



# Treatment failure in cognitive-behavioural therapy: Therapeutic alliance as a precondition for an adherent and competent implementation of techniques

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**Objectives.** Treatment failure is a common phenomenon, but little is known about the reasons. Therapeutic alliance, therapist adherence, and therapist competence are considered important aspects of treatment success and formed the focus of the current investigation.

**Design.** Three randomized controlled trials for the treatment of depression, social phobia, and hypochondriasis were the basis of the current study.

**Methods.** The role of therapeutic alliance, as well as therapist adherence and competence, were investigated in 61 patients, which were classified either as treatment failure or as treatment success. Process variables were evaluated by independent raters on the basis of videotapes of the first three treatment sessions.

**Results.** Therapists' adherence and therapeutic alliance differed significantly between successful treatments and those classified as failures, whereas therapists' competence did not. In cross-sectional analysis, we found a moderating effect of adherence with alliance on treatment outcome, indicating that the better the therapeutic alliance, the stronger the effect of adherence on treatment outcome. Moreover, higher therapists' competence was found to affect treatment outcome positively, only mediated by therapeutic alliance. Higher therapists' adherence affected treatment outcome positively, only mediated by the competence–alliance relationship. In additional longitudinal analyses, we found evidence that the therapeutic alliance within one session influences therapists' adherence and competence in the subsequent session, but not the other way around.

**Conclusions.** Therapeutic alliance proved to be an important variable for the prediction of treatment failure. Furthermore, in our longitudinal analyses, we found evidence that the therapeutic alliance is a precondition for the adherent and competent implementation of therapeutic techniques, which questions the results of our cross-sectional analysis and of previous research.

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## Practitioner points

### Clinical implications

- Treatment failure is associated with a lower therapeutic alliance in cognitive-behavioural treatment.
- Therapeutic alliance seems to be an important precondition for the adherent and competent implementation of therapeutic techniques.
- Therapeutic alliance should be monitored during psychotherapeutic treatment.

### Cautions or limitations

- Results are limited to cognitive-behavioural therapy and may not be representative for other treatment approaches.
- Process analyses are based on highly standardized randomized controlled trials and may not be generalizable to routine care.

As stated by Lambert (2013), 'in general we can say that about two-thirds of adults who enter treatment in randomized controlled trials (RCTs) have a positive outcome in about 14 sessions, but about a third either show no benefit or worsen' (p. 189). In other words, even though psychotherapy can be highly effective, treatment failure remains a common phenomenon. Nonetheless, the conditions leading to treatment failure are rarely investigated (Dimidjian & Hollon, 2011). A better understanding of these reasons would be highly desirable, because such findings would have important implications for the improvement of psychological treatment (Lambert, 2011).

Various essentially theoretical reasons for treatment failure have been proposed, including treatment *delivery factors* (Dimidjian & Hollon, 2011). One delivery factor is the *therapeutic alliance*, which is described as the collaborative and affective bond between the therapist and the patient (Luborsky, 1984). In a recent meta-analysis, moderate but consistent relationships between therapeutic alliance and outcome were found ( $r = .28$ ; Horvath, Del Re, Flückiger, & Symonds, 2011). Moreover, therapeutic alliance proved to be an important predictor of treatment failure in psychotherapeutic treatment (Samstag, Batchelder, Muran, Safran, & Winston, 1998; Samstag *et al.*, 2008). However, in both studies, therapeutic alliance was not assessed by independent raters, but only by patients and therapists. Therefore, it is possible that the evaluation of therapeutic alliance was confounded by knowledge of therapy outcome.

As further delivery factors and reasons for treatment failure, therapist adherence and therapist competence can be considered. *Therapist adherence* is defined as the extent to which a therapist employs interventions as described in the treatment manual and *therapist competence* is defined as the extent to which the therapist implements these interventions skilfully and appropriately for the patients in question (Waltz, Addis, Koerner, & Jacobson, 1993). For example, Kuyken and Tsivrikos (2009) found that therapists' competence was significantly associated with therapy outcome in a naturalistic cognitive-behavioural therapy (CBT) for major depression. A recent meta-analysis, however, revealed that neither therapist adherence nor therapist competence was a significant predictor of treatment outcome (Webb, DeRubeis, & Barber, 2010). Yet, it is important to note that the meta-analysis was based on methodologically very heterogeneous studies which evaluated therapist adherence and competence and often with inappropriate methodological approaches (Simons, Rozek, & Serrano, 2013; Weck, Bohn, Ginzburg, & Stangier, 2011). For example, one methodological concern is the fact that many of the studies included in the meta-analysis assessed adherence and competence on the basis of only one therapy session, which was clearly insufficient to generalize the evaluation (Dennhag, Gibbons, Barber, Gallop, & Crits-Christoph, 2012). Other concerns relate to low statistical power, the inadequacy of adherence/competence measures, and

the clinical inexperience of competence raters. Therefore, until now, no definitive statement on the adherence–outcome and competence–outcome relationship can be made, so that further studies are necessary.

