

Assessment Working Alliance Inventory-Short Revised (WAI-SR): Psychometric Properties in Outpatients and Inpatients

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The Working Alliance Inventory-Short Revised (WAI-SR) is a recently refined measure of the therapeutic alliance that assesses three key aspects of the therapeutic alliance: (a) agreement on the tasks of therapy, (b) agreement on the goals of therapy and (c) development of an affective bond. The WAI-SR demonstrated good psychometric properties in an initial validation in psychotherapy outpatients in the USA. The generalizability of these findings is limited because in some countries a substantial portion of individual psychotherapy is delivered in inpatient settings. This study investigated and compared the psychometric properties of the WAI-SR in German outpatients ($N = 88$) and inpatients ($N = 243$). In both samples reliability ($\alpha > 0.80$) and convergent validity with the Helping Alliance Questionnaire were good ($r > 0.64$). Confirmatory factor analysis showed acceptable to good model fit for the proposed Bond-Task-Goal model in both samples. Multi-group analysis demonstrated that the same constructs were measured across settings. Alliance ratings of outpatients and inpatients differed regarding the overlap of alliance components and the magnitude of the alliance ratings: The differentiation of the alliance components was poorer in inpatients and they reported lower alliances. Unique aspects of the alliance in inpatient treatment are discussed and a need for further research on the alliance in inpatient settings is pointed out. Overall, the WAI-SR can be recommended for alliance assessment in both settings. Copyright © 2009 John Wiley & Sons, Ltd.

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Key Practitioner Message

- The Working Alliance Inventory-Short Revised (WAI-SR) is a 12-item measure for the assessment of the therapeutic alliance.
- The WAI-SR is pantheoretic and captures three key alliance aspects: (a) agreement on the tasks of therapy, (b) agreement on the goals of therapy and (c) development of an affective bond.
- This study demonstrates good psychometric properties of the WAI-SR in outpatients and inpatients.
- The WAI-SR is ready to be used by psychotherapists interested in the therapeutic alliance, for supervision and process research.

Keywords: Therapeutic Alliance, Assessment, Inpatients, Outpatients, Psychotherapy Process

BACKGROUND

Most definitions agree that the therapeutic alliance 'represents [the] interactive, collaborative elements of the relationship [. . .] in the context of an affective bond' (Constantino, Castonguay, & Schut, 2002, p. 86). The therapeutic alliance is regarded as one of the most important aspects of the therapeutic process and accounts for approximately 5% of the variance in treatment outcome (Martin, Garske, & Davis, 2000). It has been studied extensively and several efforts have been made to derive therapeutic principles that aim at fostering the therapeutic alliance (Grosse Holtforth & Castonguay, 2005; Safran & Muran, 2000). Strong assessment tools of the therapeutic alliance are crucial for psychotherapy research and practice (Castonguay, Constantino, & Grosse Holtforth, 2006); therefore, the development and refinement of alliance measures is an important task (Hatcher & Gillaspay, 2006; Shelef & Diamond, 2008).

The Working Alliance Inventory-Short Revised (WAI-SR; Hatcher & Gillaspay, 2006) is a recently refined measure of the therapeutic alliance. The WAI-SR is based on Horvath and Greenberg's (1986, 1989) widely used Working Alliance Inventory (WAI). Like the original scale it measures the three aspects of the therapeutic alliance proposed by Bordin (1979): (a) agreement on the tasks of therapy, (b) agreement on the goals of therapy and (c) development of an affective bond between patient and therapist. In comparisons to the WAI and a previous short version of the WAI (WAI-S; Tracey & Kokotovic, 1989), the WAI-SR demonstrated a clearer representation of the alliance dimensions and an improved model fit in confirmatory factor analysis (CFA) by excluding negatively worded items. The WAI-SR demonstrated an acceptable model fit for the Bond-Task-Goal

model, a superior fit as compared to rivaling models and lower-scale intercorrelations than WAI and WAI-S. Reliability and convergent validity with the Helping Alliance Questionnaire (HAQ; Luborsky, 1976) and the California Psychotherapy Alliance Scale (Gaston & Marmar, 1994) were good (total score correlations > 0.74).

