Affective Processes in Therapy Sessions in relation to adaptive Affect Expression Between Sessions

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Abstract

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Preliminary data from the Intensive Mapping of Psychotherapy Process project (PROCMAP) at Modum Bad were used in this study. The aim was to investigate the relationship between affective processes *inside* therapy and affect expression *between* sessions. Affect expression outside therapy, also called new learning, is a relatively unexplored concept.

Method: Activating affect, inhibitory affect (in session) and new learning (between sessions) were rated using Achievement of Therapeutic Objectives Scale (ATOS). These ratings were based on video-recorded therapy sessions from the Svartberg, Stiles, and Seltzer study (2004). This was a randomized controlled trial (RCT) with a total of 50 patients, which all met the criteria for cluster C personality disorders. 25 of the patients received short-term dynamic therapy (STDP), while 25 patients received cognitive therapy (CT). Process data from session 6 and session 36 were available. The new learning scale of ATOS is intended to measure the degree that the patient has demonstrated the ability to adaptively express their feelings outside therapy.

Hypotheses: Three hypotheses were tested. 1) Can the new learning scale be seen as a measure of outcome? 2) Can early activating affect and inhibitory affect predict *change* in new learning? 3) Can new learning before session predict activating affect and inhibitory affect?

Results: *Change* in new learning, from early to late in therapy, was found to correlate with *change* in IIP and SCL-90, supporting the hypothesis that the new learning scale can be seen as a measure of outcome. Activating affect and inhibitory affect at session 6 did not predict *change* in new learning. New learning session 6 was found to predict activating affect and inhibitory affect session 36. More research is needed to draw causal conclusions.

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1 Introduction

1.1 Brief overview

The aim of this study is to investigate the relationship between affect processes inside therapy sessions, and adaptive affect expression outside sessions.

The data material is based on preliminary results of the Intensive Mapping of Psychotherapy Process project (PROCMAP), which uses the Achievement of Therapeutic Objectives Scale instrument (ATOS) to map processes in therapy sessions. The ATOS scores in this study are based on ratings from video-recorded therapy sessions from the Svartberg, Stiles, and Seltzer study (2004), a randomized controlled trial study (RCT) with a total of 50 patients, where all the patients met the criteria for cluster C personality disorders. 25 of the patients received short-term dynamic therapy (STDP), while 25 patients received cognitive therapy (CT). The therapy in both groups had a duration of 40 sessions.

The ATOS variables of *activating affect*, *inhibitory affect* (inhibition*)*, and *new learning,* assessed at session 6 and session 36, in addition to outcome measures (SCL-90-R and IIP) will be investigated. Affect expression between sessions is called *new learning* in the ATOS instrument. This present study will use the name new learning for the most part, in order to make it easier to separate from activating affect and inhibitory affect, which are processes inside therapy sessions.

This is a short explanation of the variables before presenting them in more detail in the method section: *New learning* is a measure of the degree that the patient demonstrates the ability to adaptively express affects or thoughts outside therapy. *Activating affect* is the arousal of activating, adaptive affect relevant to the situation inside therapy sessions. *Inhibitory affect* is the degree of hesitancy shown against feeling the adaptive affect. Inhibition can be caused by e.g. feelings of fear, shame, anxiety or guilt, interfering with the adaptive affect. The variables activating affect and inhibitory affect are best understood by seeing them in relation to Malan's triangle of conflict, which will be described later in the introduction (McCullough, Kuhn, Andrews, Kaplan, Wolf, & Hurley 2003; McCullough, Larsen, Schanke, Andrews, & Kuhn, 2008; Malan, 1979).

First, an overview of important findings in psychotherapy research will be presented. Although this is not directly relevant to the variables in this study, it is meant to give the reader some perspective about where the psychotherapy research field is today. Then the introduction section will present research relevant to the activating affect and inhibition processes. A summary of the Affect Phobia model of STDP will be presented because this is central to understand the scales (treatment objectives) as measured by the ATOS instrument. The last part will focus on elements that are relevant to investigate the concept of the *new learning* variable.

There is not much known about the new learning variable so far. Therefore, exploring the relationships between new learning and affective processes inside therapy sessions (activating affect and inhibitory affect) is the most important aim of this study,

1.2 Background

Psychotherapy process research is the precise, systematic investigation of what happens in therapy. Since therapy is such a complex process, researchers must have clear ideas of which facets of therapy they are investigating. This means to be aware of both the observational perspective and the temporal frame (Orlinsky, 2001; Orlinsky, Rønnestad, & Willutzki, 2004).

The distinction between pure outcome research and pure process research is somewhat artificial, as most such studies today involve aspects from both components, thus better fitting the label of process-outcome research (Orlinsky, 2001). This study is no exception in that regard.

RCT designed research has given valuable knowledge about the efficacy of psychotherapy in general. At the same time, it has also established the very small comparative effect found between different treatment methods. One interpretation of these findings is that common factors across different therapies are decisive for outcome. Therapist-client alliance is one such factor found to be related to positive outcome. Other common factors found to explain relatively large amounts of the variance in outcome are: Competence level of therapist, placebo effects, exposure (confronting or facing problems), mastery, and therapist/scientist allegiance (Messer, & Wampold, 2002; Rønnestad, 2008; Lambert & Ogles, 2004; Hofmann & Weinberger 2007).

McCullough & Magill (2009) points out that even though common factor research has been relatively successful, there is still a lot of variance in outcome that is unexplained for. Thus, based on psychotherapy findings so far, it seems reasonable to expect that more specific and sophisticated studies of psychotherapy process, taking into account the different facets of variables, observer perspectives, temporal frames, and interrelated processes, represent a fruitful future path for finding out *how* psychotherapy works (Lambert, Garfield, & Bergin (2004) call this the focus on "mechanisms of change"). Further, McCullough et al. (2009) have also suggested that processes in therapy related to *affect* might be worthy scrutiny through the focused lens of process research, in order to potentially explain some of the unknown variance in outcome. This brings us to the next section, which will present findings and theories relevant to the activating affect and inhibition variable.

1.3 Affective processes

Orlinsky et al., (2004) have reviewed the process-outcome research on affect, and presented the results in a systematical manner. They grouped the studies by those focusing on 1) total affective arousal, 2) positive affect, and 3) negative affect.