The prediction of therapy outcome from therapeutic processes is not straightforward, but in fact a complex situation and various methodological concerns should be addressed (Crits-Christoph, Gibbons, & Mukherjee, 2013). One concern with regard to the causality of the process–outcome alliance. For example, it can be questioned whether a better alliance leads to a better therapy outcome or vice versa (Barber, 2009). In line with the latter possibility, it could be demonstrated that the alliance–outcome relationship in late therapy sessions ( $r = .39$ ) is higher than that in early sessions ( $r = .25$ ; Horvath *et al.*, 2011). One approach to addressing this methodological concern in process analysis is to take early therapy sessions into account, in order to predict subsequent therapy success. This should ensure that the impact of therapeutic processes on (therapeutic) success is investigated and not the other way round (DeRubeis & Feeley, 1990). Such an approach was recently chosen to analyse the adherence–outcome, competence–outcome and alliance–outcome relationships (Strunk, Brotman, & DeRubeis, 2010; Strunk, Brotman, DeRubeis, & Hollon 2010).

The relationship between alliance, adherence and competence has rarely been investigated and remains unclear (Barber, 2009). In empirical research, a close association between therapist adherence and competence was found (Barber, Triffelman, & Marmar, 2007), which conforms with the notion that adherence is a precondition for competence (Waltz *et al.*, 1993). Furthermore, both theoretical reflections and empirical research suggest that therapist competence is a precondition for a good therapeutic alliance (Barber, Crits-Christoph, & Luborsky, 1996; Despland *et al.*, 2009) and that a good therapeutic alliance is in turn the basis for a positive adherence–outcome relationship (Barber *et al.*, 2006; McLeod, Southam-Gerow, Tully, Rodríguez, & Smith, 2013). Accordingly, previous research considered linear and curvilinear relationships. However, the evaluations of alliance in those earlier studies were based only on patients' self-report measures, so that further research is needed.

The aim of the current study was to compare therapist adherence, therapist competence, and therapeutic alliance in both successful and unsuccessful treatments. In order to enhance the generalizability of this investigation, we considered cognitive-behavioural cases of three different disorders from three major diagnostic categories: mood disorders (i.e., major depression), anxiety disorders (i.e., social phobia), and somatoform disorders (i.e., hypochondriasis). Moreover, three early therapy sessions per patient were considered for the prediction of treatment failure, in order to reduce a potential confounding effect between the therapeutic processes and therapy outcome.

With our current study, we also wish to expand and address weaknesses of previous process analyses, in which we partly considered the same samples. In the study of Ginzburg *et al.* (2012), therapist competence (but not adherence) proved to be an important predictor of outcome in the treatment of social phobia, and in Weck, Rudari *et al.* (2013), therapeutic alliance (but not adherence or competence) was a predictor of therapy outcome in patients with major depression. However, in those previous studies, only one or two therapy sessions were considered and the selection of treatment sessions was randomized, which could overestimate the relationship between process variables and outcome, because later therapy sessions were also considered. Moreover, the assessment of process variables was conducted by different judges with different methods (i.e., different measures and different perspectives [self-report vs. independent judges]) and there was no focus on treatment failure/success. Therefore, in the current study,

process variables were evaluated by unitary methods and, furthermore, focused on the importance of those process variables on treatment failure.

We hypothesized that evaluations of therapist adherence, therapist competence, and therapeutic alliance would be higher in treatments classified as successful, compared to those classified as treatment failures (Hypothesis 1). With respect to the relationship between adherence, alliance, and outcome, we assumed that alliance would moderate the relationship between adherence and outcome, with a better alliance enhancing the relationship between adherence and outcome (Hypothesis 2). Furthermore, alliance was assumed to mediate the relationship between competence and outcome (Hypothesis 3), and the relationship between adherence and outcome was considered as mediated by competence and alliance (Hypothesis 4). Additionally, the relationships between adherence and alliance, and competence and alliance were examined from a longitudinal perspective. It was hypothesized that adherence, competence, and alliance would yield stability if assessed in subsequent sessions (Hypothesis 5a). Finally, we assumed that adherence and competence within one session would influence alliance in the subsequent session (Hypothesis 5b).

## **Method**

### ***Description of the primary studies***

The current study is a secondary analysis of three RCTs. The three treatment studies referred to included CBT and addressed social phobia (Stangier, Schramm, Heidenreich, Berger, & Clark, 2010), hypochondriasis (Weck, Neng, & Stangier, 2013a, 2013b) and recurrent major depressive disorder (Stangier *et al.*, 2013) respectively (see Table 1). The protocols of all three studies were approved by institutional review boards and all participants gave their informed consent. Diagnoses in all three treatment studies were evaluated uniformly by trained and experienced diagnosticians, using the Structured Clinical Interview for DSM-IV (First, Spitzer, Gibbon, & Williams, 1997). While, in the studies treating social phobia and hypochondriasis, the reduction of social anxiety and hypochondriacal symptoms was intended, in the study treating recurrent major depression, the aim was to prevent recurrent depressive symptoms. In the current study, only the CBT approaches of the three RCTs were considered for the analysis of treatment success and failure. Data for the active control conditions (e.g., psychoeducation) were not used, in order to ensure homogeneity of the data, because data for all three RCTs should be considered in one analysis.

### ***Determination of success and failure***

The aim of the current study was to compare treatments which could be clearly classified as failure with treatments which can be clearly classified as successes. By using this approach, the current study differs from previous ones, which also considered patients with moderate treatment effects and which use continuous outcome variables. The current approach was chosen, because we intended to evaluate process variables by independent judges in three treatment sessions and because this procedure is associated with high costs. For the comparison of patients with treatment failure and with treatment success, we expected larger effects than for the same sample size of patients with the whole spectrum of treatment effects.