Hatcher and Gillaspay's (2006) promising initial validation of the WAI-SR and its theoretical foundation in Bordin's (1979) pantheoretic conception of the alliance argue for the scales's utility in different psychotherapeutic contexts. However, further investigations are needed to extend and replicate the existing findings in diverse settings, patient populations and regarding different therapeutic approaches. Most often American outpatients were studied with diverse versions of the WAI and the validity in this treatment setting is established. However, the generalizability of US findings might be limited, if taken into account that in other countries like Germany a large portion of individual psychotherapy for the full range of mental disorders is delivered in inpatient settings (e.g., Robert-Koch-Institut, 2008). Although, studies on the alliance-outcome relation in inpatient psychotherapy have been conducted (see Salamin et al., 2008 for a review), these studies often used measures without information on their validity in this context. An exception is the German version of the HAQ (Bassler, Potratz, & Krauthauser, 1995), which has been validated in inpatients. However, the scale consists of items measuring treatment outcome rather than the alliance (Hatcher & Barends, 1996), which also raised concerns amongst its authors (Luborsky et al., 1996).

This study aims at an investigation of the psychometric properties of the WAI-SR in inpatient psychotherapy. Factor structure, factor invariance and other psychometric properties (reliability, intercorrelations of subscales and convergent

validity) are reported and compared to results in an outpatient sample.

METHODS

Participants and Setting

One outpatient and one inpatient sample were included in the study. Informed consent was obtained from all patients. The outpatient sample consisted of 88 patients in ongoing psychotherapy at a university outpatient clinic in southwest Germany. Sixty-three per cent of the outpatients were female; mean age was 35.2 years ($SD = 11.4$). The four most frequent main diagnoses were depressive disorders (42.6%), anxiety disorders (20.4%), adjustment disorders (18.5%) and personality disorders (5.6%). Therapists were master-level clinical psychologists enrolled in a training program for cognitive-behavioural therapy. On average, outpatient therapists saw between three and four patients. The inpatient sample ($N = 243$) was composed of two sets of patients from two inpatient clinics ($N = 158$, $N = 85$), both located in southwest Germany. Of the inpatients 75.4% were female; the mean age was 38.6 years ($SD = 12.4$). The five most frequent main diagnoses were depressive disorders (54.8%), eating disorders (12.1%), anxiety disorders (11.3%), adjustment disorders (5.4%) and personality disorders (5.0%). Therapists were physicians and clinical psychologists, both professions with intensive psychotherapeutic training. On average, inpatient therapists saw about 20 patients. Treatments were tailored to the individual patient's needs within a psychodynamic framework.

Inpatient and outpatient groups were naturalistic. The German health care system does not regulate in detail which patients are to be treated in an inpatient or outpatient institution. This decision rests with the contacted health care provider, the health insurance and the patient. However, there is a consensus amongst clinicians that more functionally impaired patients should initially receive inpatient treatment to be followed up by outpatient treatment. There is some evidence suggesting that inpatients are more distressed than outpatients (Huber, Brandl, Henrich, & Klug, 2002).

Instruments

WAI-SR (Hatcher & Gillaspay, 2006; German version Wilmers et al., 2008)

The 12 items measure Bordin's (1979) Bond, Task and Goal dimensions (four items, respectively). Items are rated on a 5-point Likert scale rang-

ing from 1 = 'never' to 5 = 'always'. The WAI-SR was adapted to German using a translation-back-translation procedure. Two bilingual teams, consisting of an American and a German clinical psychologist each developed two independent German versions. These were compared, and discrepancies were resolved by consensus. The German version departs from the original in the two following ways: first, while Hatcher and Gillaspay (2006) used response options alternately placed in ascending or descending order, we opted to use ascending response options throughout all items in order to facilitate the scale's inclusion in assessment batteries; second, the original WAI items required the patients to mentally fill in the name of their therapist in an underlined space. Since patients are not used to this format we decided to replace the underlined spaces with 'my therapist'.

