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The Individual Therapy Process Questionnaire: Development and Validation of a Revised Measure to Evaluate General Change Mechanisms in Psychotherapy

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There is a dearth of measures specifically designed to assess empirically validated mechanisms of therapeutic change. To fill in this research gap, the aim of the current study was to develop a measure that covers a large variety of empirically validated mechanisms of change with corresponding versions for the patient and therapist. To develop an instrument that is based on several important change process frameworks, we combined two established change mechanisms instruments: the Scale for the Multiperspective Assessment of General Change Mechanisms in Psychotherapy (SACiP) and the Scale of the Therapeutic Alliance—Revised (STA-R). In our study, 457 psychosomatic inpatients completed the SACiP and the STA-R and diverse outcome measures in early, middle and late stages of psychotherapy. Data analyses were conducted using factor analyses and multilevel modelling. The psychometric properties of the resulting Individual Therapy Process Questionnaire were generally good to excellent, as demonstrated by (a) exploratory factor analyses on both patient and therapist ratings, (b) CFA on later measuring times, (c) high internal consistencies and (d) significant outcome predictive effects. The parallel forms of the ITPQ deliver opportunities to compare the patient and therapist perspectives for a broader range of facets of change mechanisms than was hitherto possible. Consequently, the measure can be applied in future research to more specifically analyse different change mechanism profiles in session-to-session development and outcome prediction. Copyright © 2014 John Wiley & Sons, Ltd.

Key Practitioner Message:

- This article describes the development of an instrument that measures general mechanisms of change in psychotherapy from both the patient and therapist perspectives.
- Post-session item ratings from both the patient and therapist can be used as feedback to optimize therapeutic processes.
- We provide a detailed discussion of measures developed to evaluate therapeutic change mechanisms.

Keywords: Change Mechanisms, Psychotherapy Research, Therapeutic Processes, Instrument Development

INTRODUCTION

Common factors have become a research topic of high interest in the last decades in psychotherapy research (Grawe, 2004; Orlinsky, 2009; Prochaska & Prochaska, 2010). In fact, several leading psychotherapy researchers postulate that more outcome variance is explained by common factors than by specific therapeutic interventions (Lambert, 2013; Orlinsky, Ronnestad, & Willutzki, 2004; Wampold, 2012). A promising integrative framework that focuses on common factors and has received increasing international attention (Caspar, 2010; Caspar *et al.*, 2010) is Grawe's psychological therapy model (Grawe, 1995, 1997, 2004; Grawe, Donati, & Bernauer, 1994). This model states that

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all psychological interventions should be based on empirical findings from a background as broad as possible, including basic psychological science and all the various schools of psychotherapy (Smith & Grawe, 2005). This integrative framework should be continually revised to the latest empirical findings (Grawe, 1997). The core construct of Grawe's theory consists of five empirically derived general mechanisms of change that are based on thousands of findings from psychotherapy process research as well as from randomized clinical trials (Grawe, 2004; Grawe *et al*., 1994; Orlinsky, Grawe, & Parks, 1994): (1) *resource activation* refers to the purposeful use of the individual abilities of the patient for therapeutic change; (2) *problem actuation* is the actual emotional experience of the problem in the current therapy session; (3) *mastery* is defined as the concrete experience of learning to cope with specific problem situations; (4) *clarification of meaning* reflects the realization of (un) conscious goals and motives of one's own behaviour and experience; and, finally, (5) the *therapeutic alliance* refers to the quality of the relationship between the therapist and patient (Grawe, 1995, 1997, 1999, 2004; Grawe *et al*., 1994).

CHANGE MECHANISMS INSTRUMENTS IN PSYCHOTHERAPY RESEARCH

Although there is still a dearth of specific measures, especially of instruments designed with parallel forms from the patient and therapist perspectives, post-session reports of therapeutic processes have been considered an important topic of scientific research since Orlinsky introduced his Therapy Session Report (TSR; Orlinsky & Howard, 1967). This measure includes 168 items and consists of the five content facets of dialogue, relationship, affective process, exchange process and role implementation and has parallel forms for the patient and therapist perspectives. The TSR was further developed in the Vanderbilt Psychotherapy Process Scales with its revised client and therapist perspective versions; the six dimensions of the measure are therapist exploration, negative relationship, patient psychic distress, patient participation, therapist warmth and friendliness, and patient dependence (Smith, Hilsenroth, Baity, & Knowles, 2003; Suh, O'Malley, Strupp, & Johnson, 1989). Two other well-established session reports assessed only from the patient perspective are the Session Evaluation Questionnaire (Stiles, 1980; Stiles *et al*., 1994), a measure of global evaluation of the session with the four components of depth, smoothness, positivity and arousal, and the Session Impact Scale (Elliott & Wexler, 1994), a measure addressing specific in-session impacts with the three components of task impacts, relationship impacts and hindering impacts. The problem with all these measures is that their components are not theory derived but rather based on considerations of therapists and the developing researcher (Orlinsky & Howard, 1967; Stiles, 1980) or derived from cluster analyses of open-ended descriptions of patients (Elliott & Wexler, 1994). However, an elaborated theoretical conception constitutes an important basis for empirical research. Further, the TSR and the Vanderbilt Psychotherapy Process Scales with 168 and 80 items, respectively, are too time-consuming to be integrated into the everyday therapeutic process. A highly sophisticated framework concerning general mechanisms of change is Grawe's (1995, 2004) aforementioned psychological therapy model, which is based on theoretical considerations referring to thousands of findings in psychotherapy research. Mechanisms of change can be specifically evaluated on the basis of the actual therapy session with the Scale for the Multiperspective Assessment of General Change Mechanisms in Psychotherapy (SACiP, Mander *et al*., 2013), which is an advancement of the Bernese Post-Session Report (BPSR; Flückiger, Regli, Zwahlen, Hostettler, & Caspar, 2010). It consists of six subscales concerning Grawe's mechanisms of change. The subscales reflecting the therapeutic alliance are derived from Bordin's (1979) framework that defines the three components of *tasks*, *goals* and *bond*. A variety of research ventures have been conducted by applying these post-session process measures to predict outcome (e.g., Flückiger, Grosse Holtforth, Znoj, Caspar, & Wampold, 2013; Stangier, Von Consbruch, Schramm, & Heidenreich, 2010) and by investigating session-by-session dynamics (e.g., Lutz *et al*., 2013).

COMPONENTS OF THE THERAPEUTIC ALLIANCE

There are different approaches operationalizing the therapeutic alliance (Elvins & Green, 2008). Elvins and Green (2008) report that among the most important instruments are the Helping Alliance Questionnaire (HAQ; Alexander & Luborsky, 1986), the Working Alliance Inventory (WAI; Horvath & Greenberg, 1986) and the California Psychotherapy Alliance Scales (CALPAS; Gaston, 1991). According to Orlinsky *et al*.'s (2004) generic model, reciprocal affirmation of the patient and therapist, patient interactive collaboration and the therapist and especially patient contributions to the alliance are among the most relevant outcome predictors from the patient, therapist and observer perspectives. Hence, a therapeutic relationship scale that reflects all relevant components of the therapeutic alliance needs to address all of these concepts. The WAI reflects collaborative and reciprocal affirmation with its three subscales referring to bond, goals and tasks. The CALPAS was specifically designed to assess the patient and therapist contributions to the alliance in addition to collaboration or consensus. Consequently, a combination of the items of these different alliance measures could result in a conceptually stronger instrument that addresses most of the relevant empirically validated alliance dimensions. To develop a short and

economical instrument covering most empirically validated aspects of the therapeutic alliance, Hatcher and Barends (1996) conducted factor analyses on the aforementioned three most widely applied alliance measures. Their results suggest that the items of the HAQ are too general and non-specific to distinguish important dimensions of the alliance. Further, they conclude that a broader conceptualization of the alliance is necessary in order to address more affective and interpersonal aspects of the bond, aspects that have also been identified as important outcome predictors in the generic model (Orlinsky *et al*., 2004). From their theoretical analysis concerning these aspects, Hatcher and Shannon (2005) derived the two components of patient fears and therapist interference and integrated them into their 36-item Combined Alliance Scale. These two new subscales demonstrate excellent psychometric properties (Brockmann *et al*., 2011). As a short version of the Combined Alliance Scale, the Scale of the Therapeutic Alliance—Revised (STA-R; Brockmann *et al*., 2011) has been developed.

