Mimic reactions after a passed and a failed test in psychotherapy. A pilot study based on the process theory developed by Weiss, Sampson and the San Francisco Psychotherapy Research Group

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Introduction

Ladies and Gentlemen, I'm pleased to be here today reporting the results of a pilot study which was conducted by Brigitta Walser Zalunardo under my supervision at the Department of Clinical Psychology at the University of Zurich, Switzerland. As you notice from the title, our study refers to *test situations* in psychotherapy. These tests are part of the theory of the psychoanalytical process of *Joseph Weiss* (Weiss et al, 1986; Weiss, 1993a). The theory, also known as *Control-Masterytheory*, has been empirically investigated by *Harold Sampson*, *Joseph Weiss* and the *San Francisco Psychotherapy Research Group*, previously known as the *Mount Zion Psychotherapy Research Group*. To give you the theoretical background I'll first describe the main ideas of Weiss theory. Next I will tell you about the questions and methods of our empirical study. Then I'll show you the two video sequences of a passed and a failed test which were under investigation. As a last step I would like to present some results of the study before we have time for questions and discussions.

Control-Mastery theory emphasizes a patient's ability to exercise *control* over his mental and unconscious mind. It also emphasizes a patient's wish to *master traumatic experiences* which have inhibited his development. The theory is based on special parts of Freud's later writings which Thomä & Kächele (1988, p. 8) have called "the neglected assumptions". It assumes that the patient's problems and psychopathological symptoms stem from maladaptive and constricting *pathogenic beliefs*. These pathogenic beliefs are typically acquired in childhood *after traumatic experiences* and may be unconscious. They reflect the child's most important motivations to *maintain ties to his parents* and to *master the helplessness* associated with traumatic experience.

An example: A child observes his mother becoming worried and depressed. This happens at a time when the child becomes more independent and displays more strength. The child may causally relate these events and develop the *pathogenic belief* that his mother would be worried and depressed if he was to become still more independent or feel even stronger. Later on this person might develop the *symptoms of a phobia* which would require him to stay close to home. This could count as an example of *separation guilt* (Modell, 1971). Maybe this child has siblings which also suffer from mother's depression. They all experience that their mother is no longer able to respond to their normal needs. Their mother's attention is a very rare event for them. Some of them may develop the belief that if they get it from their mother they would take it away from the other siblings. This is an example of *survivor guilt* (Modell, 1971). Pathogenic beliefs are strongly related with feelings of guilt, shame and other negative emotions (Friedman, 1985; Silberschatz & Sampson, 1991). *The function of the pathogenic belief is to warn the child that if he would not repress important wishes, needs, behavior, emotions and goals then further trauma would happen.*

Patients in psychotherapy develop specific but often unconscious *plans* to have experiences by which they may *disprove their pathogenic beliefs* and master their problems in order to reach some specific and concrete *goals* which their beliefs warn them against. A plan also includes a simple *order* which problems to tackle first and which to defer. These plans are of a very simple quality, they just point the patient in a particular direction.

The patient is motivated to master and overcome his pathogenic beliefs. But he cannot be sure that these pathogenic beliefs are not reliable explanations of traumatic experiences. Therefore the patient has to *test* his pathogenic beliefs in his relationship to the therapist. *Tests aretrial actions*. There are two possibilities of testing: In *transference tests*, the patient reproduces behavior similar to that by which, in his opinion, he had provoked the parental behavior he had experienced as traumatic. The second way of testing is called *passive-into-active testing*. The patient changes the roles involved in the traumatic experience. He takes the role of a traumatizing parent and puts the therapist in the position he once was in as a child (Foreman, 1996).

The patient unconsciously hopes that the therapist will not react as his pathogenic beliefs predict. If the patient perceives that the therapist does not react in this way the therapist has *passed* the test. This would help the patient to take a small step toward disproving the pathogenic belief. On the other side, the therapist may react similar to the parental behavior. This would confirm the pathogenic belief, and the therapist would have *failed* the test.