About one half of the studies that investigated the effect of total affective arousal demonstrated a positive correlation between total affective arousal and outcome (Orlinsky et al., 2004). Therefore, it seems like total affective arousal is a therapy process with the *potential* of having effect, but it leaves questions open about why it only seems to be so in half of the cases. At least these studies as a whole demonstrate that affective arousal is a process worth investigating further.

The studies that investigated positive affective arousal demonstrated a clear relationship with positive outcome. The authors of the review note that there are a low number of studies on positive affective arousal, seen in the light of the positive findings so far (Orlinsky et al., 2004).

The studies of negative affective arousal in therapy sessions showed very mixed results. 20 out of 50 studies demonstrated significant findings related to outcome. However, some of these significant findings demonstrated a *negative* relationship to outcome (Orlinsky et al., 2004). This means that focus on negative feelings can both be a good thing or a bad thing in therapy, assuming that the studies were methodologically sound. As always, this type of

results calls for further studies with refined approaches to the problem, in order to specify how negative affective arousal can generate such contradicting results.

We see that the process research that include a distinction between positive and negative affective arousal paints a clearer picture than total affective arousal studies alone. Positive affect seems to be consistently related to outcome, while there is reason for some confusion in regard to the negative affect studies.

Other affect-relevant findings in the Orlinsky et al. (2004) review was that the therapist intervention of support and encouragement was shown to be sometimes beneficial, but not consistently so. This intervention can be seen as an attempt to deliberately lower the level of inhibition, and thus this is relevant to the inhibition variable in this study. Another finding was that that experiential confrontation, which may be seen as an attempt to increase activating affect, did have positive relationship with outcome in the majority of cases. The intervention of support and encouragement seems coherent with the treatment objective of *regulation of inhibitory affects* in Affect Phobia STDP (this therapy model will be explained in more detail later), while the experiential confrontation can be seen as parallel to the treatment objective of *exposure to and expression of adaptive feeling* (McCullough et al., 2003; McCullough et al., 2009).

McCullough et al. (2009) have suggested that the "generic" categorization of affects as positive or negative, neglects an important *functional* dimension. By using a model which includes whether the affective process is activating or inhibitory in function, it is hypothesized that this will capture aspects in therapy process that the positive/negative categorization miss out on. Because this alternative model of affect organization can be seen as to rely on psychodynamic concepts, a short description of the Affect Phobia STDP model will be presented here. It is also relevant to have knowledge about the Affect Phobia model of STDP in order to understand the concepts behind the development of the ATOS instrument, which will be described in the method section.

The Affect Phobia STDP model

The Affect Phobia therapy model has clear psychodynamic roots, but also a highly eclectic profile. As the name implies, one important objective in this therapy model is to treat patients for "affect phobias", which can be seen as conflicted activating and inhibitory feelings,

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resulting in a fear of feeling certain adaptive feelings, ultimately leading to maladaptive defensive behavior. This conflict is treated by using exposure and desensitization techniques. Due to this, Affect Phobia therapy is not really that different from the traditional psychodynamic conflict model, and not too different from cognitive behavioral models either (e.g. by using exposure and response prevention principles). The eclectic profile is further shown in the neutral language, and the emphasis on taking in use interventions that have been shown to be effective from other therapy methods, e.g. interpersonal interventions, and gestalt therapy interventions such as deepening the experience of emotions (McCullough et al., 2009; McCullough et al., 2008; McCullough et al., 2003). An illustrating example of a classic "affect phobia" is the person that that never wants to commit into a close relationship because of the fear of getting hurt, and as a defense against feeling this emotional pain pulls out before the relationship gets serious.

McCullough et al. (2003) give credit to Malan's works about the triangle of conflict and the triangle of persons as a main inspiration behind the development of the psychotherapy model of Affect Phobia. The theoretical concept of the triangle of conflict and the triangle of persons is intended to represent most of the interpretations the therapist has to figure out, in two relatively easy-to-understand diagrams.

Triangle of conflict:

Defense
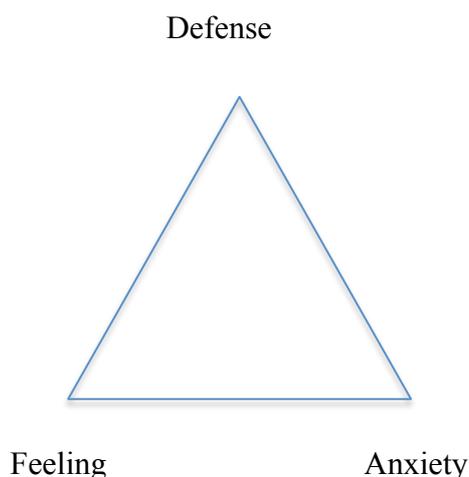
Feeling   Anxiety

Triangle of conflict: The three corners of this triangle consist of *defense*, *anxiety*, and *hidden feeling (often an impulse)*. The point is that anxieties that are intertwined with the hidden feeling/impulse lead to defense mechanisms that block the expression of the hidden feeling. Thus, lowering defense, anxiety/inhibitory feelings, and increasing the feeling (impulse) are the aims of the therapist, in order to ultimately achieve a display of more adaptive behavior (Malan, 1979; McCullough et al., 2003).

Triangle of persons:

Therapist (transference)
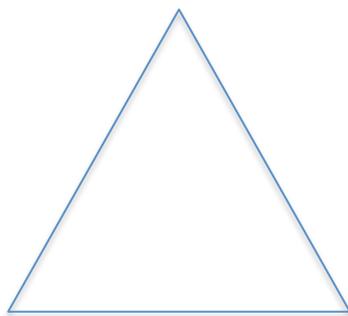
Other persons   Past persons (parents)

Triangle of persons: The triangle of persons consists of *other (usually current, or recent past), transference (usually here-and-now)* and *parents (usually distant past)*. The point of this second triangle is to show how important persons, and earlier experiences in the life of the patient are related to the psychodynamic conflict in the first triangle. Thus, together the triangles resemble a wide theoretical model for understanding therapy objectives (Malan, 1979; McCullough et al., 2003).

We can see that there is a clear parallel and similarity between the model created by Malan and the Affect Phobia model, where the conflict triangle parallels the idea of affect phobias, and the triangle of persons represents the use of interpersonal interventions by understanding the development and maintenance of problem patterns (McCullough et al., 2003; McCullough et al., 2009; Malan, 1979).