HAq (Luborsky, 1976; German version Bassler et al., 1995)

The HAq captures the two types of helping alliance formulated by Luborsky (1976). The scale has 11 items, rated on a 6-point Likert scale. The two subscales of the German version of the HAq are: (a) satisfaction with the relationship and (b) satisfaction with outcome. In this study, only the first subscale is regarded as a genuine measure of the therapeutic alliance. The HAq was administered only in the inpatient sample.

Procedure

Only one questionnaire per patient was included in the data set. In the outpatient sample, paper and pencil versions of the WAI-SR were handed out after the third (15.9%), tenth (55.7%) and twentieth therapy session (28.4%). In the inpatient samples the WAI-SR was assessed after four (89.9%) and eight weeks (10.1%) of inpatient treatment. Outpatient therapy sessions lasted 50 minutes with flexible frequency; inpatients had a minimum of two 30-minute sessions per week. In large part, the data stem from the first half of the therapies. In both samples, the length of treatment was not predetermined. One inpatient institution used paper and pencil versions of the instruments, while the other used electronic versions.

Statistical Analysis

Internal Consistency, Subscale Intercorrelations and Convergent Validity

Cronbach's alpha (α) was chosen to determine the internal consistency of subscales. Values between

0.80 and 0.89 were regarded as good, values ≥ 0.90 as excellent (Cicchetti, 1994). Owing to non-normality of the WAI-SR and HAq data, Spearman rank correlations and Mann–Whitney *U*-tests were calculated.

Analysis of Factor Structure

CFA was used to investigate the factor structure of the WAI-SR. In order to compare the results with Hatcher and Gillaspay (2006) we tested the same three models. The Bond-Task-Goal model (three-factor model) is compared with a two-factor model (Bond and combined Task-Goal factor) and a one-factor model (general therapeutic alliance factor). Model fits were evaluated using one absolute fit index (root mean square error of approximation [RMSEA]) and two comparative fit indices (comparative fit index [CFI]; Tucker–Lewis index [TLI]). We used the same cut-off criteria as Hatcher and Gillaspay (2006). According to Kenny (2008), RMSEA values ≤ 0.05 are good and values ≥ 0.10 are poor. For CFI and TLI values >0.95 are good, and values between 0.90 and 0.95 are acceptable. The relative fit of rivaling models was assessed with Akaike information criterion (AIC) (Schermelele-Engel, Moosbrugger, & Müller, 2003). Models with smaller AIC values have a superior model fit. Maximum likelihood (ML) estimation was used for all parameter estimations. Although the data were not normally distributed, skewness and kurtosis did not exceed proposed cut-offs for ML estimation (West, Curran, & Finch, 1995).

Factor Structure Invariance Across Samples

Multigroup analysis comparing the equivalence of the factor structure in outpatients and inpatients was used following the method described by Hair, Black, Babin, Anderson, and Tatham (2006). In this sequential method factor loadings, inter-factor covariances and error variances are constrained and compared statistically with an unconstrained model that allows parameter discrepancies across groups. Constraining factor loadings allows testing whether a scale measures the same constructs across groups. Additionally, constraining inter-factor covariances tests whether the associations between constructs are similar in groups. Constrained error variances allow for a comparison of the raw data and test the perfect congruence of the model across groups. Analyses were performed with AMOS 7.0 (Amos Development Corporation, Spring House, PA, USA) and SPSS 16.0 (SPSS Inc., Chicago, IL, USA). Only complete questionnaires were included in the analysis.