COMPONENTS OF CHANGE MECHANISMS INSTRUMENTS

Recently, several leading psychotherapy researchers have called for studies of central processes of change in effectiveness research (Lambert, 2013; Lutz, 2003; Norcross & Lambert, 2011; Orlinsky, 2009; Prochaska & Norcross, 2010; Schiepek & Aichhorn, 2013; Schiepek, Aichhorn, & Strunk, 2012). There is a dearth of measures designed expressly to assess empirically validated mechanisms of therapeutic change during the course of treatment, as can be concluded from the above cited literature. Consequently, we are in need of instruments that cover as many components as possible of theoretically postulated and empirically validated constructs concerning therapeutic processes to better understand how psychological treatments and changes truly work (Flückiger, Regli, Zwahlen, Hostettler, & Caspar, 2010; Grawe, 2004; Orlinsky *et al*., 2004). Further, these instruments should be as economical as possible because they are to be applied in clinical settings, where therapeutic interventions and not research are first priority (Joyce, MacNair-Semands, Tasca, & Ogrodniczuk, 2011; Mühlan, Bullinger, Power, & Schmidt, 2008). The SACiP (Mander *et al*., 2013) is an instrument covering several empirically derived mechanisms of change. However, the components of the SACiP addressing the therapeutic alliance refer to Bordin's (1979) concept only. As we have outlined above, there are several other theoretically and empirically relevant concepts concerning the therapeutic alliance (Brockmann *et al*., 2011; Hatcher & Barends, 1996). A measure that addresses mechanisms of change should include all the alliance dimensions that have been identified as relevant for outcome prediction. Hence, the aim of this study is to combine the items of the SACiP and the STA-R to create a new instrument: the Individual Therapy Process Questionnaire (ITPQ) that covers a large variety of empirically validated facets of mechanisms of change with corresponding versions for the patient and therapist. Specifically, we hypothesized that our newly developed instrument would show an eight-factor structure pertaining to the SACiP general change mechanism subscales of *resource activation*, *problem actuation*, *mastery* and *clarification of meaning*, as well as to the *goals* and *tasks*, *bond*, *patient fear* and *therapist interference* components of the therapeutic alliance subscales of the STA-R. Further, as an aspect of criterion-related validity, we presumed that more favourable values on these empirically derived components would predict better treatment outcomes. Additionally, we explored the course of change mechanisms across different stages of psychotherapy and investigated differences between the patient and therapist perspectives. We hypothesized that the patient perspective is a stronger predictor of outcome, and the expected patient and therapist perspectives are correlated to only a slight extent, as has been demonstrated in previous work concerning the SACiP (Mander *et al*., 2013).

METHOD

Subjects

The participants in this study were 504 patients. Four-hundred eight patients were treated in an inpatient unit because they suffered from severe psychopathology and, thus, could not be effectively treated in an outpatient setting. The other 96 patients were treated in an outpatient setting. Of these, only cross-sectional data of the ITPQ at t_1 were available. Specific inclusion criterion was a main diagnosis of a major depressive episode, a somatoform disorder, or an eating disorder in the Structured Clinical Interview for DSM-IV (SCID-I), German version (Wittchen, Wunderlich, Gruschwitz, & Zaudig, 1997). General exclusion criteria were as follows: (1) an age below 18 years; (2) insufficient German language skills; and (3) a psychotic or substance-related disorder. Co-morbidities of anxiety or depressive disorders were no limitations to enter the study. Altogether, 457 (428) complete data sets were available from the therapist (patient) perspective. For the inpatient sample, dropouts reduced the number of usable inpatient data sets to 363 at t_1, 211 at t_2 and 292 at t_3 from the therapist perspective and to 359 at t_1, 196 at t_2 and 261 at t_3 from the patient perspective. There were larger data sets available for t_3 than for t_2 because we had to exclude the second measure point due to practical clinical aspects of the clinic after assessing the first 250 patients. No significant differences between these subgroups were found regarding either their demographic or descriptive compositions. The characteristics of the more complete sample are provided in Table 1.

Table 1. Demographic and descriptive data of study completers ($n = 447$)

Variable	*n* (%)
Male	156 (34.6)
Age mean (SD)	31 (18.09)
Married	186 (41.3)
A-level degree	155 (34.9)
Formal professional qualification	321 (72.3)
Employed	258 (58.8)
Major depression	201 (44.9)
Anxiety disorder	76 (17.0)
Somatoform disorder	83 (18.6)
Eating disorder	87 (19.5)

SD = standard deviation.

Measures

Construction of the ITPQ

We combined the items of the SACiP (Mander *et al*., 2013) and the STA-R (Brockmann *et al*., 2011) to construct a new instrument: the ITPQ. Thus, we will first of all provide a psychometric description of the original instruments.

The SACiP (Mander *et al*., 2013) measures the six dimensions of *resource activation*, *problem actuation*, *mastery*, *clarification of meaning* and *emotional bond* with three items each and *agreement on collaboration*, which comprises the aspects of tasks and goals with six items. It was developed on the basis of items from the WAI (Horvath & Greenberg, 1986) and the BPSR (Flückiger *et al*., 2010). The SACiP consists of 21 items that are rated on a five-step scale ranging from 0 (does not apply) to 4 (applies fully) with correspondingly formulated items from the patient and therapist perspectives. The measure demonstrated an excellent factor structure with factor loadings of $0.51 \leq \lambda \leq 0.85$. Confirmatory factor analyses (CFA) supported the exploratory model. The instrument revealed good to excellent internal consistencies, with $0.71 \leq \alpha \leq 0.90$. Referring to the criterion-related validity, the outcome was significantly predicted by all change mechanisms except for problem actuation.

The STA-R (Brockmann *et al*., 2011) is a 17-item German short version of a 36-item instrument developed by Hatcher and Shannon (2005). To develop the instrument, Hatcher and Barends (1996) first conducted factor analyses on the three most widely applied alliance measures, namely the HAQ (Alexander & Luborsky, 1986), the WAI (Horvath & Greenberg, 1986) and the CALPAS (Gaston, 1991). Further, Hatcher and Shannon (2005) appended items concerning the two constructs of patient fears and therapist interference. The STA-R consists of the four factors *patient fear*, *emotional bond*, *confident collaboration* and *therapist interference*. It consists of 17 items that are rated on a five-step scale ranging from 0 (not correct at all) to 4 (fully correct) with correspondingly formulated items from the patient and therapist perspectives. The measure demonstrated an excellent factor structure with factor loadings of $0.52 \leq \lambda \leq 0.87$. CFA supported the exploratory model. The instrument revealed acceptable to excellent internal consistencies, with $0.62 \leq \alpha \leq 0.85$. Referring to the criterion-related validity, the outcome was significantly predicted by all therapeutic alliance components with $0.31 \leq |r| \leq 0.43$.