There are two broad ways a therapist can help a patient: 1) *passing the patient's tests* and 2) *offering "pro-plan interpretations"*. Pro-plan interpretations are interpretations that the patients can use in their effort to carry out their plan. These interpretations help the patients to gain insight how their pathogenic beliefs arised, what purposes they originally served and how they now obstruct their goals. These pro-plan interpretations help the patients to disprove their pathogenic beliefs and to persue their goals. The therapist's approach is therefore highly *case-specific*. He attempts to help each patient to disprove his *particular pathogenic beliefs* and to pursue his *particular goals*. He does this by passing the patient's tests, by offering him pro-plan interpretations and by his *overall approach* and *attitude* (Weiss, 1994; Sampson, 1994).

The *empirical studies* of the San Francisco Psychotherapy Research Group (see Weiss, 1993 b) show that patients *react immediately with positive behavior changes* when they perceive a test as passed or an interpretation as pro-plan oriented (Silberschatz, Fretter & Curtis, 1986; Silberschatz & Curtis, 1993). They are more involved with what they were saying and so demonstrate a higher level of experiencing. They are bolder, feel more relaxed and less anxious, they can lift their repressions and therefore can remember specific memories and show more insights (Broitman, 1985). There are also studies that demonstrate long term effects of pro-plan interpretations. For example Norville, Sampson & Weiss (1996) found a correlation of 0.7 between plan-compatibility of therapist interpretations and a case specific outcome measure in seven cases of brief psychotherapy.

Until now the empirical studies of the San Francisco Psychotherapy Research Group were based on *verbal data*, I.e. transcripts of audio-taped therapy sessions. There is one exception: Kelly (1989) used the *Voice Stress Measure* and showed that in two out of three cases the patient reacted to a passed test by demonstrating an immediate decrease of tension.

Goal of the study

The *goal of our pilot study* was to expand the research with verbal data to the maybe most relevant nonverbal channel: *facial or mimic behavior*. Facial movements enable the most distinguished nonverbal expressions of emotions (Ekman, 1993). The idea to rely on facial expressions as an indicator whether a patient perceived a test either as passed or as failed was motivated from my clinical work. I had a patient who used to do much passive-into-active testing. He used to criticize me and our therapeutic work and made strong demands in a very authoritarian way. It seemed to be helpful for him that I was not put down by his criticism and took an explicit stance against his arguments. However the patient didn't react with positive verbal behavior after a passed test. Instead he made an even more aggressive demand or would argue even stronger against me. This kind of behavior shows that the passed test enables the patient to test even more vigorously because he feels safe enough to do so and he hopes that the therapist can pass an even more difficult test. But for the therapist this kind of behavior is hard to take and sometimes difficult to interpret. Every new test includes aggressive and negative behavior and the therapist may worry that he has failed the last test. However in the course of this therapy I realized that the patient *smiled very quickly* before he went on to a new test. I learned to read this short nonverbal sign as a positive evaluation of my intervention before new verbal attacks followed.

So the main question underlying our pilot study was: Are there facial expressions which indicate whether a patient perceives a test either as passed or as failed? For our pilot study we used sequences of a videotaped therapy with a patient called "Jane".

The data: Jane's case

Presenting problem: Jane called our counselling service and explained that she had planned for a long time to discuss her problems with someone. Her decision to call was released by a conflict with her boy-friend. I liked Jane from the beginning of our first session. She seemed to me a vivid, spirited, attractive and attentive woman. She was 28 year old and had an academic education and degree. She was working in a scientific research project and her professional career was very important to her. She had a boy-friend, let's call him Carl, with whom she was involved for two years. Carl was living in another town so Jane was living single most of the time. The relationship with Carl seemed to be quite difficult. He used to withdraw suddenly from her without speaking about his reasons. Nevertheless Jane was working hard for this relationship. In the first session Jane describes her main problem as her "uncontrolled, exaggerated outbursts of emotions". This *symptom* consists of *two bodily aspects*: First she is *bursting into tears*. Second her *voice* becomes very tense, high and even stops for short times. Jane consequently did *not* connect this symptom with her *feelings*. It was just something that happened and that she could not control. The symptom did already occure in the first minutes of the intake interview *(video sequence)*.

Jane's symptom seemed strange to me and did not affect me at all. Later on in therapy the emotional quality of her crying changed markedly. The symptom was very disturbing for Jane, in her professional as well as in her private life. It usually occurred when she was the only woman in front of one or several men who are of importance or of interest for her. She made very clear that this symptom has nothing to do with restricted exhibition because she often speaks at conferences, did very well and had proofed herself as a very competent expert in her field.