RESULTS

Descriptive Statistics, Internal Consistency and Subscale Intercorrelations

Table 1 presents descriptive results of the patients' alliance ratings. Outpatients and inpatients rated all WAI-SR subscales positively, with mean values larger than 3.0. Outpatients rated WAI-SR Bond, WAI-SR Goal and WAI-SR Total more positively than did inpatients (Bond: $z = 3.16$, $p = 0.001$; Task: $z = 0.69$, $p = 0.245$; Goal: $z = 2.90$, $p = 0.002$; WAI-SR total: $z = 2.03$, $p = 0.021$). For outpatient and inpatient samples Cronbach's alpha of WAI-SR subscales were good ($\alpha > 0.80$), and excellent for the WAI-SR total score ($\alpha > 0.90$) (see Table 1). The intercorrelations of WAI-SR subscales ranged from 0.49 to 0.75 in outpatients and from 0.57 to 0.75 in inpatients. In both samples, the highest correlations were found between WAI-SR Task and WAI-SR Goal (outpatient sample: Bond-Task $r = 0.49$, Bond-Goal $r = 0.54$, Task-Goal $r = 0.75$; inpatient sample: Bond-Task $r = 0.57$, Bond-Goal $r = 0.69$, Task-Goal $r = 0.75$; all $ps < 0.001$). Correlations between subscales were not consistently higher for either group. The association between WAI-SR Bond and WAI-SR Goal was stronger for inpatients (Bond-Task: $z = -0.835$, $p = 0.202$; Bond-Goal: $z = -0.1898$, $p = 0.029$; Task-Goal: $z = 0.145$; $p = 0.558$).

Convergent Validity

To address convergent validity, the WAI-SR ratings were correlated with the HAq scores obtained at the same point of measurement (see Table 2). WAI-SR subscales correlated substantially with HAq relationship ($r > 0.64$) and the HAq total score ($r > 0.56$). Correlations of WAI-SR subscales with

Table 1. Descriptive results and internal consistency of WAI-SR subscales and total score in outpatient and inpatient samples

WAI-SR scale	Outpatients (<i>N</i> = 88)			Inpatients (<i>N</i> = 243)		
	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α
Bond	4.0	0.78	0.82	3.7	0.93	0.83
Task	3.4	0.77	0.85	3.4	0.86	0.86
Goal	4.0	0.68	0.81	3.6	1.02	0.91
Total	3.8	0.63	0.90	3.6	0.83	0.93

WAI-SR = Working Alliance Inventory-Short Revised. α = Cronbach's alpha.

HAq outcome were markedly lower ($r < 0.55$). The WAI-SR total score correlated significantly higher with HAq relationship ($r = 0.75$) than with HAq outcome ($r = 0.44$) ($z = 5.43, p < 0.001$).

Table 2. Convergent validity of the WAI-SR: Correlations with the HAq scales (inpatient sample)

WAI-SR scales	HAq scales		
	Relationship [†] ($\alpha = 0.92$)	Outcome [†] ($\alpha = 0.75$)	Total [†] ($\alpha = 0.87$)
Bond	0.65	0.26	0.56
Task	0.64	0.55	0.70
Goal	0.69	0.36	0.63
Total	0.75	0.44	0.71

All correlations $p < 0.001$.

[†] $N = 238, ^{\ddagger}N = 237$.

WAI-SR = Working Alliance Inventory-Short Revised. HAq = Helping Alliance Questionnaire (Luborsky, 1976; German version Bassler et al., 1995). α = Cronbach's alpha.

Factor Structure

Table 3 summarizes the results of the CFA for the three different models. In both samples all fit indices showed a poor fit for the one-factor model ($RMSEA \geq 0.14, CFI \leq 0.87$ and $TLI \leq 0.84$). Fit indices demonstrated an acceptable fit for the two-factor model in outpatients ($RMSEA = 0.09, CFI = 0.93, TLI = 0.91$). In inpatients $RMSEA (0.11)$ indicated poor fit, whereas $CFI (0.92)$ and $TLI (0.90)$ were acceptable. For the three-factor model CFI was good in both samples (0.95 , respectively) and $RMSEA (\leq 0.09)$ and $TLI (0.93, respectively)$ were acceptable. AIC values were consistently lower for the three-factor model indicating a better fit as compared with both rivaling models. Figures 1 and 2 provide information on the inter-factor covariances, factor loadings and error variances in the outpatient and inpatient sample, respectively. Inter-factor covariances in outpatients ranged from