For every RCT, one clinical interview and one self-report measure were considered for the determination of treatment failure as opposed to success. For patients with major depression, the Hamilton Rating Scale for Depression (HRSD-17; Collegium Internationale

**Table 1.** Overview about the three randomized controlled trials which form the basis for the current study

	Studies		
	Stangier <i>et al.</i> (2013) registered under ISRCTN 81212636	Stangier <i>et al.</i> (2010) not registered	Weck <i>et al.</i> (2013a, 2013b) registered under NCT01119469
Diagnosis	Recurrent major depression (currently remitted)	Social phobia	Hypochondriasis
Central aims of the studies	Reduction of the risk of relapse	Reduction of social anxiety symptoms	Reduction of hypochondriacal symptoms
Whole sample sizes (CBT sample size)	180 (87)	117 (38)	84 (38)
Treatments	Maintenance CBT; manualized psychoeducation	Cognitive therapy; interpersonal psychotherapy	Cognitive therapy; exposure therapy
Treatments extent	16 sessions	16 sessions	12 sessions
Exclusion criteria	Organic mental disorders, disorders caused by psychotropic substances, schizophrenia, schizoaffective disorder, bipolar disorder, borderline personality disorder, mental retardation, and acute suicidality	Psychosis, current substance dependency or abuse, Axis II personality disorders from the dramatic or odd cluster, severe depression, and acute suicidality	Major medical illness, diagnosis of substance addiction, schizophrenia, schizoaffective disorder, bipolar disorder, and acute suicidality

Note. CBT = cognitive-behavioural therapy.

Psychiatrica Scalarum [CIPS], 1977; Hamilton, 1960) and the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; Hautzinger, Bailer, Worall, & Keller, 1994) was chosen, for patients with social phobia, the Liebowitz Social Anxiety Scale (Liebowitz, 1987; Stangier & Heidenreich, 2005) and the Social Phobia and Anxiety Inventory (Fydrich, 2002; Turner, Beidel, Dancu, & Stanley, 1989), and for patients with hypochondriasis, the Yale-Brown Obsessive Compulsive Scale for Hypochondriasis (Weck, Gropalis, Neng, & Witthöft, 2013) and the Illness Attitude Scales (Hiller, Rief, & Fichter, 2002; Kellner, 1986) were chosen. All measures used are internationally well established and have demonstrated their reliability and validity. For the definition of treatment failure and success, the suggestions of Jacobson and Truax (1991) were taken into account and changes larger than two standard deviations in the outcome measures were considered to constitute clinically significant change. Table 2 summarizes the criteria for success and failure for the current study, which are described additionally below in greater detail.

#### *Treatment failure and treatment success*

Drop outs, non-responses, and deteriorations were considered as *treatment failure*. However, only drop outs were taken into account as treatment failure when there were indicators of failure (e.g., dissatisfaction about the treatment process). Drop outs were not considered as treatment failure, when external causes were reasonable and thus the drop

**Table 2.** Definition of treatment success and treatment failure in the current study (criteria 1, 2, and 3 or criterion 4 must be fulfilled to indicate a treatment success or failure, respectively)

Treatment study	Treatment success	Treatment failure
Social phobia (Stangier et al., 2013)	<ol style="list-style-type: none"> <li>1. Diagnosis of social phobia is no longer present in the SCID</li> <li>2. At least two <i>SD</i> symptom reduction in the LSAS (clinical interview)</li> <li>3. At least two <i>SD</i> symptom reduction in the SPAI (self-report)</li> </ol>	<ol style="list-style-type: none"> <li>1. Diagnosis of social phobia is still present in the SCID</li> <li>2. Less than one <i>SD</i> symptom reduction in the LSAS (clinical interview)</li> <li>3. Less than one <i>SD</i> symptom reduction in the SPAI (self-report)</li> <li>4. Drop out</li> </ol>
Hypochondriasis (Weck et al., 2013a, 2013b)	<ol style="list-style-type: none"> <li>1. Diagnosis of hypochondriasis is not longer present in the SCID</li> <li>2. At least two <i>SD</i> symptom reduction in the H-YBOCS (clinical interview)</li> <li>3. At least two <i>SD</i> symptom reduction in the IAS (self-report)</li> </ol>	<ol style="list-style-type: none"> <li>1. Diagnosis of hypochondriasis is still present in the SCID</li> <li>2. Less than one <i>SD</i> symptom reduction in the H-YBOCS (clinical interview)</li> <li>3. Less than one <i>SD</i> symptom reduction in the IAS (self-report)</li> <li>4. Drop out</li> </ol>
Major depression (Stangier et al., 2010)	<ol style="list-style-type: none"> <li>1. Diagnosis of major depression is still not present in the SCID</li> <li>2. Less than one <i>SD</i> symptom increase in the HRSD-17 (clinical interview)</li> <li>3. Less than one <i>SD</i> symptom increase in the BDI (self-report)</li> </ol>	<ol style="list-style-type: none"> <li>1. Diagnosis of major depression is again present in the SCID</li> <li>2. More than two <i>SD</i> symptom increase in the HRSD-17 (clinical interview)</li> <li>3. More than two <i>SD</i> symptom increase in the BDI (self-report)</li> <li>4. Drop out</li> </ol>

Note. BDI = Beck Depression Inventory; H-YBOCS = Yale-Brown Obsessive Compulsive Scale for Hypochondriasis; HRSD-17 = Hamilton Rating Scale for Depression; IAS = Illness Attitude Scales; LSAS = Liebowitz Social Anxiety Scale; SCID = Structured Clinical Interview for DSM-IV; SPAI = Social Phobia and Anxiety Inventory.

out did not indicate that the treatment had failed (e.g., patient's move to another city for job reasons).