To adapt items for the ITPQ, some changes in wording from the original items were necessary to focus the items' content explicitly to the current therapy session. Further, as no items for the STA-R therapist perspective existed, we had to phrase corresponding items. The resulting measure was intended to reflect the eight theoretical dimensions of resource activation, problem actuation, mastery, clarification of meaning, emotional bond, goals and tasks, therapist interference and patient fear. Thus, the ITPQ consists of 36 items (Table 2) that are rated on a five-step scale ranging from 0 (not correct at all) to 4 (fully correct) with correspondingly formulated items for the patient and therapist. The instrument refers to individual psychotherapy only. The ITPQ was originally formulated in the German language. The German version of the ITPQ (German 'Fragebogen zu Prozessmerkmalen der Einzelpsychotherapie (FPE)') can be obtained from the corresponding author on request. The English items together with instructions are listed in the Appendix. The translation of the German version of the SACiP and the appropriated STA-R items into English was carried out according to the forward-backward procedure. After a member of the research team translated the original version into English, the English items were back-translated into German by a bilingual PhD student without referring to the original German version. The differences between the back-translated and the original German versions were minimal, and the final version (Table 2) was developed by consensus with the further help of Robert Hatcher, the author of the original English STA-R items.

Outcome Measures

The German version of the Symptom-Checklist-90-Revised (SCL-90-R; Derogatis & Lazarus, 1994; Franke, 2002) is a measure of general symptom severity. It consists of 11 subscales, with 90 items on a five-step scale. It showed excellent internal consistencies, with $0.79 \leq \alpha \leq 0.89$, good retest reliabilities, with $0.69 \leq r \leq 0.92$, and acceptable construct validity with scale-outcome correlations between $0.27 \leq r \leq 0.81$.

The German version of the Perceived Stress Questionnaire (PSQ; Fliege, Rose, Arck, Levenstein, & Klapp, 2001; Levenstein *et al*., 1993) is a 30-item scale to evaluate the stress level of the patient with the seven factors of *harassment*, *overload*, *irritability*, *lack of joy*, *fatigue*, *worries* and *tension* rated on a five-step scale. It revealed excellent psychometric properties with internal consistencies of $0.80 \leq \alpha \leq 0.86$. The measure demonstrated convergent validity with correlations of $0.56 \leq r \leq 0.73$ with other

Table 2. Communalities (h^2) and factor loadings (λ) of the seven factors of the therapist perspective (patient perspective in brackets) at t_1

Factors therapist perspective	Factors patient perspective	Items	h^2	λ_1	λ_2	λ_3	λ_4	λ_5	λ_6	λ_7
Resources and mastery	In-session impact	In today's session, the patient (I) felt where his/her (my) strengths lie. (Item 3) †	0.76 (.64)	0.80	(0.76)					
		After today's session, I assume that the patient (I) can cope better with situations which are difficult for him/her (me). (Item 7)‡	0.72 (0.71)	0.71	0.34 (.74)					
		By means of today's session, the patient (I) felt enhanced in his/her (my) self-concept. (Item 10) †	0.68 (0.68)	0.73	(0.77)					
		Today, we really made progress in therapy in overcoming the patient's (my) problems. (Item 14)‡	0.72 (0.74)	0.59 (0.38)	0.39 (0.68)					0.34
		Today, I (the therapist) intentionally used the patient's (my) abilities for therapy. (Item 17)†	0.69 (0.65)	0.77 (0.32)	(0.69)					
		I have the impression that the patient's (my) capacity to act improved by today's session. (Item 21)‡	0.75 (0.73)	0.77 (0.36)	0.30 (0.75)					
	Confident collaboration	I feel that the things the patient (I) did today in therapy will help him/her (me) to accomplish the changes that he wants (I want). (Item 22)	0.72 (0.75)	0.65	0.41		0.32 (0.81)			
		As a result of today's session, I am confident that, through my own efforts and those of my patient (therapist), my patient (I) will gain relief from his/her (my) problems. (Item 30)††	0.54 (0.60)	0.32 (0.30)	0.42		(0.64)	−0.27 (−0.30)	0.34	
		As a result of today's session, the patient is (I am) clearer as to how he/she	0.66 (0.73)	0.59	0.37 (0.30)		0.39 (0.78)			

(Continues)

Table 2. (Continued)

Factors therapist perspective	Factors patient perspective	Items	h^2	λ_1	λ_2	λ_3	λ_4	λ_5	λ_6	λ_7
		(I) might be able to change. (Item 36)								
Clarification of meaning		What the patient is (I am) doing in therapy gives him/her (me) new ways of looking at his (my) problem. (Item 23)	0.72 (0.72)	0.38			0.70 (0.79)			
	In-session impact	Today, I (the therapist) enabled the patient (me) to view his/her (my) problems in new contexts. (Item 4)	0.73 (0.56)	(0.32)	(0.56)	(−0.50)	0.78	(0.38)		
		The patient(I) has (have) a better understanding of himself/herself (myself) and his/her (my) difficulties after today's session. (Item 11)	0.71 (0.68)	0.42 (0.38)	0.32 (0.65)		0.60	(0.31)		
		Today, the patient (I) became more aware of the motives for his/her (my) behaviour. (Item 18)	0.66 (0.65)	0.38	0.31 (0.64)		0.61	(0.36)		
Goals and tasks	Global alliance	Today, the patient (therapist) and I worked towards mutually agreed upon goals (Item 5)[§]	0.62 (0.58)	(0.63)	0.65 (0.33)		0.32			
		Today, the patient (therapist) and I agreed about the steps to be made in therapy. (Item 6)[¶]	0.71 (0.65)	(0.75)	0.76					
		Today, the patient (therapist) and I had a good understanding of what changes are good for him/her (me). (Item 12)[§]	0.68 (0.66)	0.38 (0.67)	0.69 (0.39)					
		The patient (therapist) and I agreed on the usefulness of the activities in today's session. (Item 13)[¶]	0.74 (0.66)	0.31 (0.73)	0.72 (0.30)					
		Today, the patient (therapist) and I had a shared view on what his/her (my) real problems are. (Item 19)[§]	0.67 (0.62)	(0.61)	0.69		0.30	(0.37)		

(Continues)

Table 2. (Continued)