Table 3. Fit indices of three different factor models of the Working Alliance Inventory-Short Revised

Model	χ^2	df	p	RMSEA	CFI	TLI	AIC
Outpatients ($N = 88$)							
One factor	163.8	54	<0.001	0.15	0.78	0.73	211.8
Two factors	90.5	53	0.001	0.09	0.93	0.91	140.5
Three factors	77.8	51	0.009	0.08	0.95	0.93	131.8
Inpatients ($N = 234$)							
One factor	315.0	54	<0.001	0.14	0.87	0.84	363.0
Two factors	209.1	53	<0.001	0.11	0.92	0.90	259.1
Three factors	158.9	51	<0.001	0.09	0.95	0.93	212.9

One factor = model with general alliance factor. Two factors = Bond factor and combined Task-Goal factor. Three factors = Bond, Task, and Goal factor. $RMSEA$ = root mean square error of approximation. CFI = comparative fit index. TLI = Tucker-Lewis index. AIC = Akaike information criterion.

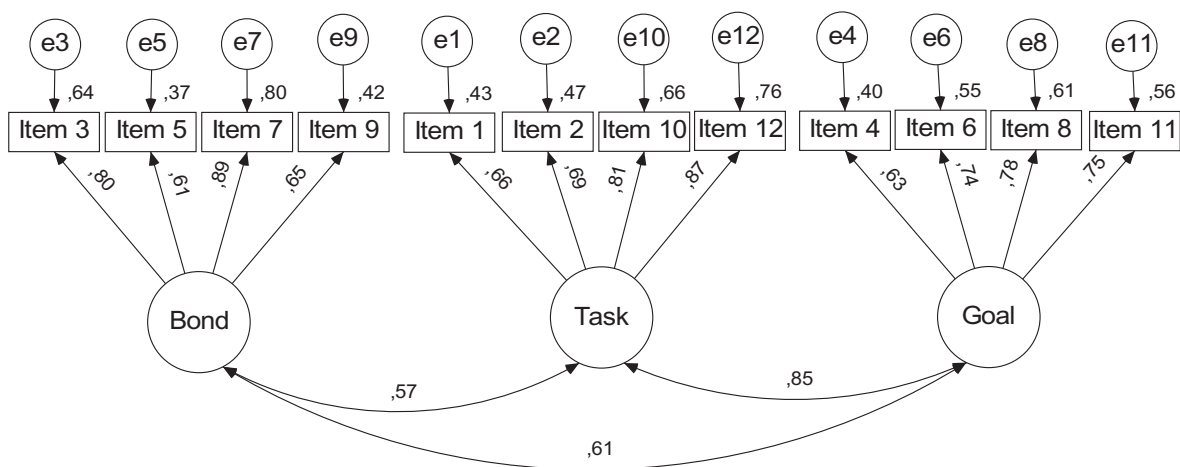


Figure 1. Inter-factor covariances, factor loadings, and error variances of the Bond-Task-Goal model in outpatients ($N = 88$)