According to our definition, 43 patients who received CBT in the three treatment conditions were classified as treatment successes and 18 as treatment failures. These 61 patients participated in the current study, which constituted 37.42% of the whole sample of 163 patients who received CBT in the three treatment trials. We found no significant differences between the occurrence of treatment success and treatment failure between the therapists ( $p > .10$ ).

## Participants

### Clients

In the current sample of 61 patients, the mean age was 45.0 years ( $SD = 12.5$  years) and 34 (55.7%) were female. Nine patients had a primary diagnosis of social phobia, eleven of hypochondriasis, and forty-one of recurrent major depressive disorder. Twenty-eight (45.9%) of the patients had a comorbid axis-I-disorders and seventeen (27.9%) a comorbid axis-II-disorder.

### *Therapists*

Patients in the current study were treated by 32 therapists (25 female). The average age of the therapists was 31.6 ( $SD = 6.3$ ; range: 25–51 years). On average, they had 3.0 years ( $SD = 3.6$  years; range: 0–20 years) of clinical experience. All therapists were trained in the relevant CBT and received regular supervision. In the current study, the average number of clients treated by therapists was 1.9 ( $SD = 1.1$ ; range: 1–5). Fifteen therapists treated one patient, nine treated two patients, five treated three patients, two treated four patients, and one treated five patients.

### *Judges*

Process measures (therapist adherence, therapist competence, and therapeutic alliance) were performed by two judges. Both were clinical psychologists and psychotherapists who had four and 5 years of clinical experience respectively. Judges were familiar with the applied treatment manuals and had completed a 26-hr training course on how to use process rating scales. Training involved practicing the rating of therapy sessions using the process scales. Twelve therapy sessions, which were not part of the current study, were rated during training. During the training, discrepancies in the ratings were discussed with an experienced trainer in order to reach consensus between the two judges. Judges were blind regarding therapy outcome.

### **Description of the cognitive-behavioural treatments**

Maintenance CBT for recurrent major depression aimed at preventing recurrences of depressive episodes. All interventions of this treatment are described in detail in a treatment manual (Risch, Stangier, Heidenreich, & Hautzinger, 2012). Interventions of cognitive therapy for social phobia (Stangier, Clark, & Ehlers, 2006) and those of cognitive therapy for hypochondriasis (see Weck, 2014) are described in a treatment manual as well.

### **Measures**

#### *Cognitive-behavioural therapy adherence scale (CBT-AS)*

The CBT-AS was developed on the basis of a scale for assessing therapist adherence in the treatment of major depression (Weck, Hilling, Schermelleh-Engel, Rudari, & Stangier, 2011). To address all three treatments in the current study, we expanded the adherence scale and included further items which were important for therapists' adherence in the treatment of social phobia and hypochondriasis. The treatment manuals of the three treatment studies served as the basis for generating the CBT-AS items used in the current study. The response format of the CBT-AS is a 3-point rating scale (not adherent, partly adherent, and adherent) and the scale includes 23 items: (1) agenda, (2) reviewing homework, (3) time management, (4) use of materials, (5) application of treatment content, (6) consideration of general principles of cognitive therapy, (7) development of an individual cognitive model, (8) identification of automatic thoughts, (9) modification of automatic thoughts, (10) behavioural experiments, (11) setting homework, (12) relapse prevention, and (13) the exclusion of non-adherent techniques. Furthermore, Items 14–23 evaluated specific aspects of therapists' adherence in the specific treatment studies. Items 14–16 address social and hypochondriasis (14 – identification of safety

behaviour, 15 – modification of safety behaviour, and 16 – identification/modification of attention processes), Item 17 addresses only hypochondriasis (psychoeducation), Items 18 and 19 address only social phobia, and Items 20–23 only major depression (20 – facilitation of self-monitoring, 21 – approaching questions and difficulty in understanding, 22 – acceptance and commitment therapy interventions and 23 – wellbeing-therapy interventions). In the current study, the interrater reliability for the CBT-AS mean score was very high (intraclass correlation coefficient –  $ICC_{(3,2)} = .86; p < .001$ ).

#### *Cognitive Therapy Scale (CTS)*

Therapist competence was evaluated with the CTS (Weck, Hautzinger, Heidenreich, & Stangier, 2010; Young & Beck, 1980), which evaluates competence on a 7-point rating scale (poor, barely adequate, mediocre, satisfactory, good, very good, and excellent). The German version of the CTS contains 14 items which evaluate the level of therapist competence: (1) agenda, (2) dealing with problems/questions/objections, (3) clarity of communication, (4) pacing and efficient use of time, (5) interpersonal effectiveness, (6) resource activation, (7) reviewing previously set homework, (8) using feedback and summaries, (9) guided discovery, (10) focus on central cognitions and behaviour, (11) rationale, (12) selecting appropriate strategies, (13) appropriate implementation of techniques, and (14) setting homework. In the current study, the interrater reliability for the CTS mean was very high ( $ICC_{(3,2)} = .92; p < .001$ ). The internal consistency (Cronbach's  $\alpha$ ) for all 14 items of the CTS was  $\alpha = .95$ .