Factors therapist perspective	Factors patient perspective	Items	h^2	λ_1	λ_2	λ_3	λ_4	λ_5	λ_6	λ_7
		Today, the patient (therapist) agreed with me on how therapy was conducted. (Item 20)[¶]	0.72 (0.65)	0.30 (0.69)	0.73 (0.34)					
Emotional bond		Today, I felt comfortable in the relationship with the patient (therapist). (Item 1)	0.69 (0.66)	(0.73)	0.40 (0.30)			−0.42	0.52	
		The patient (therapist) and I understood each other today. (Item 8)[††]	0.72 (0.75)	0.32 (0.79)	0.57				0.40	
		Today, I felt that the patient (therapist) appreciates me. (Item 15)	0.78 (0.65)	0.32 (0.70)	0.34				0.70	
		Today, I had the feeling that my patient (therapist) likes me. (Item 26)	0.79 (0.72)		0.41				0.70	(0.80)
		I (My therapist) care (cares) about the patient (me) even when he/she does (I do) things that I do (he/she does) not approve of. (Item 27)	0.63 (0.72)				0.44		0.63	(0.80)
Patient fear	Patient fear	The patient (I) didn't talk about certain feelings today because he/she (I) was afraid about what I (the therapist) might think about him/her (me). (Item 25)	0.84 (0.70)			0.89 (0.81)				
		It was too embarrassing for the patient (me) today to tell me (the therapist) about certain thoughts and feelings. (Item 29)	0.81 (0.67)			0.87 (0.79)				
		Today, it was difficult for the patient (me) to talk openly with me (the therapist) about his/her (my) thoughts and feelings. (Item 33)	0.82 (0.76)			0.84 (0.84)				
		During today's session, the patient (I) held back his/her (my) emotions. (Item 34)	0.77 (0.63)			0.84 (0.77)				
Therapist interference	Therapist interference	Today, I (the therapist) pushed my patient (me)	0.48 (0.62)			0.47		0.38	(0.74)	

(Continues)

Table 2. (Continued)

Factors therapist perspective	Factors patient perspective	Items	h^2	λ_1	λ_2	λ_3	λ_4	λ_5	λ_6	λ_7
		too much on certain issues. (Item 24)[††]								
		There were aspects of my (my therapist's) personality that seemed to interfere with (my) therapy today. (Item 28)	0.66 (0.52)			0.30		0.72	(0.60)	
		As today's session started, I (the therapist) had no desire to get involved. (Item 31)	0.64 (0.34)					0.75	(0.45)	
		Today, I (the therapist) insufficiently acknowledged the patient's (my) efforts and progress. (Item 32)	0.55 (0.39)			0.33		0.60	(0.54)	
		I (the therapist) was too emotionally withholding or absent today. (Item 35) [‡‡]	0.53 (0.26)			(0.37)		0.69	(0.27)	
Problem actuation	Problem actuation	In today's session, the patient (I) was highly emotionally involved. (Item 2)	0.70 (0.62)	(0.38)				(0.66)		0.76
		Today, I (the therapist) touched the patient's (my) sore spots. (Item 9)	0.64 (0.64)				0.42	(0.77)		0.66
		What we did today affected the patient (me) very deeply. (Item 16)	0.82 (0.72)					(0.79)		0.87

Underlined factor loadings indicate the item–factor association.
λ_1–λ_7 are retained factors in the sequence from highest (λ_1) to lowest (λ_7) eigenvalues.
[†]These items correspond to the theoretical dimension 'resource activation'.
[‡]These items correspond to the theoretical dimension 'mastery'.
[§]These items correspond to the theoretical dimension 'agreement on goals'.
[¶]These items correspond to the theoretical dimension 'agreement on tasks'.
[††]Item with critically low loadings from therapist perspective.
[‡‡]Item with critically low loadings from patient perspective.
Items referring to the subscales goals and tasks and emotional bond are appropriations of items of the Working Alliance Inventory. Items copyright 1981, 1986 © Adam Horvath. Used with permission. For use of WAI-SR measure, see http://www.educ.sfu.ca/alliance/allianceA.

instruments referring to stress, anxiety and depression. It has further demonstrated sensitivity to change across the course of therapy.

The Inventory of Interpersonal Problems (IIP) is a 64-item instrument with a circumplex structure (Brähler, Horowitz, Kordy, Schumacher, & Strauß, 1999; Horowitz, 1996; Horowitz, Rosenberg, Baer, Ureño, & Villaseñor, 1988). It consists of the eight scales of *domineering*, *intrusive*, *overly nurturant*, *exploitable*, *non-assertive*, *socially avoidant*, *cold* and *vindictive*, rated on a five-step scale. It has excellent psychometric properties with $0.75 \leq \alpha \leq 0.94$. The criterion validity of the measure has been demonstrated via correlations to the SCL-90-R with $0.07 \leq r \leq 0.75$.

The Inpatient Experience Scale (IES) is a 38-item instrument developed to assess therapeutic characteristics as perceived by the patient (Schauenburg & Sammet, 1999). It consists of the eight-factor relationship to the individual therapist, relationship with the therapeutic team, group cohesion, group climate, therapeutic intensity, acceptance of rules and self-efficacy. The measure has good psychometric properties with $0.71 \leq \alpha \leq 0.85$ and is outcome predictive.

Treatment and Study Design

Four-hundred eight patients completed a 6-week to 10-week inpatient treatment in the Department of Psychosomatic Medicine and Psychotherapy of Tuebingen University, Germany. They received individual therapy, group therapy, art therapy and music therapy two times a week. The other 96 patients were treated in an outpatient clinic at the Department of Clinical Psychology of Tuebingen University. They only received individual therapy sessions once a week. The therapist group consisted of 36 psychotherapists with at least 1 year of experience. Thirty-one therapists were female. The treatment comprised a cognitive–behavioural therapy with supplementary interpersonal psychotherapeutic elements. All patients were initially assessed with the SCID-I to diagnose psychiatric disorders. The initial SCID-I assessment was conducted by three PhD students who completed a university-based training. They were regularly supervised by a university-affiliated expert. All patients filled out the self-report questionnaires at baseline (t_0) after the fourth individual therapy session (t_1), after the eighth session (t_2) and after the last session (t_3), respectively. All instruments measuring clinical symptomatology were administered at all four measuring times. Each patient and individual therapist completed the ITPQ. It was administered starting with t_1 so that both the patient and therapist had time to become acquainted with each other. The IES as an evaluation measure of the inpatient stay was completed only at discharge. The local ethics committee of the medical faculty approved the study protocol.

Exploratory and Confirmatory Factor Analyses

To determine the number of factors to retain, we followed the recommendations of Kline (1993). Consequently, we first conducted a principal component analysis with orthogonal (varimax) and oblique (oblimin direct) rotations on the data of the therapist and patient perspectives at t_1. Next, we applied a common factor analysis with maximum likelihood (ML) estimation on the same data set. Since the results of these methods yielded conceptually identical results, we report on the results of the former method only. To confirm the exploratory model, we conducted several confirmatory factor analyses (CFA) with ML estimation on the data of the therapist and patient perspectives at t_2 and t_3. Bühner (2010) highlights that about 500 subjects is a very good sample size for factor analysis. Consequently, our aim was to acquire data for about 500 subjects. Bühner (2010) and Kerns, Rosenberg, Jamison, Caudill, and Haythornthwaite (1999) further suggest factor loadings of at least $\lambda = 0.45$ and a difference loading to the next highest factor of at least 0.15. As a criterion for factor selection, we used the Kaiser criterion. It states that all factors with eigenvalues larger than 1 should be retained. According to the criteria of Kline (1994) and Bühner (2010), we report on significant loadings on other factors of $\lambda \geq 0.30$ in our tables. Different factor structures at different points in time might be obtained as the therapist and patient ratings might vary across different measuring times. To test for the stability of the factor structure, we applied CFA at the remaining measurement times. We used fit indices and cut-off scores following the recommendations of Hu and Bentler (1999): comparative fit index (CFI) ≈ 0.95, root mean square error of approximation ≤ 0.08 and standardized root mean residual $\leq .11$. To test the criterion-related validity, we correlated the SCL-90 global severity index (GSI) score and the PSQ, IIP and IES global scores with the extracted SACiP factors.