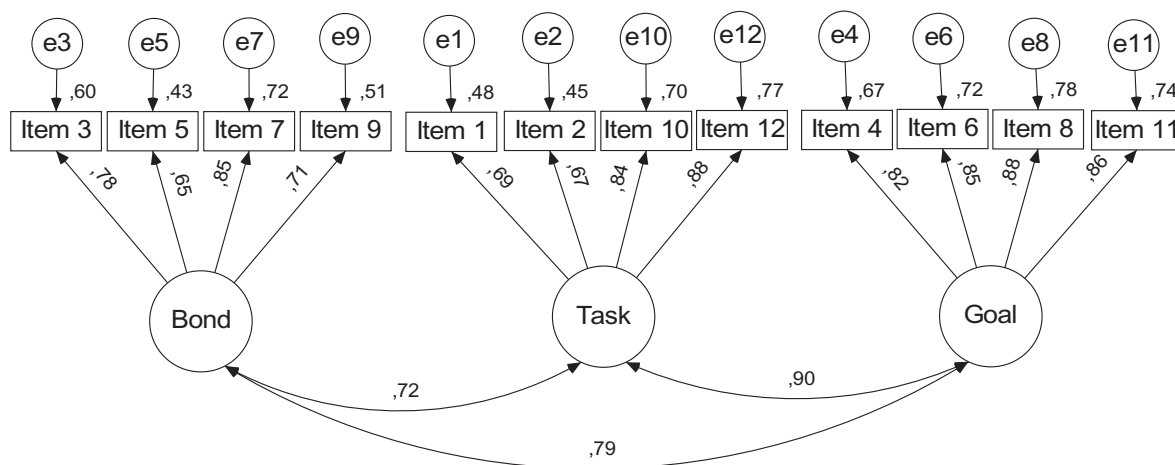


Figure 2. Inter-factor covariances, factor loadings, and error variances of the Bond-Task-Goal model in inpatients ($N = 243$)

Table 4. Multigroup comparison of the three-factor model of the WAI-SR in outpatients and inpatients

Constrained parameters	χ^2	df	$\Delta \chi^2$	Δ df	$p \Delta \chi^2$
Unconstrained model	236.8	102			
Factor loadings	242.1	111	5.2	9	0.812
Factor loadings, inter-factor covariances	262.3	117	25.4	15	0.045
Factor loadings, inter-factor covariances, error variances	282.7	129	45.9	27	0.013

WAI-SR = Working Alliance Inventory-Short Revised.

0.57 to 0.85 and in inpatients from 0.72 to 0.90 meaning that associations between constructs are consistently higher in inpatients.

Factor Structure Invariance Across Samples

Table 4 presents data regarding the invariance of the factor structure in outpatients and inpatients. The comparison of the unconstrained model and the model with constrained factor loadings showed that the WAI-SR measured the same constructs in both groups ($p = 0.812$). Imposing additional constraints was associated with a decreased fit ($p < 0.05$). Thus, the relationship between the constructs varied between outpatient and inpatient groups.

DISCUSSION

The present study provides evidence for the replicability of previous findings on the psychometric quality of the WAI-SR and also for the generalizability of these results to other populations. Using

the German-language WAI-SR in outpatients and inpatients the results are widely in accordance with those of Hatcher and Gillaspay (2006), and overall, support the reliability and validity of the WAI-SR. Across samples the WAI-SR subscales and total score demonstrate very good internal consistency. The substantial correlations with alliance-related items of the HAq support the convergent validity of the WAI-SR. Lower correlations with HAq items measuring patients' satisfaction with outcome indicate that the WAI-SR does not confound alliance and outcome constructs. Since satisfaction with outcome is conceptually different from the therapeutic alliance lower correlations demonstrate the conceptual clarity of the WAI-SR.

Bordin's (1979) Bond-Task-Goal model has shown acceptable to good model fits in outpatients and inpatients. In both of our samples, the three-factor model was replicated. Furthermore, multi-group analysis suggests that the WAI-SR measured the same constructs in both samples. These findings suggest that the WAI-SR is able to distinguish the Task and Goal aspect of the therapeutic alliance. In contrast to our findings

Andrusyna, Tang, DeRubeis, and Luborsky (2001) and Hatcher and Barends (1996) found evidence for the superior fit of a two-factor model with a combined Task-Goal factor (using the WAI-O and the WAI-S, respectively). As in the present study the Task and Goal subscales were highly correlated, too, these two aspects of alliance seem to be strongly associated. Therefore, it seems important to explore further if these two subscales have unique prognostic capacities.