#### *Helping Alliance Questionnaire (HAQ)*

Therapeutic alliance was evaluated with the HAQ (Bassler, Potratz, & Krauthauser, 1995; Luborsky, 1984). The questionnaire consists of 11 items which are answered on a 6-point Likert scale, ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). For example, Item 9 of the HAQ reads: 'I feel I am working together with the therapist in a joint effort'. We developed an independent rater's version of the HAQ in German, the HAQ-R (Richtberg, Jakob, & Weck, 2014), by rewording the items (e.g., 'I believe the patient is working together with the therapist in a joint effort'). In the current study, the interrater reliability for the HAQ-R mean was good ( $ICC_{(3,2)} = .84; p < .001$ ). The internal consistency (Cronbach's  $\alpha$ ) for all 11 items of the HAQ-R was  $\alpha = .96$ .

#### **Procedure**

For all 61 patients, the first three therapy sessions were selected in order to evaluate therapists' adherence, therapists' competence, and the therapeutic relationship. A total of 175 videotapes were rated by the two independent judges. Although all treatment sessions should have been videotaped by the therapist, videotapes were not available for all treatment sessions because of a technical defect, video cameras being unavailable, therapist non-compliance, or early patient drop-out. Therefore, subsequent therapy sessions (but only for the first half of the therapy) were also considered for the analysis. Altogether, 50 (82.0%) videotapes of the first therapy sessions, 49 (80.3%) of the second therapy sessions, 44 (72.1%) of the third therapy session, 13 (21.3%) of the fourth therapy sessions, 12 (19.6%) of the fifth therapy sessions, and 4 (6.6%) videotapes of the sixth therapy sessions were taken into account.

## **Statistical analysis**

### *Preliminary analysis*

Interrater reliability was analysed with ICCs, using model 3 ( $ICC_{(3,m)}$ ; Shrout & Fleiss, 1979). ICCs were at all times calculated from the mean of two judgments ( $ICC_{(3,2)}$ ). Analysis of variance (ANOVA) was used to compare the mean values of the different outcome groups (treatments classified as success vs. failure). Categorical variables (e.g., sex) were analysed with chi-square tests. Comparison of process measures (CBT-AS, CTS, and HAQ-R) between treatments classified as success and failure were conducted by multivariate analysis of variance (MANOVA). Effect sizes were determined using Hedges'  $g$  (Hedges & Olkin, 1985).

### *Outcome models (OM)*

Path analysis models were specified with treatment outcome (treatment success vs. treatment failure) as the categorical-dependent variable. For Outcome Model 1 (OM 1), alliance (HAQ-R) and adherence (CBT-AS) were considered as predictors (see Figure 1a). In addition to linear effects, quadratic effects for adherence and alliance were assumed, as well as a moderation effect of alliance and adherence. For Outcome Model 2 (OM 2), alliance (HAQ-R) was specified as the predictor variable mediating the effect between competence (CTS) and outcome (see Figure 1b). Additionally, adherence (CBT-AS) was specified with a mediating effect on therapy outcome via competence (CTS) and alliance (HAQ-R). 95% confidence intervals (CI) for indirect effects were computed (MacKinnon, Lockwood, & Williams, 2004). Correlations between predictor variables were estimated in OM 1 and OM 2.

### *Autoregressive models (AM)*

Path analysis models were specified regressing session three variables (e.g., the CTS score of session three) on the respective session two and session one variables (e.g., on the CTS score of sessions two and one), and regressing session two variables on the respective session one variables (see Figure 2a,b). Furthermore, the residual variances and correlations of the residual variances of session three and session two were set free, thus accounting for systematic situational influences. Finally, crossover effects were estimated, assuming that, for example, competence (CTS) in session one would influence alliance (HAQ-R) in session two. Autoregressive Model 1 (AM 1) examined adherence (CBT-AS) and alliance (HAQ-R), whereas Autoregressive Model 2 (AM 2) examined competence (CTS) and alliance (HAQ-R).

### *Data analysis and model fit evaluation*

Data were analysed using *Mplus* (Version 6; Muthén & Muthén, 2010), applying the maximum likelihood estimator. In order to evaluate the model fit AM 1 and AM 2, the  $\chi^2$ -value and the degrees of freedom ( $df$ ) were reported, as well as the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the standardized root mean square residual (SRMR). Some standards exist concerning the model fit (Schermelele-Engel, Moosbrugger, & Müller, 2003). Values below 2 for the ratio between the  $\chi^2$ -value and the  $df$  indicate a good model fit, and values below 3 for this ratio indicate an acceptable fit. RMSEA values less than .05 were found to indicate a good model fit and less than .08, an acceptable model fit. The CFI indicates a good model fit for values within the range 0.95 and 1.00, whereas values between .90 and .95 signify an acceptable fit.