Svartberg et al. (2004) found that Affect Phobia STDP is effective in the treatment of patients with cluster C personality disorders.

Findings regarding activating affect and inhibitory affect processes

Taurke, Flegenheimer, McCullough, Winston, Pollack, & Trujillo (1990) found that inhibitory affect and activating affect are processes related to outcome. More specifically, it was found that the *ratio* of activating affect to inhibitory affect predicts positive outcome. This means that the patient might improve by both lowering inhibition, or by increasing activating affect.

McCullough et al (2009) have presented preliminary results from the Trondheim Psychotherapy Research Program (TPRP), which the PROCMAP project can be seen as a direct successor to. TPRP investigated how the ATOS variables activating affect and inhibition was related to outcome. This is very relevant to this study, because they used the same preliminary data as this study is based on, namely the activating affect and inhibition variables from session 6 and 36 from the Svartberg et al. study (2004), which was also rated with the ATOS instrument.

Despite the similarities, the most important difference between this study and the TPRP preliminary study is that in the former, the focus is on exploring the new learning variable, and its relationship to activating affect, inhibition, and outcome, while the TPRP study focused on activating affect and inhibition in relation to outcome. Another difference is that TPRP looked into differences between the CT group and STDP group, unlike this study, which will look at the patients as *one* group.

The TPRP study had data available from videotapes of session 6 and 36 for 23 of 25 subjects in both the CT and STDP groups. In regard to the relevant variables, the authors hypothesized that activating affect would increase over time, while the inhibitory affects would decrease over time, and that the mean level in the latest session would predict improvement in outcome. The results showed that activating affect did increase from session 6 to session 36 in both groups. Inhibitory affect decreased in both groups. The strongest increase in activating affect was found in the STDP group, and the strongest decrease in inhibitory affect was found in the STDP group. The significant correlations to outcome improvement at termination of

treatment were found in activating affect session 36 in the STDP group, and in the inhibitory affect in session 6 and 36 in the CT group (McCullough et al., 2009).

As previously mentioned, this study will investigate the CT and STDP patients as one group, so the results will have to be interpreted carefully, with this limitation clearly in mind. The findings of very small differences in effect among different treatment methods (e.g. Messer et al., 2002; Rønnestad, 2008), was one reason that this study chose to treat both CT and STDP patients as one group. Another reason for this decision was the need to focus the scope of this study as narrowly as possible. The potential to shed some light on treatment processes that are valid across different treatment methods is very intriguing, but at the same time it is very important to consider the tentativeness of interpretations based on such speculative assumptions. The ATOS instrument is intended to capture treatment-independent processes in therapy, by relating each of the specific ATOS variables to a common factor on a more abstract level, in the sense that exposure (activating affect), inhibition and new learning are seen as common factors (McCullough et al., 2003). This instrument, and the variables, will be presented in more detail in the method section.

1.4 Exploring the concept of the new learning scale, and its relationship to activating affect and inhibitory affect

In the Affect Phobia treatment model, regulating inhibitory feelings and increasing the level of exposure to adaptive feelings, are important treatment objectives in therapy. However, it is also stated the *end goal* for the patient is to utilize this emotional learning outside of therapy. This is what the new learning scale of ATOS is intended to measure (McCullough et al., 2008; McCullough et al., 2003). According to Weiner and Bornstein (2009) patients often resist therapy progress by not fully generalizing what transpires in therapy to their life outside.

New learning as a *process* in therapy?

According to Kazantzis and Lampropoulos (2002), it is commonly observed that patients who *use* what they are taught in therapy in the real world, improve faster. In their review of research on homework assignments, it was concluded that therapies that includes homework

assignments were generally related to better outcomes than therapies without homework assignments. Additionally, they found that the *compliance* to homework by the patients was a predictor of outcome. The authors noted that the external validity of the homework process research is somewhat limited, as the studies they reviewed were based on cognitive therapies. However, they also note that it is a trend in newer STDP treatments to include homework. Ryum, Stiles, Svartberg and McCullough (2010) found that with CT treatment of patients with cluster C personality disorders, the therapist´s competence in assigning homework predicted positive outcome measured at both mid-therapy and after ended treatment.

New learning will only be rated if the patient has shown new learning *outside* therapy, and in this regard it has some similarities to *compliance level* of homework. However, it seems like the concepts cannot be directly compared as equal, as homework has a broader definition than what is the case with the operationalization of new learning.

Wachtel (2008) mentions that new relational experiences with other people (as well as with the therapist), give opportunity for patient improvement by providing procedural learning that complements the explicit (declarative) learning that insight-oriented therapy provides. It might be speculated that new learning scale taps into this kind of implicit learning.

We hypothesized that new learning, like homework, can be seen as a process variable that affects subsequent in-session processes.

New learning as an *outcome variable*?

Orlinsky et al. (2004) have discussed the concept of outcome in relation to process research, and emphasize the importance of defining outcome clearly and precisely. The perspective of observation when measuring outcome is important to keep in mind, as a different perspective can give different assessment of outcome. Another important distinction is that researchers have to separate outcome measured *in therapy* and *outside therapy.* In other words; it is important to not interpret improvement inside therapy sessions as necessarily equal to improvement outside therapy sessions. Considering this, we hypothesized that the new learning variable might potentially be a way to measure intermediate outcome, from the patients' perspective and outside of the therapy situation. One of the inspirations for this hypothesis is the resemblance between new learning and the concept of emotional intelligence.

Mayer and Salovey (1990) suggested that emotional intelligence (EI) can be seen as an indicator of mental health status, where persons with EI demonstrates positive mental health, and the lack of EI might be indicative of negative mental health with symptoms such as e.g. adjustment problems, vulnerability to depression and problems in managing social relationships.

Mayer et al. (1990) define emotional intelligence as

> the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions.

This definition can be seen as to have similarity to the treatment objective of the new learning scale in ATOS (McCullough et al., 2008), as in order to *adaptively* express feelings it could be implied some understanding of one's own and others' feelings.

1.5 Hypotheses

Hypothesis 1

It was hypothesized that the new learning scale can be seen as a measure of intermediate *outcome*, and, consequently, that change in new learning from early to late in therapy will relate to change in overall outcome from (a) pre- to posttreatment and (b) pretreatment to 2-year follow-up.