History: Jane's parents separated when she was two years old. She grew up in the country with her mother and her two years older sister. Her grandmother also lived very near. Jane left home and moved to town when she began to study. Her father hardly cared for her after the divorce. He remarried quickly and has another two daughters. Jane's mother had only a few transitory relationships with men after the divorce, stayed single and was working in a social profession. Later on in therapy Jane described her mother as a rebellious woman, proud of her independence, but also as cynical and bitter. At the end of the therapy she could establish a good relationship with her father and saw him in a much more positive light.

Course of therapy: I offered Jane five sessions to evaluate her problems and whether she wants to undergo a therapy. After that initial phase the weekly sessions were continued as therapy. At the beginning of the 7th session Jane already decided to stop therapy because the symptoms had disappeared already after the first session and she said that she could handle the relationship with Carl much better. We stopped therapy after the 8th session. After that I discussed the case with *Steven Foreman*, another member of the San Francisco Psychotherapy Research Group. We made an outline of a plan-diagnosis and formulated hypothesis why she had left therapy. One year after she left I asked Jane whether she would participate in a catemnestic interview. After that interview she decided to continue with therapy which was going on for 50 more sessions and was considered successful.

Jane's main pathogenic beliefs

Let me now summarize Jane's main pathogenic beliefs that are important to understand the meanings of the tests which we investigated.

1. Jane believes that she is "emotionally incontinent" and therefore has to control her emotions and feelings.
2. Jane believes that she is disgusting, awful and detestable when she is expressing her emotions, feels ashamed and therefore has to hide or hold back her feelings.
3. Jane believes that she is chaotic, a mess and disgusting like a pig and therefore she should stay with animals, she should not be treated in a friendly way, or has to find people contemptible

who are nice to her.
4. Jane believes that her uncontrollable feelings are the reason that her father had left the family and has looked for new and clean daughters.
5. Jane believes that her positive feelings for her father and her wish to speak with him are the reason for her mother's staying alone and therefore she is not to speak anymore with her father or a man she likes.
6. Jane believes that she would betray her mother and would be illoyal if she had a good relationship with a man, and therefore she has to terminate such relationships or find them "boring".

Two key tests

For this study we choose two *key tests*, I.e. two tests of central importance for Jane's problems. The sequence of the *passed test* is from the very beginning of the second session. Jane presents herself as chaotic, thinking that the therapist couldn't follow her disordered and messy explanations. The therapist took a skeptical attitude against this self presentation and said that he didn't consider her chaotic and that she was explaining her problems rather straightforward. After that intervention Jane said that the symptoms had vanished and that she was feeling well *(video sequence)*.

The *failed test* was from the beginning of the 7th session. The therapist wants to fix a next meeting but Jane wants to stop therapy. She said she was feeling fine, the symptoms had vanished and she now could handle her problems in the relationship with Carl. The therapist put away his agenda, indicating that he no longer expected to fix a meeting and asked about what was happening in the meantime. He said it was possible to stop now and maybe to come back later if she wanted to do so (*video sequence)*.

The passed test sequence consists of 132 seconds, the failed test sequence consists of 130 seconds. We divided the sequences as follows: There is a first part called the *testing sequence* of the patient. It follows the first *intervention* of the therapist which indicates whether the test is failed or passed. The part after the therapist's intervention is called the *reaction sequence* of the patient. Each testing or reaction sequence approximates one minute in duration.

Method

To study the facial expressions we used the *Facial Action Coding System (FACS)* from Ekman & Friesen (1978). FACS is based on the muscles in the face which can be moved independently. These are called *Action Units (table 1)*. The intensity of the activation was also coded. The video material consisted of 282 seconds altogether. Each second has 50 frames, and each single frame was FACS-coded. Only the facial expressions of the patient were coded by a trained and reliable FACS-rater. These FACS-codings could be visualized in 57 so-called *micro-plots* (Bänninger-Huber, Moser & Steiner, 1990).