Multilevel Modelling

Because the structure of our data set is nested, we applied a multilevel modelling (MLM) approach in order to investigate the effects of the mechanisms of change factors, the measuring time and the perspective (patient versus therapist) on the global outcome. For reasons of better comparability between the two perspectives, we applied the factor structure from the therapist perspective on both perspectives. This should not provide psychometric problems, as the patient factors that are different from the therapist perspective include the factors from the therapist perspectives as subscale components (compare Table 2). We applied the MLM in line with the recommendations of Heck, Thomas, and Tabata (2010) and Field (2009). All variables were centred to the mean, which has been recommended as a helpful device in the interpretation of the results and in the reduction of multicollinearity by several authors (Heck *et al.*, 2010; Hox, 2010; Nissen-Lie, Monsen, Ulleberg, & Rønnestad, 2013). To estimate the

models, we applied an ML procedure. According to Field (2009) and Hox (2010), this approach should be implemented when the primary concern lies in the investigation of fixed effects and when there is a relatively large number of groups (each group is represented by one of the 39 therapists) under investigation. In MLM approaches, model fit is examined by applying a deviance statistic, usually the Akaike's information criterion, which calculates discrepancies between observed and saturated models by means of a chi-square (χ^2) distribution. Since the comparison of models is central to MLM procedures (Field, 2009), we investigated changes in Akaike's information criterion across baseline models and after adding random intercepts and slopes to the model. We computed a series of mixed effects models, i.e., one model for each of the extracted general change mechanisms factors. The models included two levels: (level 1) patients nested within therapists, and (level 2) therapists. For all models, we used a global outcome score as the dependent variable. It was defined as the mean score of the *z*-standardized scores of the global scores of the SCL-90-R, the PSQ and the IIP at discharge. At level 1 (the patient level), we modelled mechanisms of change, perspective, time measurement and global outcome at baseline as fixed effects. At level 2 (the therapist level), we further modelled therapists (intercepts) and mechanisms of change (slopes) as random effects. All statistical analyses were conducted using SPSS 20 and Amos 21 (Armonk, New York, USA).

RESULTS

Factor Structure of the ITPQ

A Kaiser–Meyer–Olkin score of 0.94 and a highly significant ($\chi^2 = 11048.90$, $p < 0.001$) Bartlett's test of sphericity confirmed the adequacy of the data for factor analysis. As the factor loadings obtained by varimax and oblimin direct (delta = 0) rotation yielded similar results, we report on the solutions of the former method only. The exploratory factor analysis (EFA) revealed a seven-factor solution from therapist perspective, which accounts for 69.61% of the variance, and a six-factor solution from patient perspective, which accounts for 64.04% of the variance. From the therapist perspective, the items of the theoretical scales of resource activation and mastery loaded on the same factor that we labelled *resources and mastery*. The items of the theoretical scales of agreement on tasks and goals loaded on the same factor that we labelled *goals and tasks*. While the four items of the original STA-R confident collaboration subscale loaded on the resources and mastery (items 22, 30 and 36) as well as the clarification of meaning (item 23) subscales from the therapist perspective, they constituted a separate confident collaboration factor from the patient perspective. Further, from the patient perspective, the items referring to the theoretical dimensions of resource activation, clarification of meaning and mastery loaded on one factor that we labelled *in-session impact*. Finally, the items pertaining to the theoretical subscales emotional bond and goals and tasks loaded on the same factor labelled *global alliance*. All other factors corresponded to the predicted subscales. The initial eigenvalues from the therapist perspective were 13.16, 4.43, 2.30, 1.62, 1.35, 1.17 and 1.03, for resources and mastery, goals and tasks, patient fear, clarification of meaning, therapist interference, emotional bond, and problem actuation, respectively. From the patient perspective, the factors with the following eigenvalues for global alliance, in-session impact, therapist fear, confident collaboration, problem actuation, therapist interference and emotional bond, respectively, were extracted: 11.43, 3.74, 2.33, 1.73, 1.55, 1.12 and 1.09. Table 2 presents communalities and factor loadings of the items and subscales. All fit indices of the CFA confirmed the exploratory model for the subsequent measuring times, as can be seen in Table 3. Global mean scores of the subscales, correlations with an outcome along with reliability information, can be found in Table 4.

Multilevel Modelling

We computed a series of six mixed effects models, i.e., one model for each of the extracted general change mechanisms factors. The intraclass correlation was significant for all six models ($0.33 \leq r \leq 0.46$; $p < 0.05$), indicating differences in a global outcome between level 2 units (therapists). The relationship between mechanisms of change and a global outcome showed significant variance in intercepts across therapists for all six mechanisms of change: for resources and mastery, $\text{var}(u_{0j}) = 4.14$, $\chi^2(1) = 35.53$, $p < 0.01$; for goals and tasks, $\text{var}(u_{0j}) = 2.52$, $\chi^2(1) = 39.90$, $p < 0.01$; for patient fear, $\text{var}(u_{0j}) = 3.64$, $\chi^2(1) = 38.43$, $p < 0.01$; for clarification of meaning, $\text{var}(u_{0j}) = 4.41$, $\chi^2(1) = 38.07$, $p < 0.01$; for therapist interference, $\text{var}(u_{0j}) = 5.40$, $\chi^2(1) = 43.96$, $p < 0.01$; for emotional bond, $\text{var}(u_{0j}) = 3.48$, $\chi^2(1) = 34.80$, $p < 0.01$; and for problem actuation, $\text{var}(u_{0j}) = 2.53$, $\chi^2(1) = 40.81$, $p < 0.01$. The slopes did not vary across therapists, all $\text{var}(u_{1j}) \leq 3.6$, $\chi^2(1) \leq 3.47$, $p > 0.05$. The slopes and intercepts did not

Table 3. Chi-square and fit indices of the confirmatory factor analysis for t_2 and t_3

	χ^2	CFI	RMSEA	SRMR
ITPQ-T t_2	1342.23	0.823	0.073	0.096
ITPQ-T t_3	1508.72	0.874	0.075	0.115
ITPQ-P t_2	1038.30	0.880	0.064	0.069
ITPQ-P t_3	1208.44	0.880	0.065	0.070

ITPQ-T t_2/t_3 = ITPQ, therapist perspective after eighth/last therapy session. ITPQ-P t_2/t_3 = ITPQ, patient perspective after eighth/last therapy session. CFI = comparative fit index. RMSEA = root mean square error of approximation. SRMR = standardized root mean residual.