Hypothesis 2

It was hypothesized that activating affect and inhibitory affect early in therapy would predict *change* in new learning, assuming that new learning is a measure of outcome.

Hypothesis 3

It was hypothesized that new learning can be seen as a psychotherapy process between sessions of therapy as well as an outcome measure, and would thus predict later in-session activating affect and inhibitory affect.

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2   Method

2.1 Data material

The data in this study is based on a sample of data from the preliminary results of the project
"Intensive Mapping of Psychotherapy Process" (PROCMAP) currently going on at Modum
Bad in Norway. The project is led by Leigh McCullough, Pål Ulvenes, Lene Berggraf, Asle
Hoffart and Bruce Wampold.

The ATOS-rated process variables (described later) in the PROCMAP project are rated based
on video tapes of therapy sessions from the Svartberg, Stiles, and Seltzer study (2004). For an
in-depth and more detailed description of the methodological basis of this RCT psychotherapy
study, see the Svartberg et al. study.

REK ethical committee has approved the studies.

2.2 Descriptives of patients and therapists

The Svartberg et al. study (2004) was a randomized controlled trial with two patient groups;
one group received STDP treatment based on the Affect Phobia model, the other group
received a variant of cognitive therapy. Patients descriptives: N=50 (25 patients each in the
CT and STDP groups). Mean age at pretest was 33,5 years (SD 8,65). The youngest patient
was 18 and the oldest 56, with a median of 31. The patients met criteria for DSM-III-R cluster
C personality disorder or self-defeating personality disorder, but did not meet the criteria for
any other cluster A or B personality disorder. There were several other exclusion criteria used
in the selection process of patients to limit the risk that patients would drop out of treatment
or not fit in with the aim of the study. Therapist descriptives: N=14 (8 STDP and 6 CT).
STDP-therapists ranged in their experience from clinical work from 2-14,5 years (mean=9.2,
SD=3,6), and experience with STDP ranged from 1,2-10,5 years (mean=6,0, SD=2,8).
Specific experience with Affect Phobia treatment of personality disorders ranged from 1,2-7,2
years (mean=4,7, SD=1,9). The number of patients per STDP therapist ranged from 2-4
(mean=3). All STDP therapists except one had a full time clinical practice. CT therapists
ranged in experience from clinical work from 6-21 years (mean=11,2, SD=4,3). Experience
with CT in general ranged from 1,2 -9,8 years (mean=5,9, SD=2,4), and experience with CT

specialized on personality disorders ranged from 1,2-7,5 years (mean=4,1, SD=1,8). The
number of patients ranged from 1-5 (mean=4) per CT therapist, and all CT therapists except
one had a full time clinical practice. Both CT and STDP therapists were checked for
adherence with the treatment protocols (Svartberg et al., 2004).

Table 1

Descriptives of data variables

Variable	N	Mean	SD
ATOS:			
New learning:			
Session 6[1]	48	29.08	11.58
Session 36 [1]	45	41.88	19.33
Activating affect:			
Session 6 [1]	49	29.51	11.07
Session 36[1]	48	34.68	15.95
Inhibition:			
Session 6 [1]	49	56.82	16.21
Session 36[1]	47	44.97	16.26
Outcome measures:			
SCL90:			
Pre-test	50	1.21	.64
Post-test	50	0.79	.55
2-year follow-up	50	0.71	.61
IIP:			
Pre-test	50	1.60	0.48
Post-test	50	1.26	0.55
2-year follow-up	50	1.07	0.59

[1]:Mean scores per session
Missing scores were due to data not available or that scores were not rated yet.

As seen in Table 1, several outcome measures of the patients are available in the data material
(in addition to the ATOS process variables new learning, activating affect and inhibition). The
patients in the Svartberg et al. (2004) study improved after treatment in with regard to
measures in both SCL-90 and the Inventory of Interpersonal Problems (IIP). Lower mean

score indicates improvement. The patients continued to improve significantly on the IIP but not on the SCL-90 after end of treatment.

2.3 Measures of outcome

Inventory of Interpersonal Problems (IIP)

The Inventory of Interpersonal Problems is an instrument intended to measure distress experienced by the patient that arises from interpersonal sources. It describes the *type* of distress reported in addition to the *level* of distress. IIP gives the opportunity to collect outcome data efficiently, and can be used for measuring before, during and after psychotherapy (Horowitz, Rosenberg, Baer, Ureno & Villasensor, 1988).

The data material in the present study includes the global score of IIP (from the full version with 127 items). This can be seen as a measure of the patients' problems with assertiveness, intimacy, sociability, submissiveness, control, and responsibility for others (Horowitz et al., 1988; Svartberg et al., 2005).

IIP is an instrument that fits well with the objective of checking concurrent validity between new learning and established instruments of measuring patient outcome, because interpersonal problems is a very common complaint patients bring into psychotherapy (Horowitz et al., 1988). Thus, IIP may be a good indicator of outcome viewed from patient perspective.

As shown in table 1, IIP scores of therapy start-up, termination of therapy, and at 24-month follow-up were selected for use in the analysis.

SCL-90-R

The Svartberg et al. study (2004) used the SCL-90-R instrument to measure symptom distress (Global Severity Index). SCL-90-R measures psychological symptom patterns in patients (Bressi, Porcellana, Marinacio, Nocito, & Magri, 2010).

SCL-90 scores at therapy start-up, end of therapy, and 2-year follow-up were available in the data material, and the intention of including SCL-90 scores was to find out whether new learning scores were related to the SCL-90 scores.

2.4 ATOS: The instrument, scales and procedure of rating

The PROCMAP project uses the ATOS instrument (Achievement of Therapeutic Objectives Scale) in the attempt to map important therapy processes. ATOS consists of seven scales, labeled "treatment objectives". These scales are intended to measure how much the patient has absorbed of the specific treatment objectives of the therapist (McCullough et al. 2009).

Even though the ATOS instrument can be seen as based on the achievement of therapy objectives in Affect Phobia STDP, the instrument is deliberately described in the most neutral language as possible, and to reflect common factors rather than Affect Phobia-specific treatment objectives. Another reason that this instrument might be used across different treatment methods, like e.g. cognitive therapy, is that the ratings are based on specific *observable* behaviors (McCullough et al., 2008).