Table 1: Action Unit Legend (Ekman & Friesen, 1978)

1 *Inner Brow Raise*	***22*** *Lip Funnel*	***42*** *Slit*
2 *Outer Brow Raise*	***23*** *Lip Tight*	***43*** *Closed*
4 *Brow Lower*	***24*** *Lip Press*	***44*** *Squint*
6 *Cheek Raise*	***25*** *Lips Part*	***45*** *Blink*
7 *Lids Tight*	***26*** *Jaw drop*	***46*** *Wink*
8 *Lips Toward*	***27*** *Mouth Strech*	***51*** *Head: Turn Left XYZ*
9 *Nose Wrinkle*	***28*** *Lip Suck*	***52*** *Head: Turn Right XYZ*

10 *XYZ Upper Lip Raise*	***29*** *Jaw Trust*	***53*** *Head Up XYZ*
11 *Nasolabial Deepen*	***30*** *Jaw to Sideways*	***54*** *Head Down XYZ*
12 *XYZ Lip Corner Pull*	***31*** *Jaw Clench*	***55*** *Head: Tilt Left XYZ*
13 *Cheek Puff*	***32*** *Bite*	***56*** *Head: Tilt Right XYZ*
14 *Dimpler*	***33*** *Blow*	***57*** *Head: Forward*
15 *XYZ Lip Corner Depress*	***34*** *Puff*	***58*** *Head: Back*
16 *Lower Lip Depress*	***35*** *Cheek Suck*	***61*** *Eyes: Left XYZ*
17 *Chin Raise*	***36*** *Tongue Bulge*	***62*** *Eyes: Right XYZ*
18 *Lip Pucker*	***37*** *Lip Wipe*	***63*** *Eyes: Up*
19 *Tongue Show*	***38*** *Nostril Dilate*	***64*** *Eyes: Down*
20 *XYZ Lip Strch*	***39*** *Nostril Compress*	***65*** *Walleye*
21 *Neck Tighten*	***41*** *Lids Droop*	***66*** *Cross-eye*
		74 *Unscorable*

(Please insert table 1 about here)

As a second step we used the affect predictions of Friesen & Ekman (1984), which they proposed in their *Emotional Facial Action Coding System (EMFACS)*. These affect predictions consist of combinations of action units which are seen as prototypes or major variants of seven emotions: *surprise, fear, happiness, sadness, disgust, contempt and anger* (see table 2 as an example for contempt). We didn't use the EMFACS procedure in its original form, which is done in real-time coding and only with a limited number of action units. Instead we used the affect predictions to give an emotional meaning to our original FACS-codes, which are strictly descriptive.

Table 2: EMFACS Indicatory for Contempt (Friesen & Ekman, 1984)

1.	1 and	2 and	5B	(U 10 or U 14)
2.	1 and	2 and	5B and	14
3.	1 and	2 and	5B and	
4.	1 and	2 and	5C/D	
5.	1 and	2 and	5C/D and	7
6.	1 and	2 and	5C/D and 7 and	(U 10 or U 14)
7.	1 and	2 and	5C/D and 7 and	14
8.	1 and	2 and	5C/D and	(U 10 or U 14)
9.	1 and	2 and	5C/D and	14
10.	4 and	*5*		
11.	4 and	(5B or 5C/DE)	And 7	

12.	4 and	5 and	7 and	(U 10 or U 14)
13.	4 and	5 and	(U 10 or U 14)	
14.	4 and	5 and	14	
15.	4 and	7		
16.	4 and	7 and	(U 10 and U 14)	
17.	4 and	7 and	14	
18.	U 10 or U 14			
19.	14			
20.	23 and	(U 10 or U 14)	And other lower face AU	
21.	23 and	14	And other lower face AU	

(Please insert table 2 about here)

It was important to distinguish between *felt happiness* and *phoney smiles* as indicated in table 3. There are many different kind of smiles with many different functions (Steiner, 1986). Only felt smiles can be seen as indicators for happy emotions, while other kind of smiles serve social or defensive functions.

Table 3: Indicators for "Felt Smile" and "Phoney Smile"

(Steiner, 1986)

Felt Smile:	*Between 2/3 sec. And 4 sec.*
12 and (6 or 7)	
Phoney Smile:	*Less than 2/3 sec. Or longer than 4 sec.*
12 and (6 or 7)	
12 and no other AU	

Results

We evaluated the density of the different single emotions which are indicated by the EMFACS predictions. The density is defined as the percentage of time one emotion is predicted compared with the time of the whole sequence. The results are shown in figure 1. There were no indicators of fear or surprise. Happiness is divided into felt smiles and phoney smiles as explained above. The first column represents the density of the testing sequence of the passed test, followed by the reaction sequence of the passed test. The third and fourth columns represent the testing and reaction sequence of the failed test.