Table 4. Global means (average over t_1, t_2 and t_3), correlations with global outcome and reliabilities of the subscales

	Therapist perspective							Patient perspective						
Subscale	Mean (SD)	*r*-SCL	*r*-PSQ	*r*-IIP	*r*-IES	α		Mean (*SD*)	*r*-SCL	*r*-PSQ	*r*-IIP	*r*-IES	α	r_{tp}
Resources and mastery	2.07 (0.67)	0.15**	0.23**	0.04	0.16*	0.92	In-session impact	2.26 (0.78)	0.14*	0.22**	0.04	0.41**	0.92	0.45**
Clarification of meaning	2.07 (0.70)	0.09	0.14**	−0.01	0.14*	0.88								0.41**
Goals and tasks	2.55 (0.65)	0.16*	0.23**	0.06	0.16*	0.90	Global alliance	2.78 (0.69)	0.11	0.23**	0.06	0.22**	0.88	0.39**
Emotional bond	2.85 (0.63)	0.09	0.06	0.07	0.10	0.86								0.41**
Patient fear	1.01 (0.84)	−0.07	−0.07	−0.03	−0.14*	0.92	Patient fear	0.62 (0.80)	−0.20**	−0.27**	−0.21**	−0.19**	0.85	0.11*
Therapist interference	0.76 (0.61)	−0.08	−0.06	−0.01	−0.02	0.77	Therapist interference	0.52 (0.58)	−0.16*	−0.17**	−0.21**	−0.21*	0.60	0.11*
Problem actuation	2.22 (0.71)	−0.10	−0.02	−0.10	−0.03	0.76	Problem actuation	2.41 (0.84)	−0.01	0.07	−0.01	0.15*	0.73	0.33**
							Confident collaboration	2.48 (0.86)	0.20**	0.28**	0.07	0.39**	0.84	

*$p < 0.05$.
**$p < 0.01$.
***$p < .001$.
SD = standard deviation. *r*-SCL = correlation of change mechanisms with the pre–post difference score of the global severity index of the Symptom-Checklist-90-Revised. *r*-PSQ = correlation of change mechanisms with the pre–post difference score of the global index of the Perceived Stress Questionnaire. *r*-IIP = correlation of change mechanisms with the pre–post difference score of the global index of the Inventory of Interpersonal Problems. *r*-IES = correlation of change mechanisms with the of the global index of the Inpatient Experience Scale. α = α-coefficient of internal consistency. r_{pt} = correlation of therapist with patient perspective of the seven therapist perspective derived factors.

significantly covary, all $\text{cov}(u_{0j}, u_{1j}) \leq 0.31$, $\chi^2(1) \leq 1.87$, $p > 0.10$. No significant model improvement was achieved when a third level (time nested within patients) was added to the model, all $\text{var}(u_{0j}) \leq 0.01$, $\chi^2(1) \leq 2.02$, $p > 0.10$. Thus, the application of mixed effects modelling was justified.

From the patient perspective, resources and mastery significantly predicted a global outcome, $F(1, 1522.86) = 12.71$, $p < 0.001$. There were no other significant effects in the model, all Fs ≤ 1.59, $p \geq 0.21$. Goals and tasks significantly predicted a global outcome, $F(1, 1462.73) = 4.99$, $p = 0.026$. There were no other significant effects in the model, all Fs ≤ 0.97, $p \geq 0.33$. Patient fear significantly predicted a global outcome, $F(1, 1461.38) = 27.31$, $p < 0.001$. There were no other significant effects in the model, all Fs ≤ 1.93, $p \geq 0.17$. Clarification of meaning significantly predicted a global outcome, $F(1, 1520.03) = 8.03$, $p < 0.01$. There were no other significant effects in the model, all Fs ≤ 1.60, $p \geq 0.21$. Therapist interference significantly predicted a global outcome, $F(1, 1465.64) = 33.66$, $p < 0.001$. There were no other significant effects in the model, all Fs ≤ 0.19, $p \geq 0.16$. Emotional bond significantly predicted a global outcome, $F(1, 1518.57) = 3.51$, $p = 0.061$. There were no other significant effects in the model, all Fs ≤ 1.59, $p \geq 0.21$. For problem actuation, there were no significant effects in the model, all Fs ≤ 1.19, $p \geq 0.28$. Regression coefficients of the significant estimates of the six mixed effects models are depicted in Table 5.

DISCUSSION

The primary goal of the present study is to construct a revised reliable and valid measure addressing a broad range of potential change mechanisms in psychotherapy research on the basis of two established instruments, the SACiP and the STA-R, with corresponding versions for the patient and therapist. Additionally, we explored the course of change mechanisms across different stages of therapy and

Table 5. Regression coefficients of the significant estimates of the six mixed effects models

Model	*b*	SE *b*	*t*	95% CI
Resources and mastery	−0.05**	0.02	−3.60	−0.08/−0.02
Goals and tasks	−0.03*	0.02	−2.23	−0.07/−0.01
Patient fear	0.08***	0.01	5.23	0.05/0.10
Clarification of meaning	−0.04***	0.01	−2.83	−0.07/−0.01
Therapist interference	0.10	0.02	5.80	0.07/0.14
Emotional bond	−0.03	0.02	−1.87	−0.06/0.00
Problem actuation	—	—	—	—

*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.
b = unstandardized regression coefficient. SE = standard error. CI = confidence interval.

investigated differences between the two perspectives. Therefore, inpatients and their individual therapists completed questionnaires at three measuring times, recording mechanisms of change and clinical symptomatology.

Factor Structure of the ITPQ

Development of the ITPQ was informed by a variety of influential integrative frameworks, specifically Grawe's psychological therapy (Grawe, 2004), Orlinsky's generic model (2004), and Bordin's (1979), Alexander and Luborsky's (1986), Gaston's (1991) and Hatcher and Shannon's (2005) conceptions of the therapeutic alliance, leading to eight theoretically derived subscales: resource activation, problem actuation, mastery, clarification of meaning, emotional bond, goals and tasks, therapist interference and patient fear. In contrast to these theoretically postulated eight subscales, our exploratory factor analyses revealed a seven-factor structure from the therapist perspective and a slightly different six-factor structure from the patient perspective. Specifically, from the therapist perspective, items pertaining to the theoretical subscales resource activation and mastery loaded on one factor, which we labelled resources and mastery. Further, the items of the original STA-R confident collaboration subscale loaded on the resources and mastery (items 22, 30 and 36) as well as the clarification of meaning (item 23) subscales. Face validity suggests that the items 22, 30 and 36 reflect better coping with a problem and, therefore, address aspects of mastery, while item 23 implies a view of the problem from new perspectives and consequently addresses components of clarification of meaning. Hence, the empirically derived association of these items to the aforementioned factors is theoretically plausible. Notably, all other factors from the therapist perspective correspond to the predicted subscales. From the patient perspective, a slightly different picture is revealed. The items of the three theoretical dimensions resource activation, clarification of meaning and mastery loaded on one factor. As has been outlined by Mander *et al*. (2013), these factors reflect what Orlinsky *et al*. (2004) defined as in-session impact. Consequently, the factor with these three facets is labelled *in-session impact*. Further, most items reflecting the theoretical constructs emotional bond, goals and tasks loaded on one factor, while the two remaining emotional bond items constituted a separate factor. For practical reasons and since face validity suggests that all emotional bond items should be represented by one scale, we integrated these two factors into one subscale that we labelled global alliance. While the four items of the original STA-R confident collaboration subscale loaded on the resources and mastery (items 22, 30 and 36) as well as the clarification of meaning (item 23) subscales from the therapist perspective, they constituted a separate confident collaboration factor from the patient perspective. Additionally, there are a few items that demonstrated significant factor loadings from the patient perspective but not from the therapist perspective or vice versa. More specifically, the following items demonstrated relatively low loadings from the therapist perspective: item 30 loaded on the confident collaboration factor from the patient perspective, but it did not demonstrate a significant loading from the therapist perspective. Face validity suggested that these items should be integrated into the resources and mastery subscale from the therapist perspective. Item 8 loaded slightly stronger on emotional bond from the therapist perspective, although its original loading in the SACiP and face validity clearly suggest that it is a goals and tasks item. Consequently, we decided to include this item in the goals and tasks subscale. Item 24 loaded slightly stronger on patient fear. Additionally, its original loading in the STA-R, its loading from the patient perspective and its face validity clearly suggest that it is a component of therapist interference. Hence, we decided to include this item in the therapist interference subscale. Item 35 demonstrated relatively low factor loadings from patient perspective. It did not specifically load on any of the factors. However, in the original STA-R analyses, as well as from therapist perspective analyses, it demonstrated strong loadings on the therapist interference factor. Further, face validity suggests that it fits to this subscale. Consequently, we recommend including item 35 as a component of the therapist interference subscale. These items with critically low factor loadings are specifically marked in Table 2. Generally, we recommend including these items in the above described subscales in future studies with the ITPQ. Researchers working only with the patient or therapist perspectives of the ITPQ may want to decide according to their specific research question if these critical items should be included in their analyses. For comparability reasons, we recommend applying the factor structure from the therapist perspective for the calculation of the different subscales for both perspectives when the research question lies in comparing the two corresponding perspectives. This structure should not provide psychometric problems because the patient factors that are different from the therapist perspective include the factors from the therapist perspective as subscale components (compare Table 2). More specifically, this arrangement implies the calculation of two separate theoretical facets of the patient subscales in-session impact (a resources and mastery and a clarification of meaning facet) and global alliance (a goals and tasks and an emotional bond facet). Further, the items of the confident collaboration subscale from the patient perspective should be integrated into the resources and mastery and clarification of meaning subscales as suggested by their factor loadings from the therapist perspective.