The validity of the ATOS instrument is not very well established, but there has been a study that found it to be acceptable (Carley, as cited in Kallestad, Valen, McCullough, Svartberg, Høglend, & Stiles, 2010).

The seven scales of ATOS

The ATOS instrument has seven scales. All the scales are rated with a score from 1-100, depending on the degree of observed fulfillment of criterias for each scale. For full details about all these scales, see the ATOS manual. Each ATOS scale is conceptually linked to corresponding common factors in psychotherapy, in other words, all scales have both a common factor that it is intended to be tapping into, in addition to a description of the treatment objective (McCullough et al., 2008).

The seven subscales in ATOS are: Insight, motivation, activating affect, inhibition, sense of self, sense of others and new learning (McCullough et al., 2008). The ATOS instrument has been undergoing several revisions during the PROCMAP project, including the name label of some of the subscales. This study focuses on the variables inhibition, activating affect, and new learning. Thus, the variables not directly relevant to this study will not be presented in detail here (McCullough et al., 2008).

The ATOS scales activating affect, inhibition and new learning

The affect experiencing scale is intended to measure the patients' arousal of adaptive (activating) affect in the therapy session (this is what is referred to as activating affect in this paper). It is important that this is observed as bodily, physical arousal, and not just by what the patient is saying. E.g. a patient could verbally say that he "feels very happy right now", but if the body language is telling otherwise, this would not be rated as showing much bodily arousal. The treatment objective behind this scale is the exposure to adaptive feelings, as per the Affect Phobia model explained in the introduction. One can also see this as desensitization of conflicted affects (McCullough et al., 2008; McCullough et al., 2003).

The inhibition scale measures the degree of inhibition, as per the Affect Phobia model. This means that inhibitory feelings such as e.g. anxiety, shame, guilt and emotional pain, that interferes with the adaptive feelings that activating affect measures, are what the rater should look for in order to rate inhibition (McCullough et al., 2008, McCullough et al., 2003).

New learning is intended to measure the degree that the patient is able to express *adaptive thoughts and feelings* to others in real life, outside therapy. Originally, the ATOS instrument included patient-to-therapist expression of adaptive feelings as new learning, but it has since been modified to only include *outside therapy*, *out of session*-expression as a criteria for rating new learning. The ATOS manual also refers to new learning as "affect expression", but the name label has since changed to new learning. The ratings in this study are based on this latest revision (McCullough et al., 2008, McCullough et al., 2003).

Procedure of rating ATOS

The raters were trained in ATOS before doing the actual rating work. They also had to rate samples (on DVD) of therapy sessions to demonstrate satisfactory rater reliability. These test-samples were checked for reliability with "gold-standard" scores rated by the developers of the ATOS scale. They were considered satisfactory in regards to reliability when they achieved a ICC of .7 or higher compared to the gold standard ratings. The coders worked in pairs, and discussed the ratings until a consensus score were made. ATOS was rated every 10-minute segment (except for new learning; coded at the end of every therapy session) (McCullough et al., 2008).

The scales are rated on a likert type of scale from 1-100. The ATOS manual (2008) describes the procedure of rating each scale. If there is no data to support justification of a rating, it should be rated as no data (ND), instead of giving a low score. The very first thing a rater should do to give a rating score is to find the correct interval. Interval 1-20 and 81-100 represent the "extremes" of the subscale; from extremely low to extremely high, while the interval 41- 60 represents moderate levels. Then, the rater should look in the manual for the finer 10-point intervals, and see where the rating best fits. Finally, a precise score is set, based on the guidelines in the manual plus the experience of the rater. There is no doubt that some degree of "gut level" intuition, or randomness, is a determining factor when deciding between giving a 95 score or a 97 score, for example (McCullough et al., 2008).

Core affect is categorized in addition to the 1-100 likert scale rating. This core affect is the adaptive affect that the patient needs exposure to. The raters use the therapists' *focus* as a guideline for scoring the core feelings, when this intention is possible to interpret from the video recordings. It is also a procedure to write a line with justifications for the rating, so that the data can be re-examined to see why a particular rating was given. However, core affect data is not available in the data material of this study. The core inhibitory affect is not rated, neither is there a core affect rating for the new learning score (McCullough et al., 2008).

New learning scores are rated based on what the patient is saying in the specific therapy session, which indicates that the patient has demonstrated the ability to appropriately express feelings, wishes and needs, in real life, outside therapy. This means that new learning is a measure of what the patient has done *before* and outside the session where the score is rated. To illustrate what the 20-points intervals can look like, cited from the ATOS manual (2008): "81-100 - Excellent expression of thoughts/feelings; sense of completeness, balance and excellent results. Great relief and satisfaction experienced.", and "1-20 – No expression of adaptive thoughts or feelings. Total holding back. No relief. No satisfaction. High end of this rating level: can begin to imagine expressing adaptive thoughts or feelings, wants and needs, but is as yet unable to put it into action." New learning was rated after every session, in contrast to activating affect and inhibition, which were rated in 10-minute segments. This study uses the mean scores of activating affect and inhibition of session 6 and 36 (McCullough et al., 2008, McCullough et al., 2003).

Activating affect is rated based on the degree of affective arousal *observed in the body,* tone of voice, etc, during the session. In contrast to new learning, this is a measure of what is going

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on inside the therapy room, here-and-now. Also, simply talking about a feeling is not relevant to the rating of activating affect. It is the *observed, bodily arousal* in session that is the basis for rating this subscale.

Inhibition is observed physically as hesitancy, trembling voice, shaking, etc. The scale is given a high score when the degree of anxiety, guilt or shame evident in the session (here-and-now) is high, and vice versa. However, inhibition is *not* the direct opposite of the activating affect subscale (as in a negative version of the activating affect) as both are rated independently and are to be seen as separate processes, as per the theory of the Affect Phobia model where defenses is a response to inhibitory feelings, while activating affect is seen as the affective impulse. However, naturally, we will often observe very little activating affect when inhibition level is high (McCullough et al., 2003; McCullough et al., 2008).

All the ATOS ratings in this study were made from video-recorded sessions of the Svartberg et al. study (2004).