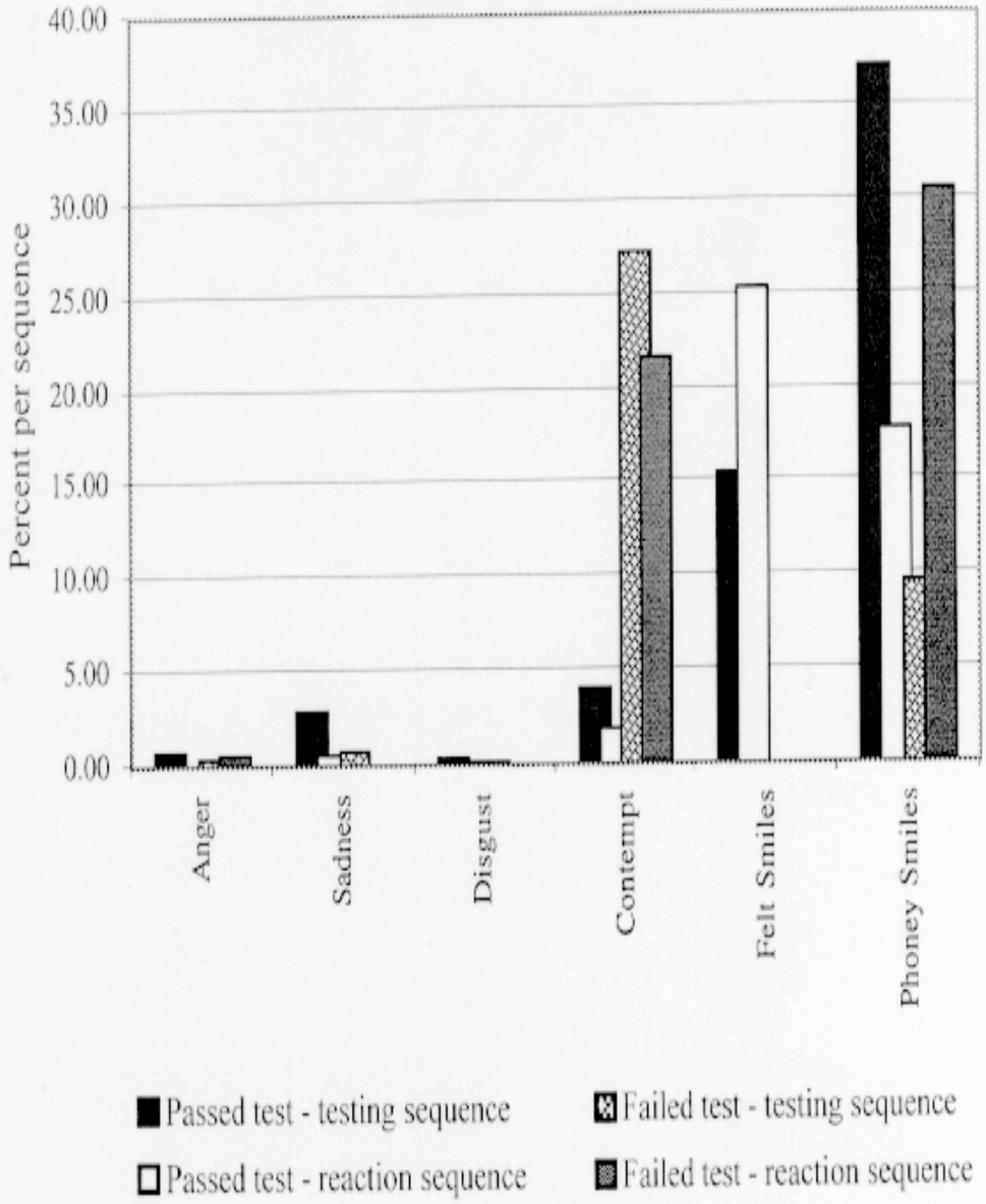

Figure 1: Emotion densities

(Please insert figure 1 about here)