Confirmatory factor analyses on therapist and patient perspectives partially supported the exploratory derived factor structure for each of the remaining measuring times. More specifically, we identified root mean square error of

approximation and standardized root mean residual scores in the acceptable range for all the remaining measuring times and both perspectives, according to the criteria of Hu and Bentler (1999). The CFI was slightly below the recommended values of CFI ≈ 0.95. Finally, internal consistencies for each of the subscales were excellent from both the therapist and patient perspectives except for therapist interference from the patient perspective. The relatively low internal consistency for therapist interference is in accordance with prior results (Brockmann *et al.*, 2011). This effect can possibly be explained by the assumption that patients tend to evaluate more potentially offensive items of this subscale in a positively biased way according to a social desirability effect, what can be deduced from the extremely low ratings of patients on this subscale. Consequently, no reliable consistency effects are produced by the items of this factor.

Taken together, our psychometric results indicate that the ITPQ has a generally sound factor structure, which corresponds to theoretically predicted subscales and implies face validity. However, there are certain specific weaknesses concerning low loadings of three items from the therapist perspective and one item from the patient perspective to its predicted subscale as well as relatively low CFI fit indices in the CFA. Consequently, we recommend that the ITPQ be used with caution in future research projects. Further, we recommend that its factor structure be explored again in the framework of new research questions.

Predictive Validity of the ITPQ

Turning to the predictive validity of the ITPQ, the predictive effects of change mechanisms factors on a therapeutic outcome were generally in line with prior studies (Flückiger *et al.*, 2010; Mander *et al.*, 2013; Orlinsky *et al.*, 2004), as can be seen in Tables 4 and 5. There were several statistically significant effects. This applies to both the correlation analyses and to the mixed effects analyses, where we controlled for differential therapist effects. Further, the strength of the effects of change mechanisms on a therapeutic outcome is considerable in light of the fact that all patients received additional group therapies, which probably contributed to outcome variance as well. Consequently, future studies should administer the ITPQ in patients receiving individual therapy only, as this would most likely produce stronger predictive effects. It is worth noting that the change mechanisms outcome associations were generally stronger from the patient perspective than from the therapist perspective, while the largest effects were revealed by the negative predictive influence of the two new subscales patient fear and therapist interference as well as by the positive influence of the confident collaboration factor on therapeutic outcome. Consequently, in line with prior results (Mander *et al.*, 2013), therapists may want to pay special attention to patients' evaluations of change mechanisms. Further, the robust outcome associations of the two new subscales, patient fear and therapist interference, highlight the practical value of adding them as components in addition to the former SACiP change mechanisms subscales. Additionally, the patient perspective of the ITPQ, especially the two subscales, in-session impact and confident collaboration, demonstrated convergent validity, as can be concluded from their associations to the IES, which is an evaluation measure of the overall quality of therapy from the patient perspective. Of importance, in the multilevel models, we found no significant effect for any of the change mechanisms with regard to time. On the one hand, this result is inconsistent with Flückigers *et al.*'s (2010) findings concerning the BPSR, which demonstrated in a large sample that an increase of the perceived intensity of change mechanisms occurred across the course of outpatient therapy. However, it is in line with our prior results that the SACiP is insensitive to increases in change mechanism experiences across the course of therapy in inpatient samples (Mander *et al.*, 2013). Hence, once again we conclude that 6-week to 10-week inpatient treatments are probably too short to observe change mechanism increases across the course of therapy. Problem actuation was the only change mechanism that was not predictive from both the patient and therapist perspectives. The results of Mander *et al.* (2013) point in the same direction. Further, Gassmann and Grawe (2006) demonstrated that problem actuation alone was not predictive of outcome. It led to therapeutic progress only when combined with thorough resource activation. Hence, problem actuation is possibly a precondition for the successful activation of other change mechanisms. Taken together, these results are indicative of the external validity of the ITPQ.

Associations Between the Patient and Therapist Perspectives

To identify associations between the two perspectives, we calculated subscale scores for both patient and therapist ratings according to the factor structure from the therapist perspective since it reflected in broader nuance the originally postulated facets of the measure. Further, some factors from the patient perspective include several components from the therapist perspective. Consequently, as mentioned above, the patient factors can be interpreted as more general components that can be broken down into different elements pertaining to the therapist factor structure. More specifically, we separated the two theoretical components of the patient subscales in-session impact, i.e., a resources and mastery and a *clarification of meaning* facet, and global alliance, i.e., a goals and tasks and an emotional bond facet. Further, we integrated the items of the confident

collaboration subscale from patient perspective into the resources and mastery and clarification of meaning subscales as suggested by their factor loadings from the therapist perspective. The correlations between these four subscales constructed mostly by items of the SACiP demonstrated higher correlations ($r \approx 0.4$) than the factors in the original SACiP data ($r \approx 0.2$) from Mander *et al*. (2013). Several other studies demonstrated similar discrepant ratings as in the SACiP concerning associations between patient and therapist alliance ratings in patients with different psychiatric disorders (Tryon, Blackwell, & Hammel, 2007; Wittorf *et al*., 2009; Wittorf *et al*., 2010). As suggested by Tryon *et al*. (2007), patients and therapists generally may consider different anchor points as crucial when they evaluate therapeutic processes. However, it remains unclear in which situations there is more similarity and discrepancy between patient and therapist perceptions of change mechanisms. In our data, we were unable to examine the psychological reasons behind the more discrepant ratings in the SACiP ($r \approx 0.2$) than in the ITPQ data ($r \approx 0.4$) concerning patient–therapist perspective correlations. Hence, future studies should specifically investigate these mechanisms, possibly by applying qualitative interviews with both patients and therapists to explore perceptions of both participants concerning these aspects and by further conducting observer based video-micro-process analyses of therapy sessions. The only two subscales that did not include significant associations between the two perspectives were the two mostly from the STA-R derived subscales patient fear and therapist interference ($r \approx 0.1$). Interestingly, these are the only two scales that are negatively predictive on a therapeutic outcome. As they include items evaluating negative aspects of the therapeutic alliance, more specifically the fear of the patient to express their own emotions (patient fear) and personality aspects of the therapist that have a negative impact on in-session progress (therapist interference), they might be rated more discrepantly according to psychological mechanisms that influence the ratings, such as social desirability. Hence, to further elucidate this effect, it would be interesting to control for the social desirability effects in future studies; the relevant instruments to do so are available (Crowne & Marlowe, 1960; Fischer & Fick, 1993).