2.5 Statistical analysis

The first hypothesis predicts that the new learning scale will correlate with other, established outcome measures. This will be done by hierarchical regression analyses in SPSS (SPPS inc). The statistical model will test whether *change* in new learning is related to *change* in the other outcome measures (SCL-90-R, IIP, and MCMI). Change in new learning will be defined as change from session 6 to session 36. Change in the outcome measures will be defined as 1) change from pretest to posttest, and 2) change from pretest to 2-year follow-up (long-term change). Both pretest to posttest and pretest to long-term change will be used in the analyses.

Change is an abstract concept, and might be operationalized in different ways. In this study we chose to measure change by using residual gain scores instead of raw change scores. There are reasons to suggest that using the residual gains approach is less prone to cause erroneous conclusions, as simply subtracting pretest scores from posttest scores (raw change scores) might have a number of problems related to random error of measurement (Cronbach & Furby, 1970).

The second hypothesis, that activating affect and inhibition will predict change in new learning, was tested by using activating affect and inhibition scores session 6 to predict new learning *change* from session 6-36.

Thus, it is predicted that activation and inhibition scores at session 6 will predict new learning *change* from session 6 to 36. This will be tested by a hierarchical linear regression analysis that corrects for the individual impact of the new learning session 6 variable on session 36.

The third hypothesis was that new learning could also be demonstrated to be a *process* in therapy. This will be tested by checking whether new learning will predict activation and inhibition. Because new learning session 6 is rated from the same session as activation and inhibition session 6 (but still representing a measure of new learning *before* session 6), it was hypothesized that new learning session 6 would predict activation and inhibition session 6. The same will be tested regarding session 36; it is tested whether new learning session 36 predicts activation and inhibition session 36. This will be done by using standard regression analyses for each of the variables.

3 Results

3.1 Does *change* in new learning correlate with *change* in IIP and SCL-90?

Table 2-6 present the results from the testing of the hypothesis that there can be seen a correlation between *change* in new learning and the *change* in other already established instruments of measuring outcome. The rationale behind how this hierarchical regression analysis can be seen as testing this hypothesis will be explained in more detail for table 2 than table 3-6, because the underlying rationale behind the analyses is the same. Therefore, for table 2-6 only the most relevant results will be commented, without thoroughly explaining the models.

As can be seen in table 1 (method section), the patients had an increase in new learning scores from session 6 (mean=29.08, SD=11.58) to session 36 (mean=41.88,SD=19.33).

Table 2.

Hierarchical regression analysis with SCL90 posttest as dependent variable.					
Model	**Predictor(s)**	**b**	**β**	**t**	**Sig.**
1	SCL90 pretest	.491	.564	4.377	.000**
2	SCL90 pretest	.506	.104	4.844	.000**
	NEL6	-.016	.006	-2.724	.010**
3	SCL90 pretest	.481	.553	4.801	.000**
	NEL6	-.012	-.243	-2.020	.050
	NEL36	-.008	-.270	-2.237	.031*

NEL6=New learning session 6.
NEL36=New learning session 36.
*=p < .05, **=p < .01.

Adjusted R^2 for model 1=.302, and R^2=.318.
Adjusted R^2 for model 2=.396, and R^2=.491.
Adjusted R^2 for model 3=.451, and R^2=.491.
The ANOVA analysis showed that model 1, 2 and 3 were statistically significant.

Table 2 shows the results from a hierarchical regression analysis with SPSS with posttest score on SCL90 as dependent variable.

In block 1 (model 1), the pretest score on SCL90 is entered as the independent variable. The regression coefficient of the pretest score thus shows the relationship between the pretest and posttest score on SCL90. This is positive; hence those who score high on the pretest also tend to score high on SCL90 on the posttest.

In block 2, the score on new learning at session 6 is entered as a predictor. Since the pretest score on SCL90 is already included in the model, the regression coefficient for new learning at session 6 can be interpreted as the effect that the session 6 score has on *change* in SCL90. The regression coefficient for new learning at session 6 is negative and statistically significant, meaning that those who score high on new learning at session 6 tend to have a decrease in SCL90 scores over time.

In block 3, the score on new learning at session 36 is entered in the model. Since the score on new learning at session 6 and the pretest score on SCL90 already are included in the model, the regression coefficient for new learning at session 36 can be interpreted as how *change* in new learning over time is related to *change* in SCL90.

As can be seen in table 2, the regression coefficient is negative and statistically significant, meaning that those who have increased their score on new learning, tend to have decreased their SCL90 score. In other words, an increase in new learning over time is related to reduced symptoms.

Table 3.

Hierarchical regression analysis with IIP posttest as dependent variable.					
Model	**Predictor(s)**	**b**	**β**	**t**	**Sig.**
1	IIP pretest	.493	.426	3.016	.004**
2	IIP pretest	.502	.434	3.112	.003**
	NEL6	-.010	-.206	-1.479	.147
3	IIP pretest	.341	. .295	2.023	.050
	NEL6	-.005	-.095	-.671	.506
	NEL36	-.010	-.349	-2.279	.028*

NEL6=New learning session 6.
NEL36=New learning session 36.
*=p < .05, **=p < .01.

Adjusted R^2 for model 1=.162, and R^2=.182.
Adjusted R^2 for model 2=.185, and R^2=.224.
Adjusted R^2 for model 3=.263, and R^2=.315.
The ANOVA analysis showed that model 1, 2 and 3 were statistically significant.

Table 3 shows the results from a hierarchical regression analysis with SPSS with posttest score on IIP as the dependent variable. The beta coefficient of new learning session 36 in block 3 is stronger with IIP posttest as dependent variable than what was the case with SCL90 in table 2. It is negative and statistically significant. An interpretation can be that *change* in new learning correlates with the *change* in IIP.

Table 4.

Model	Predictor(s)	b	β	t	Sig.
	Hierarchical regression analysis with SCL90 2-year follow-up as dependent variable.				
1	SCL90 pretest	.276	.285	1.902	.080
2	SCL90 pretest	.282	.291	1.935	.060
	NEL6	-.007	-.123	-.816	.419
3	SCL90 pretest	.262	.271	1.798	.080
	NEL6	-.003	-.062	-.395	.695
	NEL36	-.006	-.196	-1.240	.222

NEL6=New learning session 6.
NEL36=New learning session 36.
*=p < .05, **=p < .01.