Discussion

Passed test: Jane begins the testing sequence of the passed test with a high proportion of smiles. There are both felt smiles indicating happiness and phoney smiles which can be interpreted as a kind of flirtation. So it seems that Jane's nonverbal behavior already is expressing her well-being although she verbally states a kind of dissatisfaction with herself. These contradictory signals seem to make it easy for the therapist to contradict Jane's self-presention as chaotic and therefore to pass the test. There are also short signals of contempt, sadness, disgust and anger in the testing sequence. Disgust and contempt can be interpreted as *referential emotions* (Ekman, 1993). They may represent an emotional commentary of the verbal content of the test: "How disgusting and how contemptible to be such a mess!". Sadness and anger are probably related to issues Jane wants to work on in this session, i.e. to get down with problems of her childhood. However she first has to test the therapist to see whether the relationship is save enough to do so. When she perceived the therapeutic intervention as disproving her pathogenic belief (that she is a mess and chaotic), she responds immediately with a very strong felt smile. She verbally states that she is feeling well and that the symptoms have vanished after the first session. During the whole reaction sequence the felt smiles increase indicating joy and happiness, while the phoney smiles decrease. All other negative emotions are lower compared with the testing sequence or even absent. After the test is passed Jane tackles her most painful experiences in childhood in a very straightforward manner. Her therapeutic work includes experiencing and reflecting on feelings of disappointment, anger and sadness. The sequence of this session can be seen as another example of the touching process that Weiss (1952) called "*Crying at the happy ending*".

Failed test: In the failed test however, there are no positive emotions at all, neither in the testing nor in the reaction sequence. There is a high amount of contempt that the patient is expressing both in the testing and reaction sequence. In the reaction sequence Jane shows more phoney smiles then in the testing sequence, indicating defense or coping mechanisms. The emphasis on contempt during the failed test may be interpreted as a sign of Jane's strong identification with her mother which she described as cynical and bitter. This interpretation is supported by Jane's general appearance and look of dressing which seems to be very rigid and austere and very different to how she presented herself in other sessions. Jane was probably turning passive into active: She identifies with her mother and puts the therapist in the role she once had as a child. The lack of positive emotions emphasizes the seriousness of the maternal behavior and may also indicate that Jane did not really *expect* the therapist to pass this test although she might have the *unconscious hope* that he would do so. This fits the verbal data because Jane was not really asking to stop, she already had decided to stop therapy. Nevertheless her increased phoney smiles in the reaction sequence may indicate her attempt to overcome her disappointment about the therapist's intervention. A helpful intervention of the therapist would have required a very strong and explicit stance against Jane's decision. The lack of other signals, especially of positive emotions may have contributed to the therapist's difficulty to resist Jane's decision; another reason was that the therapist felt obliged to respect her autonomy. The ongoing session after the failed test also sharply contrasts with the process after the passed test. While there was a intense shift of behavior after the passed test, Jane's behavior after the failed test didn't change any more and was in fact very restricted and rigid during the hole session, with high amounts of contempt and phoney smiles.

Interestingly Jane reproduced this test twice at the end of the therapy. But having the failed test of the seventh session in mind, this time the therapist strongly argued against stopping the therapy earlier then the fixed date and Jane's very positive reactions showed that she evaluated this kind of intervention as disproving her pathogenic beliefs.

Further research is needed to see how other patients react, and how these reactions develop over time in therapy. To do this kind of research with the FACS procedure would be too time consuming. Alternative research procedures are needed. Most helpful would be sensitive and reliable clinical ratings. One important question is how long the reaction time for those nonverbal comments should be. If we evaluate sequences that are too long we might loose the most important information which is maybe expressed most clearly during the first seconds. Our pilot study suggests that the patient's reaction after a passed test can be identified much better than after a failed test. This may be

especially true for passive-into-active testing where there are high proportions of expressed negative emotions during testing: Those emotions may change even for a very short time after the patient experiences the intervention of the therapist as disproving his pathogenic beliefs, but they stay at a high level in the case of a failed test.

Those nonverbal cues can be very short, but they give important information, especially in passive-into-active testing. In our pilot study there was the *felt smile* indicating happiness which was the most important cue. Other patients probably use slightly different signs, for example they may react with *positive surprise* or *bodily movementsthat indicate relief*. Our pilot study indicates that nonverbal cues, especially mimic expressions can be very helpful for the therapist to distinguish between patient's reactions and therefore to see whether his interpretations were perceived as pro- or anti-plan-oriented.

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