SRMR values should remain below .10 for acceptable model fit. *Mplus* does not provide the usual fit statistic for models with categorical dependent variables.

## Results

### Preliminary analysis

Table 3 shows the socio-demographic data and comorbidity of the patients classified as treatment successes and treatment failures. No significant differences between success and failures were found regarding age, sex, educational level, number of comorbid axis-I-disorders, and number of comorbid axis-II-disorders (see Table 3).

### Prediction of treatment success and treatment failure (Hypothesis 1)

For the prediction of treatment outcome (success vs. failure), mean scores of the adherence measure (CBT-AS), competence measure (CTS), and alliance measure (HAQ-R) over the three treatment sessions were computed. The means and standard deviations of these measures are given in Table 4 separately for treatments classified as successes or failures. Substantial relationships were found between the CBT-AS, the CTS, and the HAQ-R. The CBT-AS correlated  $r = .62$  ( $p < .001$ ) with the CTS and  $r = .56$  ( $p < .001$ ) with the HAQ-R. Correlations between the CTS and the HAQ-R were  $r = .79$  ( $p < .001$ ).

**Table 3.** Soziodemographic data and comorbidity of the patients classified as treatment success and failure

Measures	Treatments classified as success (n = 43)	Treatment classified as failure (n = 18)	Test value
Soziodemographic data			
Age (SD)	44.56 (12.31)	45.94 (13.10)	$F_{(1,59)} = 0.15$
Female (%)	24 (55.81)	10 (55.55)	$\chi^2_{(1)} = 0.00$
Patients with university entrance qualification (%)	16 (37.21)	9 (50.00)	$\chi^2_{(1)} = 3.64$
Comorbidity			
Comorbid Axis-I-disorder (%)	21 (48.83)	7 (38.89)	$\chi^2_{(1)} = 0.51$
Comorbid Axis-II-disorder (%)	11 (25.58)	6 (33.33)	$\chi^2_{(1)} = 0.38$

**Table 4.** Mean scores and standard deviations of the measures of therapists' adherence (CBT-AS), therapists' competence (CTS), and the therapeutic alliance (HAQ-R) for treatments classified as success and failure

Measures	Treatments classified as success (n = 43)	Treatment classified as failure (n = 18)	F-value $F_{(1,59)}$
Process measures (SD)			
CBT-AS	1.56 (0.19)	1.43 (0.29)	4.51*
CTS	3.14 (0.71)	2.91 (0.72)	1.38
HAQ-R	3.84 (0.58)	3.43 (0.76)	5.34*

Note. CBT-AS = cognitive-behavioural therapy adherence scale; CTS = Cognitive Therapy Scale; HAQ-R = Helping Alliance Questionnaire (rater version).

\* $p < .05$ .

The MANOVA for the two outcome groups (treatment success vs. treatment failure) revealed a significant group effect ( $F_{(3,57)} = 57.00; p = .04$ ). Significant higher scores were found for the treatments classified as successes in comparison to those classified as failures for the CBT-AS ( $F_{(1,59)} = 4.51; p = .04; g = .58$ ) and the HAQ-R ( $F_{(1,59)} = 5.34; p = .02; g = .62$ ), but not for the CTS ( $F_{(1,59)} = 1.38; p = .24$ ).

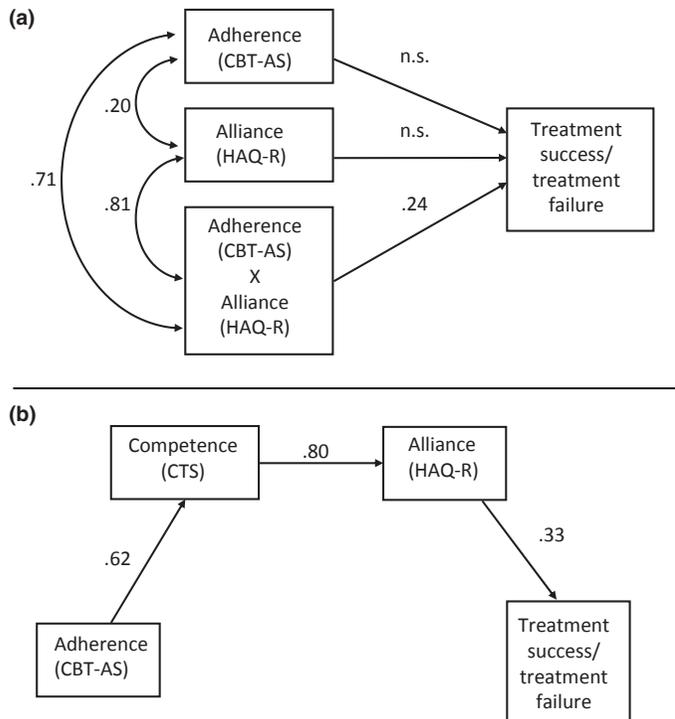
### Outcome models (Hypotheses 2, 3 and 4)

#### Relationship between adherence, alliance, and outcome (OM 1)

The resulting path model with adherence (CBT-AS), alliance (HAQ-R) and treatment outcome is depicted in Figure 1a. Only the moderation of CBT-AS with HAQ-R yielded significant effects on the treatment outcome ( $r = .24; p < .05$ ). Higher levels of therapy alliance were associated with a stronger relationship between adherence and treatment outcome.