Adjusted R^2 for model 1=.059, and R^2=.081.
Adjusted R^2 for model 2=.051, and R^2=.096.
Adjusted R^2 for model 3=.064, and R^2=.130.
The ANOVA analysis showed that none of the models were statistically significant. Model 1 sig.= .064, model 2 sig.= .132, model 3 sig.= .137.

Table 4 shows the results from a hierarchical regression analysis with SPSS where the 2-year follow-up score on SCL90 is the dependent variable. The regression coefficient for NEL36 in model 3 is not statistically significant.

Table 5.

	Hierarchical regression analysis with IIP 2-year follow-up as dependent variable.				
Model	**Predictor(s)**	**b**	**β**	**t**	**p**
1	IIP pretest	.247	.202	1.324	.193
2	IIP pretest	.258	.212	1.414	.165
	NEL6	-.013	-.251	-1.677	.101
3	IIP pretest	.088	.072	.457	.650
	NEL6	-.007	-.139	-.909	.369
	NEL36	-.011	-.351	-2.116	.041*

NEL6=New learning session 6.
NEL36=New learning session 36.
*=$p < .05$, **=$p < .01$.

Adjusted R^2 for model 1=.018, and R^2=.041.
Adjusted R^2 for model 2=.059, and R^2=.104.
Adjusted R^2 for model 3=.134, and R^2=.196.
The ANOVA analysis showed that model 1 and 2 were not statistically significant (p=.193, and .111, respectively). Model 3 was statistically significant (p=.035).

Table 5 shows the results from a hierarchical regression analysis with SPSS where the 2-year follow-up score on IIP is the dependent variable. It can be seen that the regression coefficient for NEL36 is statistically significant and about the same size as when using IIP posttest as dependent variable (table 2). This can be interpreted to mean that NEL *change* not only correlates with IIP *change* from pre to post (table 2), but also from IIP *change* from pretest to 2-year follow-up (table 4).

3.2 Does activating affect and inhibition predict *change* in new learning?

Results from linear regression analyses with NEL36 as dependent variable:

1) Linear regression analysis with new learning session 36 as dependent variable and activating affect session 6 as predictor: b=15.397, β=.274, t=1.846, p=.072. Adjusted R^2=.053, and R^2=.075.

2) Linear regression analysis with new learning session 36 as dependent variable and

inhibitory affect session 36 as predictor: b=.497, β=.281, t=1.900, p=.164. Adjusted R^2=.057, and R^2=.079.

These linear regression analyses were testing whether ACTIV6 or INHIB6 (by themselves) correlates with NEL36. There were no statistically significant coefficients, but the ACTIV6 (beta=.274) regression coefficient shows a trend.

Table 6.

Hierarchical linear regression with NEL36 as the dependent variable.					
Model	**Predictor(s)**	**b**	**β**	**t**	**p**
1	NEL6	.512	.304	2.047	0.047*
2	NEL6	.272	.162	.702	.487
	ACTIV6	.384	.209	.909	.369
	INHIB6	.020	.016	.082	.935

NEL6=New learning session 6.

NEL36=New learning session 36.

INHIB6=Inhibitory affect session 6.

ACTIV6= Activating affect session 6.

*=p < .05, **=p < .01.

Adjusted R^2 for model 1=.071, and R^2=.093.

Adjusted R^2 for model 2=.044, and R^2=.112.

Table 6 shows the results from a hierarchical regression analysis where new learning at session 36 is the dependent variable. This is analysis is intended to test hypothesis 2 that change in activating affect and inhibitory affect predicts change in new learning.

In block 1, new learning at session 6 is entered as the independent variable. The beta coefficient is .304 and statistically significant (p<.05). This means that new learning at session 6 does predict new learning at session 36. Adjusted R^2 for model 1 is 0,71. In other words, the variance in NEL6 scores does not explain much of the variance in NEL36.

In block 2, two independent variables are added to the model; inhibition session 6 and activation session 6. Since the score on NEL6 is already included in this model, the regression

coefficients for ACTIV6 and INHIB6 can be interpreted as the effects the ACTIV6 and INHIB6 scores have on *change* in new learning over time. While the beta coefficients for ACTIV6 and INHIB6 are .209 and .016, respectively, none of the coefficients are statistically significant in model 2. The t-values are low in model 2, and especially so for INHIB6.

3.3 Does new learning predict activating affect and inhibitory affect?

Table 7.

Results from SPSS linear regression analysis.							
Dependent variable	**Predictor**	**b**	**β**	**t**	**Sig.**	**R^2**	**R^2 adjusted**
ACTIV6	NEL6	.620	.668	6.083	.000**	.446	.434
ACTIV36	NEL36	.704	.839	10.123	.000**	.704	.698
INHIB6	NEL6	-.707	-.509	-4.008	.000**	.259	.243
INHIB36	NEL36	-.525	-.625	-5.251	.000**	.391	.377

NEL6=New learning session 6.
NEL36=New learning session 36.
ACTIV6= Activating affect session 6.
ACTIV36= Activating affect session 36.
INHIB6=Inhibition session 6.
INHIB36=Inhibition session 36.

*=p < .05, **=p < .01.

The ANOVA analysis showed that the models were statistically significant.

The goal of hypothesis 3 was to investigate whether new learning (which is a measure of the patient's adaptive affect expression outside therapy, *before* the session that it is rated from) could predict scores in activating affect and inhibition. In other words it was tested whether new learning could predict 1) activating affect and 2) inhibition. Table 7 shows the results from the linear regression analyses.

R^2 and R^2 adjusted for each of the regression coefficients are also included in the table. Notably, R^2 adjusted for activating affect session 36 is very large (.698).

In general the beta coefficients are strong across all dependent variables and independent variables. The results are statistically significant. T-values are strong. In other words, the results give support to the hypothesis that new learning predicts activation and inhibition.

There are some clear patterns in the results. NEL seems to be a better predictor of ACTIV and INHIB in the later sessions than in the beginning of therapy. Also, NEL seems to predict ACTIV somewhat better than INHIB, regardless of session number. Most strong is the predictive effect of NEL36 on ACTIV36 (β =.839, R^2 adjusted=.698).

4 Discussion

4.1 The new learning scale - a measure of outcome?

We wanted to test whether the new learning scale of the ATOS instrument could be seen as a measure of outcome. There are no earlier studies that have investigated this question regarding the new learning scale.

