well. Consistently, levels of the therapeutic alliance in the present study were high, and higher than those reported for individuals with major depressive disorder and generalized anxiety disorder in previous studies (e.g., Andersson et al., 2012). Another potential explanation is that individuals higher on social anxiety tend to rate the therapeutic alliance as higher due to social desirability (Holden & Passey, 2009). In other words, due to their social concerns, individuals with SAD may have a strong desire to portray relationships with others (and specifically with the therapist) as more aligned or better than they are. This can also potentially explain the positive association between alliance and social anxiety when examining between-individual variance.

One potential explanation for the negative within-individual association is that week-by-week increases in the alliance during therapy may indicate that clients with SAD are becoming more aligned with their therapists in terms of goals and tasks. For instance, an important therapeutic intervention in ICBT is exposure and when clients become increasingly convinced that exposures will help them (thus increasing their agreement with the therapist on tasks), they are more likely to conduct the exposure and experience a subsequent reduction in social anxiety. In other words, during treatment, increases in alliance from week to week may indicate a growing alignment of goals and tasks, and this can lead to reductions in clients' social anxiety.

Our findings on the positive association between between-individual alliance and between-individual social anxiety may seem at odds with the findings of Kivity et al. (2021), who found negative between-individual associations between early alliance and social anxiety. However, important methodological differences may explain the apparent discrepancy. First, we examined the entire between-individual variance in alliance using the average across all measurements (Zilcha-Mano & Fisher, 2022), whereas Kivity et al. (2021) examined between-individual variance in early alliance (the average alliance in the first three sessions). Second, we examined the entire between-individual variance in social anxiety as the average across all measurements, whereas Kivity et al. (2021) examined the variance in social anxiety following the early sessions (i.e., Session 4 and beyond). Thus, Kivity et al. (2021) examined partial between-individual variances (early between-individual variance in alliance, and later between-individual variance in social anxiety), whereas we examined the entire between-individual variance for both alliance and social anxiety.

Another potential reason for the discrepancy in findings could be that Kivity et al. (2021) examined face-to-face CBT whereas the present study examined ICBT. Thus, it is possible that differences in treatment format (e.g., less therapist contact in internet-delivered treatments, reliance on text-based communication in internet-delivered treatments) could have affected these findings. For instance, interactions with the therapist may be less anxiety-provoking for individuals with SAD in ICBT than in face-to-face CBT (because of text-based communication in ICBT; Oren-Yagoda & Aderka, 2021). Thus, when social anxiety is low-to-moderate (as in ICBT), it may lead to enhanced efforts to promote positive relations with the therapist and enhanced alliance. However, when social anxiety is high (as is more likely to be the case in CBT), it may be associated with less alliance (because individuals' anxiety gets in the way of their pro-social efforts). This explanation is in line with a recent study that found that individuals with SAD demonstrate a heightened effort to synchronize with others during small-

talk conversations when anxiety is low, but a reduced effort to synchronize with others during intimate conversations when anxiety is high (Asher et al., 2020). Alternatively, it is possible that the social anxiety experienced during sessions in face-to-face CBT may hinder clients' ability to understand and remember what therapists say. This can lead to reduced agreement on tasks and lower alliance. However, in ICBT communication is text-based, and social anxiety may lead clients to check correspondence with the therapist repeatedly, which can increase agreement on tasks and enhance alliance. Importantly, these explanations should be regarded as speculative: much future research is needed before firm conclusions can be drawn.

A number of clinical implications can be mentioned. Our findings suggest that therapists should consider working on the therapeutic alliance in order to improve it, regardless of whether the alliance is weak or strong as it is within-person improvements in the alliance that are associated with reductions in symptoms. Put differently, even when treating clients who create a weak alliance (compared to other clients), or treating clients who create a strong alliance (compared to other clients), working on the alliance during treatment to facilitate within-individual increases can be important and can lead to symptom reductions. Working on alliance involves initiating conversations regarding the emotional bond between client and therapist (do clients feel they can trust the therapist? do they feel that the therapist genuinely cares for them? do they feel that the therapist truly understands them?), as well as regarding agreement on goals and tasks in therapy. Creating a meaningful discussion of these elements that leads to mutually agreed-upon goals and tasks, in the context of a positive and supporting bond, is the goal of working on the alliance (see Muran & Barber, 2011, for a review of evidence-based interventions that enhance the alliance).

Our findings also suggest that when ruptures in the alliance occur, therapists should devote resources to repair the alliance even when the overall level of alliance is high, and that this can potentially prevent aggravation of symptoms (Larsson et al., 2018). In addition, although one could assume that the therapeutic alliance may be not be important in ICBT, our findings suggest that this is not the case. Specifically, the therapeutic alliance may be important in ICBT, and therapists should invest resources into forging strong alliances, even when treatment is internet-delivered. Finally, our findings have research implications as they suggest that separating within and between components of the alliance may help elucidate complex and potentially opposite psychological processes.

Our study has a number of limitations. First, we did not directly compare ICBT and face-to-face CBT in our study. Thus, we can only speculate on the differences between these treatment formats and their effects on the alliance-social anxiety relationship. Future studies can directly compare treatment formats to examine their effects more directly. Second, we examined only client-rated alliance and social anxiety severity. Future studies can examine therapist-rated alliance and therapist-rated symptoms (in addition to client-rated variables) to contribute to a comprehensive and multifaceted assessment of these constructs. This could also be used to assess whether processes of social desirability affect clients' ratings. Third, as our study did not experimentally manipulate the therapeutic alliance, our conclusions cannot be treated as indicating firm causal relationships between social anxiety and the alliance. Future studies can manipulate alliance to examine causal effects. For instance, creating two treatment conditions in which work on the alliance is given differential focus (e.g., intense work on alliance, vs. minimal work on the alliance) may help shed light on causal effects. Fourth, we examined the alliance as a unified construct, and did not separate it into individual components of bond, goals, and tasks. Future studies can examine these separate components of the alliance separately to increase our understanding its granularity.

In sum, we examined a large sample of individuals with SAD receiving ICBT. We found evidence for complex therapeutic alliance–social anxiety associations during treatment, such that negative associations exist for within components and positive associations exist for between variances. Our findings can contribute to the literature of the therapeutic alliance in treatments for SAD and in internet-delivered treatments, and may also have important clinical implications for delivering ICBT.

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