#### Relationship between adherence, competence, alliance, and outcome (OM 2)

The resulting path model with adherence (CBT-AS), competence (CTS), alliance (HAQ-R) and treatment outcome is depicted in Figure 1b. HAQ-R has a small effect on treatment



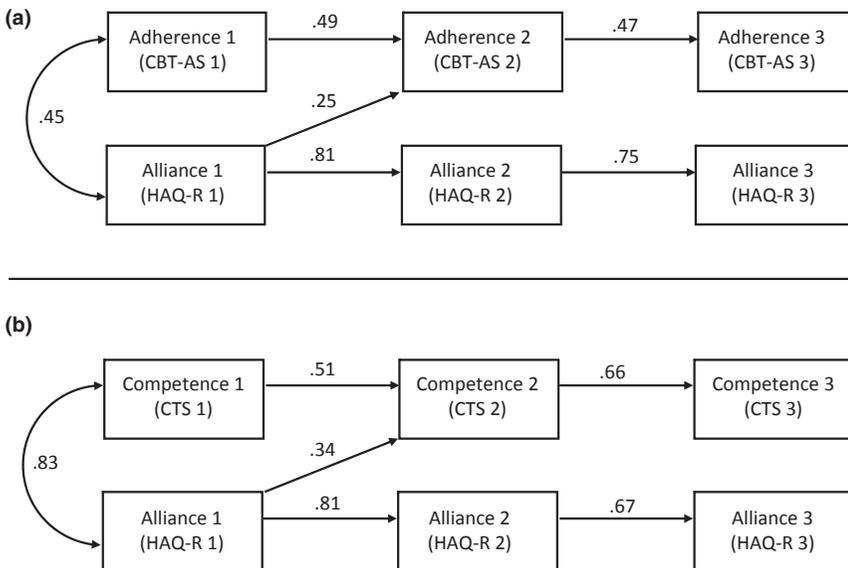
**Figure 1.** (a) Path diagram of the completely standardized solution of the Outcome Model 1 with treatment outcome as categorical dependent variable and adherence, therapeutic alliance, and the moderator term between alliance and adherence as predictors. (b) Path diagram of the completely standardized solution of Outcome Model 2 with treatment outcome as categorical dependent variable and adherence, competence, and therapeutic alliance as predictors.

outcome ( $r = .33; p < .05$ ), whereas CTS has a large effect on HAQ-R ( $r = .80; p < .001$ ), and CBT-AS on CTS ( $r = .62; p < .001$ ). The indirect (mediation) effect of CTS on treatment outcome via HAQ-R is substantial at .26 (95% CI [.15; .38]). There were no indications of a significant direct effect of CTS on treatment outcome. The indirect (mediation) effect of CBT-AS on treatment outcome via CTS and HAQ-R is small, but differs significantly from zero at .16 (95% CI [.01; .31]).

**Autoregressive models (Hypotheses 5a and 5b)**

*Relationship between adherence and alliance (AM 1)*

Model AM 1 examining the adherence (CBT-AS) and alliance (HAQ-R) for three subsequent sessions is depicted in Figure 2a. This model showed good model fit ( $\chi^2 = 2.77; df = 6, RMSEA = .00; CFI = 1.00; SRMR = .05$ ). The relationships between the CBT-AS scores in the three subsequent sessions were moderate ( $r > .4$ ) and between the HAQ-R scores, high ( $r > .7$ ). Additionally, there was a small direct effect from HAQ-R (session 1) on HAQ-R (session 3) with .18, but no direct effect from CBT-AS (session 1) on CBT-AS (session 3). These results can be interpreted as evidence of the stability of adherence and alliance assessment in subsequent sessions (Hypothesis 5a). The residual variances for CBT-AS and HAQ-R (sessions 2 and 3) differed from zero and yielded significant correlations with each other at the respective time point ( $r > .4$ ) indicating that there were substantial situational influences. Finally, there was only one small crossover effect from HAQ-R (session 1) on CBT-AS (session 2), but no effects from CBT-AS on HAQ-R (Hypothesis 5b).



**Figure 2.** (a) Path diagram of the completely standardized solution of the Autoregressive Model 1 with adherence and alliance in three subsequent sessions. A small effect from Alliance 1 on Alliance 3 had been omitted. (b) Path diagram of the completely standardized solution of the Autoregressive Model 2 with competence and helping alliance in three subsequent sessions. Small effects from Competence 1 on Competence 3 and from Alliance 1 on Alliance 3 had been omitted.

### *Relationship between competence and alliance (AM 2)*

Model AM 2 examining competence (CTS) and alliance (HAQ-R) for three subsequent sessions is illustrated in Figure 2b. This model showed a good model fit ( $\chi^2 = 3.99$ ;  $df = 5$ , RMSEA = .00; CFI = 1.00; SRMR = .03). The relationships between the CTS scores in the three subsequent sessions were substantial ( $r > .5$ ) and between the HAQ-R scores, high ( $r > .7$ ). Additionally, there was a small direct effect from HAQ-R (session 1) on HAQ-R (session 3) with .26 and a small direct effect from CTS (session 1) on CTS (session 3) with .26. Therefore, this can also be interpreted as evidence of the stability of competence in subsequent sessions (Hypothesis 5a). The residual variances for CTS and HAQ-R (sessions 2 and 3) differed from zero and yielded significant correlations with each other at the respective time point ( $r > .6$ ). Finally, there was only one moderate crossover effect from HAQ-R (session 1) on CTS (session 2), but no effects from CTS on HAQ-R (Hypothesis 5b).