Limitations of the Study

Our study has several limitations. First, the perspective of a third-person rater of change mechanisms based on micro-process analyses of videotaped sessions has not been included in our study. Third-person ratings are valuable in understanding the impact of change mechanisms on therapeutic outcome because a description of change mechanisms outcome prediction is only complete when conducted with multiple perspectives, specifically patient, therapist and observer ratings. Therefore, we have formulated a third-person rater version of the ITPQ. Psychometric evaluation of this perspective will be conducted in future research. Second, most factors of the ITPQ have to be viewed as 'analogous', which means they address the same content from different perspectives, while only the goals and tasks and emotional bond subscales can be viewed as 'identical', which means they address the same content from both perspectives. While analogous versions of subscales imply specific limitations concerning correspondence of the two perspectives, e.g., that therapists' evaluations of analogous subscales are based on inferences concerning patient progress, this phrasing is inevitable because these scales reflect the actual problem solving of the patient, not the therapist. Future studies should be designed to elucidate specific effects of these issues. Nevertheless, parallel forms of patient and therapist items guarantee the strongest possible comparability of the two perspectives. A broader discussion on the matter can be found in our previous SACiP manuscript (Mander *et al*., 2013). Third, we conducted a naturalistic study without a control group. Thus, to better understand the role of change mechanisms operationalized by the ITPQ in the process of therapy, future research should explore experimentally manipulated change mechanisms effects in randomized clinical trials. Fourth, concerning symptom change, we exclusively assessed inpatients. Possibly this assessment might interfere with the generalizability of our findings to other psychotherapy settings. Consequently, future research should address this issue by investigating change mechanisms in outpatient samples. Fifth, there is a partial overlap of about 200 patients in the participants of the ITPQ and the SACiP validation study. Hence, the two samples are not independent of one another. Consequently, it is important that future studies explore the psychometrics of the ITPQ in another, fully independent sample. Finally, we investigated the original German version of the SACiP. Hence, the results potentially do not apply, in the strictest sense, to the English translation we present in this manuscript. Consequently, future psychometric investigations of the English version of the ITPQ are of importance.

Strengths of the Study

Nevertheless, the ITPQ has several strengths: it is an instrument based on broadly accepted and validated items from well-established theoretical frameworks. Specifically, it integrates the empirically validated components of several influential frameworks, Grawe's (2004) psychological therapy, Orlinsky et al's. (2004) generic model, Bordin's (1979), Alexander and Luborsky's (1986), Gaston's (1991) and Hatcher and Shannon's (2005) conceptions of the therapeutic alliance. Consequently, to our knowledge, it assesses the broadest range of theoretically derived and

then empirically validated facets of change mechanisms in psychotherapy research. Concerning the question as to when to apply the SACiP and when to use the ITPQ, we recommend that the SACiP be applied primarily in settings that require highly time-efficient measures, as the SACiP with its 21 items can be filled out in about 2 min. The 36-item ITPQ, still an economical measure that requires 3 to 4 min to be filled out, should be applied when more specific research questions concerning a broader range of different mechanisms of change are explored, especially when there is a focus on personal therapist and patient variables that could negatively interfere with the therapeutic process.

CONCLUSIONS

To sum up, the ITPQ is an important advancement of measures designed to evaluate mechanisms of change in psychotherapy process research. It successfully combines components of different established process instruments, namely the SACiP and the STA-R, with generally good psychometric properties. The parallel forms deliver opportunities for comparison of the patient and therapist perspectives on a broader range of facets of change mechanisms than was hitherto possible. Additionally, there are several significant outcome predictive effects of the ITPQ, demonstrating the clinical relevance of the measure.

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APPENDIX

ITPQ therapist version (patient version in brackets)

Instruction: How did you experience today's therapy session? Using the rating scale below, please indicate how strongly the following 36 items apply to you. Though the content of some items might not seem suitable to you, please respond to all 36 items.

Rating scale: 0 = does not apply; 1 = somewhat applies; 2 = half-applies; 3 = predominantly applies; 4 = fully applies

Item 1: Today, I felt comfortable in the relationship with the patient (therapist).

Item 2: In today's session, the patient (I) was highly emotionally involved.

Item 3: In today's session, the patient (I) felt where his/her (my) strengths lie.

Item 4: Today, I (the therapist) enabled the patient (me) to view his/her (my) problems in new contexts.

Item 5: Today, the patient (therapist) and I worked toward mutually agreed upon goals

Item 6: Today, the patient (therapist) and I agreed about the steps to be made in therapy.

Item 7: After today's session, I assume that the patient (I) can cope better with situations which are difficult for him/her (me).

Item 8: The patient (therapist) and I understood each other today.

Item 9: Today, I (the therapist) touched the patient's (my) sore spots.

Item 10: By means of today's session, the patient (I) felt enhanced in his/her (my) self- concept.

Item 11: The patient(I) has (have) a better understanding of himself/herself (myself) and his/her (my) difficulties after today's session.

Item 12: Today, the patient (therapist) and I had a good understanding of what changes are good for him/her (me).

Item 13: The patient (therapist) and I agreed on the usefulness of the activities in today's session.

Item 14: Today, we really made progress in therapy in overcoming the patient's (my) problems.

Item 15: Today, I felt that the patient (therapist) appreciates me.

Item 16: What we did today affected the patient (me) very deeply.

Item 17: Today, I (the therapist) intentionally used the patient's (my) abilities for therapy.

Item 18: Today, the patient (I) became more aware of the motives for his/her (my) behavior.

Item 19: Today, the patient (therapist) and I had a shared view on what his/her (my) real problems are.

Item 20: Today, the patient (therapist) agreed with me on how therapy was conducted.

Item 21: I have the impression that the patient's (my) capacity to act improved by today's session.

Item 22: I feel that the things the patient (I) did today in therapy will help him/her (me) to accomplish the changes that he wants (I want).

Item 23: What the patient is (I am) doing in therapy gives him/her (me) new ways of looking at his (my) problem.

Item 24: Today, I (the therapist) pushed my patient (me) too much on certain issues.

Item 25: The patient (I) didn´t talk about certain feelings today because he/she (I) was afraid about what I (the therapist) might think about him/her (me).

Item 26: Today, I had the feeling that my patient (therapist) likes me.

Item 27: I (My therapist) care (cares) about the patient (me) even when he/she does (I do) things that I do (he/she does) not approve of.

Item 28: There were aspects of my (my therapist's) personality that seemed to interfere with (my) therapy today.

Item 29: It was too embarrassing for the patient (me) today to tell me (the therapist) about certain thoughts and feelings.

Item 30: As a result of today's session I am confident that, through my own efforts and those of my patient (therapist) my patient (I) will gain relief from his/her (my) problems.

Item 31: As today´s session started, I (the therapist) had no desire to get involved.

Item 32: Today, I (the therapist) insufficiently acknowledged the patient's (my) efforts and progress.

Item 33: Today, it was difficult for the patient (me) to talk openly with me (the therapist) about his/her (my) thoughts and feelings.

Item 34: During today´s session the patient (I) held back his/her (my) emotions.

Item 35: I (the therapist) was too emotionally withholding or absent today.

Item 36: As a result of today's session the patient is (I am) clearer as to how he/she (I) might be able to change.