There was a correlation between *change* in new learning over time (from session 6 to 36) and the *change* in IIP from pre-treatment to post-treatment. A correlation was also found between new learning change and change in IIP from pre-treatment to 2-year follow-up. Change in new learning also correlated with SCL-90 pre-treatment to post-treatment change, but no correlation was found between new learning change and SCL-90 change from pre-treatment to 2-year follow-up. In other words, the new learning scale has demonstrated a degree of concurrent validity with IIP and SCL-90, and this supports the hypothesis that the new learning scale can be seen as a measure of outcome.

The global IIP score represents interpersonal problems, while the Global Severity Index (GSI) of SCL-90 is intended to tap into a more broadly defined degree of symptom distress (Horowitz et al., 1988; Bressi et al., 2010; Svartberg et al., 2004). The change in new learning scores correlated with the change in IIP scores from pretest to 2-year follow-up. However, this was not the case with the respective SCL-90 scores. This finding in regard to IIP long-term change could possibly mean that the increase in new learning from session 6 to session 36 represents the learning of an interpersonal *skill* that protects the patient from having interpersonal problems. It might be the case that this skill ensures that the patients are less vulnerable to experiencing interpersonal problems. If so, this skill acquisition seems to continue to have a positive effect even on the patient after the treatment period is over, as measured by IIP long-term follow up. The IIP follow-up scores for the patients showed that the patients improved on their own in regards to interpersonal problems from post-treatment to the 2-year follow-up measure (table 1).

It is important to keep in mind that this particular study is based on a sample of patients that fulfilled the criteria for one of more cluster C personality disorders at treatment start. This

means that we cannot necessarily generalize from these results to other patient groups (Roth & Fonagy, 2005). Also, we had very limited data for new learning, only session 6 and 36.

In sum, the results seem to support the assumption that the new learning scale can be seen as a measure of outcome.

4.2 Does affective processes inside therapy predict affective expression between sessions?

We also wanted to investigate the relationship between affective processes inside therapy (the affect expression and inhibitory affect scales in ATOS) and affective expression between sessions (new learning scale). The rationale behind testing the hypothesis was that the level of inhibitory affect and activating affect has been found to correlate with positive outcome in earlier studies (e.g. Taurke et al., 1990). Assuming that an increase in new learning indicates improvement in outcome, it was hypothesized that level of inhibitory affect and affect expression at session 6 would correlate with an increase in new learning scores over time.

We found no support to the hypothesis that early activating affect and inhibitory affect could predict change in new learning from session 6-36. The correlations were not statistically significant.

In retrospect, it seems likely that measures of activating affect and inhibitory affect at session 6 are just a few out of many factors that might have an impact on the *change* in new learning from session 6 to 36, because of the long temporal lag. Given this consideration it is not unexpected that there was no significant correlation. However, the preliminary data material was limited, and this was an attempt to make the best use out of it. Future process research studies are needed to conclude with more certainty about whether there is a causal relationship between early activating affect and inhibitory affect and later increase in new learning.

A potential weakness in the ATOS scale of new learning is that a patient could possibly have had new experiences of adaptive affect expression before the session, without talking about this in the session. E.g., the therapist and client conversation could have a totally different focus in the session. In other words, it is possible that the new learning scale has a *lowered validity* for adaptive affect expression.

It is also important to take into consideration that this hypothesis assumed that new learning has some relationship to outcome. There was found some degree of support to this by investigating the degree of concurrent validity between scores of new learning and scores on other established instruments measuring outcome.

4.3 Does affect expression before a session predict affect experiencing and inhibitory affect in the session?

Overall, we found that the new learning score, a measure of the degree of adaptive affective expression before the session, predicted the degree of activating affect and inhibitory affect. The regression coefficients were statistically significant (p>.000).

New learning session 6 predicted activation session 6 (beta=.668), and new learning session 36 predicted activating affect (beta=.839).

We found that new learning also predicted inhibitory affect levels, but the correlation was lower. We see the same pattern with inhibitory affect as in regard to activating affect: New learning correlated higher with inhibitory affect in session 6 than session 36.

It was not expected to find such high correlations, so we were surprised by the results of the regression analyses.

One possible explanation to the high level of correlation is that the rating of the variables might be influenced by each other, as both new learning, activating affect and inhibitory affect are rated from a video-tape of the *same session*. Also, there is a possibility that an unknown *third variable* is responsible for this correlation. This means that we should be careful to conclude that this is a causal relationship.

For example, it might be possible that a patient that talks about his new emotional experiences before the session, can be emotionally aroused by talking about this, and as a result get both a high rating on activating affect and new learning.

Alternatively, a high degree of activating affect could also bias the new learning rating score. The rater could interpret the significance of the new learning experiences that the patient talks about differently, depending on how much activating affect that is shown at the same time.

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Could specific affects lead to specific memories? E.g., feeling sad, could lead to remember more memories that are connected to sad feelings? This would be consistent with the theory of mood-state-dependent memory (Bower, 1981) and represent an additional possible confound.

There are also possible alternative explanations for the high correlation with inhibition scores. A low level of inhibition could make the patient have a lower "threshold" for talking about his new emotional experiences outside therapy. Similarly, it can be hypothesized that a higher degree of new learning could color the rater's impression of how inhibited the patient seems to be in the session, leading to interrelated scores.

These are important considerations to note. Ideally, it would be better if new learning was not rated in the same session as activation and inhibition, and instead e.g. rated by observing behavior outside therapy. In the real world this is difficult to accomplish. A more realistic solution could be to ask the patient *specifically* about the degree of new learning each session. This could be an idea for a future study on the subject.

On the other hand, there is a possibility, if taken at face value, that there *is* a causal relationship between new learning and affective processes in therapy. For example, homework compliance level has been shown to be a predictor of positive outcome in cognitive therapy (Kazantzis et al., 2002). Since activating affect and inhibitory affect are also processes shown to be related to positive outcome (Taurke et al., 1990), it can be speculated that new emotional learning outside therapy is a process that facilitates progress in therapy by influencing the level of activating affect and inhibitory affect inside therapy session.

Despite the limitations discussed here, which underscore that one should be careful to draw causal conclusions, the results seem to suggest that affective processes outside therapy can possibly have a significant impact on affective processes in the following therapy sessions.

Future process research is needed to shed more light on the relationship between affect expression between sessions and affective processes in therapy.

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