## **Discussion**

The aim of the current study was to investigate the role played by therapeutic adherence and competence, as well as by therapeutic alliance in treatment failure. We found significantly higher scores for therapists' adherence and therapeutic alliance, but not for therapists' competence in treatments classified as successes, in comparison to those classified as failures (Hypothesis 1). As expected, therapeutic alliance was found to be a significant moderator of the adherence–outcome relationship (Hypothesis 2). Moreover, we found therapeutic alliance to be a significant mediator between competence and outcome (Hypothesis 3), and competence and alliance to be a significant mediator between adherence and outcome (Hypothesis 4). Additionally, longitudinal perspectives reveal that assessments of adherence, competence, and alliance demonstrated substantial stability (Hypothesis 5a). Furthermore, we could not confirm by means of the longitudinal analysis that adherence and/or competence within one session would influence alliance in the subsequent session (Hypothesis 5b). Instead, there is evidence that the alliance influenced therapist adherence and competence in the subsequent session.

In the current study, therapist adherence and therapeutic alliance were associated moderately with success and failure in psychotherapeutic treatments. Moreover, alliance was a moderator of the adherence–outcome relationship, which was also found in one previous study (Barber *et al.*, 2006). However, the finding that therapist competence was not associated with treatment failure, was unexpected. In contrast, previous studies found stronger associations between therapist competence and outcome than between therapist adherence and outcome (Barber *et al.*, 1996; Ginzburg *et al.*, 2012). However, these earlier studies did not focus on treatment failure, but on outcome in general. On the other hand, in our cross-sectional analysis, therapist competence seems to be indirectly associated with treatment success and failure, because the alliance was found to be a significant mediator between competence and outcome. This relationship between therapist competence and therapeutic alliance was found in other studies as well (Barber *et al.*, 1996; Despland *et al.*, 2009). Moreover, in line with the theoretical assumptions (Waltz *et al.*, 1993), we found therapist adherence to be a precondition for competence, which is then a precondition for alliance, and in turn, a precondition for treatment success.

However, the longitudinal analysis of our data yielded different results to the cross-sectional analysis. Therapist adherence and/or competence within one session did not significantly influence therapeutic alliance in the subsequent session, but alliance

significantly influenced therapist adherence and competence. We believe that these longitudinal analyses have important advantages compared to the cross-sectional analyses, because they enable us to consider the therapy process of three consecutive therapy sessions and not only the mean scores of those sessions, which is clearly less precise. The differing results between cross-sectional and longitudinal analyses could be explained by different levels of precision of the considered data base. Because longitudinal analyses are more precise, the results can be considered as more important and reveal that therapeutic alliance seems to be more important for therapist adherence and competence, than the other way around. One possible explanation of this finding is that a good therapeutic alliance enables the therapist to implement therapeutic techniques more adherently and competently, and that a good therapeutic alliance leads to more successful therapy results. However, we also have to take into consideration that the relationship between therapeutic alliance and treatment failure/success might not be causal. Because an alternative explanation could be that a further variable, which we did not evaluate (e.g., patient motivation) is the cause of both a good therapeutic alliance and treatment success.

The current study has many strengths, including the consideration of three different RCTs and disorders, the consideration of three subsequent therapy sessions, the analysis of relevant process variables by two independent raters, the use of standardized and reliable rating scales, and several methodological aspects (e.g., consideration of quadratic relationships, confirmatory path analysis instead of regression analysis). However, several limitations should be taken into consideration as well. In our study, we addressed CBT and considered only a subsample of those treatments (37%) which demonstrated either failure or success. The reason for this procedure was grounded in the high costs of the rating process (2 judges  $\times$  61 patients  $\times$  3 videotapes = > 366 hr rating time) and the aims of our study (i.e., investigation of relevant variables for treatment failure). It is therefore important to note that our results are not directly comparable to studies which considered the whole spectrum of treatment outcome and are not generalizable to all patients who receive CBT.

In the current study, the waiting list control groups were not taken into consideration. This procedure implies that we expected positive effects only in the active treatment conditions (see Dunn & Bentall, 2007). However, positive effects could also have occurred in the waiting list control group. Novel statistical approaches (Dunn & Bentall, 2007; Dunn *et al.*, 2012) are able to address this issue, but these analyses are beyond the scope of this paper.

Moreover, the assessment of process variables was conducted in the context of three highly standardized RCTs. In the RCTs, therapists received intensive training, which can be considered as limiting the level of variance in therapists' competence. It is questionable whether different results would emerge in less standardized treatment studies.

Furthermore, the BDI was used as the self-report measure for patients with recurrent major depression. However, future studies should favor the revision of the BDI, because it more accurately represents the diagnostic criteria of the diagnosis (Beck & Steer, 1996).

Different process measures were rated by the same raters. Therefore, it can be questioned whether the simultaneous assessment of different processes decreases the quality of the data. However, in empirical research, it could be demonstrated that the simultaneous assessment of different instruments is possible without substantially lowering the quality of the data (Ulvenes *et al.*, 2012).

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