Despite the similarities across treatment settings the study also shows two main discrepancies between outpatient and inpatient alliances. First, the differentiation of the Bond, Task, and Goal constructs is poorer in inpatients: CFA showed higher inter-construct associations in inpatients than in outpatients and multi-group analysis indicated that inter-construct associations are different across samples. Second, inpatients rated the therapeutic alliance less positively than outpatients, suggesting poorer therapeutic alliances in this group. So far there is limited empirical evidence on alliance formation and quality in different treatment settings that give hints on the interpretation of these findings. However, compared to outpatient psychotherapy, inpatient treatment provides a different context for individual therapy, which might also influence the alliance to the individual therapist. Some potentially important contextual influences in inpatient psychotherapy are discussed below (partly building on previous literature [Blais, 2004; Dinger, 2008; Salamin et al., 2008]). First, positive changes in mental health occurring as a result of individual therapy might not be as clearly attributed by the patient to the individual therapy since inpatient treatment consists of several components. As a consequence the status of the therapeutic alliance with the individual therapist might be less clear than in outpatient psychotherapy. Second, the alliance with the individual therapists might be compared with other relationships to treatment team members. This could lead to a more critical evaluation of the alliance or to a perception of the alliance with the individual therapist as being less important. Third, it might be argued that the therapeutic alliance in inpatient treatment is more accurately conceptualized as a patient-treatment team relationship since other treatment team members might be involved in the process of negotiating the tasks and goals of treatment. Therefore, classical alliance measures might fail to capture relevant facets of the alliance in inpatient treatment (Blais, 2004). Fourth, the patient's attachment to the individual therapist might be influenced by the

experience that their 'own' therapist has also close relationships to other patients who are known to the patient and with whom the patient interacts.

Severity of the patients' problems has also been discussed as an influence on the alliance. There are some studies that found more disturbed patients to have poorer alliances (see Horvath & Bedi, 2002 for a review). Although problem severity was not compared across samples in the present study, poorer alliance in inpatients might be explained by higher level of distress impacting the patient-therapist relationship.

Limitations

Our comparison of two samples from different treatment settings yielded some differences between these settings. However, besides the treatment setting there are alternative explanations for the differences between groups. First, because patients were not randomly allocated to treatment settings numerous other factors might account for differences found between groups. However, randomizing patients to treatment settings is not feasible in research with data from routine care. Second, outpatient and inpatient treatments were based on different therapeutic rationales and therapists had different professional backgrounds and amount of experience. Therefore, future research should explore the role of treatment setting in the formation of the therapeutic alliance under more comparable conditions of treatment and experience. A further limitation is the relatively small outpatient sample. CFA results on the basis of small samples are less stable than with larger data sets. However, Hatcher and Gillaspay (2006) reported on two large outpatient samples and yielded similar results. Third, pooling data from computerized and from paper and pencil versions of instruments allowed to base CFA results in inpatients on a large sample. However, pooling data from different modes of administration can introduce irrelevant variance in the data. Although no mean differences in WAI-SR subscales were found between modes of administration (data not shown), fine-grained analyses on item level might reveal differences in item response.

Conclusions and Future Research

We conclude that further studies are needed to investigate the development and structure of the alliance in individual psychotherapy across

treatment settings. As mentioned before, it would be especially important to gain a better understanding of the individual therapy alliance in inpatient settings. Cognitive interviews (e.g., Willis, 2005) on WAI-SR items might be useful for a cross-setting validation of the alliance constructs formulated by Bordin (1979) and to determine, whether inpatients have different frames of reference when evaluating the alliance. It would also be interesting to investigate, whether coexisting relationships in inpatient treatment influence the therapeutic alliance in individual therapy. A measure constructed to capture the patient-treatment team relationship (Blais, 2004) might be useful in this context.

Using the German version our study replicated previous results on good psychometric properties of the WAI-SR (Hatcher & Gillaspay, 2006) in outpatients and provides evidence for a comparable performance of the scale in inpatients. Therefore, the WAI-SR can be recommended for use in inpatient and outpatient treatment settings.

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