Behavioural and Cognitive Psychotherapy, 1999, 27, 153–164
Cambridge University Press. Printed in the United Kingdom

Clinical Section

ATTENTIONAL FOCUS AND FEAR OF BLUSHING: A CASE STUDY

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Abstract. By means of a single case study, the effects of redirecting attention above exposure only on fear of blushing, avoidance, and idiosyncratic dysfunctional beliefs were tested. A social phobic patient with fear of blushing as the predominant complaint received sessions of Task Concentration Training (TCT) and Exposure *in Vivo* (EXP) alternately, after a steady baseline had been established. The treatment consisted of 14 individual sessions. Assessments were held before and after baseline, after treatment, after 4 weeks follow-up, and after 1-year follow-up. Continuous measurements were held throughout the treatment in order to measure the differential effects of TCT and EXP on fear, avoidance and beliefs. TCT and EXP together, turned out to be an effective treatment for fear of blushing: large effects were observed on all three outcome measurements. When differential effects are closely looked at, EXP seemed more effective in decreasing fear of blushing. However, the patient appeared to have used TCT strategies as well during the EXP weeks, which may have contributed to the favourable effects of EXP.

Keywords: Blushing, fear of blushing, case study, behavioural treatment, task concentration training, exposure *in vivo*.

Introduction

Fear of blushing is known to be an important problem for many social phobics (Edelmann, 1990). In certain cases, the social phobic's fear is *centred* around the supposed visibility of blushing. Consequently, social situations are avoided or endured with intense distress, for in the blushing phobic's view, blushing might lead to rejection or negative evaluation by other people.

It is believed that heightened self-focused attention (SFA) – the increased awareness of the self as a social object – plays an important role in the maintenance of social phobia (Hope, Gansler, & Heimberg, 1989; Clark & Wells, 1995; Rapee & Heimberg, 1997; Woody, 1996). That is, SFA is believed to intensify negative emotional state and physical responses, to increase dysfunctional thinking, and to decrease effective

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performance in social phobics (Bogels, Mulkens, & de Jong, 1997; Wells, White, & Carter, 1997; Hope et al., 1989).

It might well be that heightened SFA plays, in particular, an important role in individuals with fear of blushing. Since actual blushing can be an especially salient physiological reaction (warm cheeks), it can be expected to increase SFA. That is, it has been found that salient physiological arousal serves to focus attention inward (Fenigstein & Carver, 1978; Wegner & Giuliano, 1980), which, in turn, increases individuals' awareness of physiological reactions (see Scheier, Carver, & Matthews, 1983, for a review). Moreover, a fearful preoccupation with the idea that one is blushing or about to start blushing (irrespective of actual/visible blushing) is likely to result in excessive SFA. Altogether, attentional manipulation (i.e., directing attention externally rather than internally) might be helpful in treating social phobia and especially in treating fear of blushing.

Following this line of reasoning, a strategy called "Task Concentration Training" (TCT; Bogels et al., 1997) was developed, aiming specifically at redirecting blushing phobics' attention: away from the blush, and towards the social task at hand and relevant environmental aspects. TCT consists of three phases: (1) getting insight in attentional processes and the effects of heightened SFA; (2) focusing attention outward in non-threatening situations; and (3) focusing attention outward in threatening situations. Results of two case studies suggest that TCT can effectively reduce fear of blushing (Bogels et al., 1997).

The purpose of this case study was to explore specifically the effects of TCT on fear of blushing, related avoidance behaviour, and dysfunctional beliefs about blushing. Yet, in phase 3 (practising TCT in threatening situations; cf. Bogels et al., 1997), patients use a hierarchical list of social situations in which they blush or are afraid of blushing. Hence, it remains unclear to what extent the effects of TCT should be attributed to "exposure *in vivo*" (EXP). The rationale of both treatments, however, is different: in TCT, the patient is taught to focus on the task, using the hierarchy to practise this technique; in EXP, the patient is instructed to remain in the feared situation, to allow feelings of anxiety, to refrain from safety behaviours (cf. Wells, et al., 1995) and to stay until a significant decrease of anxiety is perceived (Butler, 1985). On the other hand, one could also reason that TCT is the effective component of EXP: patients could, autonomously, discover that task-focusing is helpful during the EXP exercises.

To explore further the possible effects of TCT and potential differences between TCT and EXP, we conducted a case study, in which we alternated EXP and TCT in a sequential design. We were interested in the effects of these manipulations on fear of blushing, related avoidance behaviour, and dysfunctional beliefs about blushing. Dysfunctional beliefs might be influenced through the experience of disconfirming information, in the case of TCT by becoming more aware of the task and the environment (cf. Clark & Wells, 1995), and in the case of EXP by dropping the safety behaviours (cf. Wells et al., 1995). Meanwhile, we checked whether focusing attention on the task or staying in the situation until the anxiety decreases without using any safety behaviours was evident during TCT and EXP, respectively. The treatment started after a steady baseline had been established, and consisted of 14 individual weekly sessions. Follow-ups took place after 1 month and after 1 year.

Method

Patient

The patient was a 21-year-old female student with fear of blushing, the primary diagnosis being social phobia (DSM-IV; APA, 1994). She had great difficulties in keeping her studies going: four months before diagnosis she ceased attending classes because of fear of blushing. Since then, she also started worrying about future jobs. As a small child, she had been very lively, becoming quieter in adolescence. After starting her studies at 18, she became increasingly insecure about herself and her abilities, and she developed a fear of being at the centre of attention, as blushing would occur in those occasions.

Experimental design

The thrust of single case methodology has been to verify experimentally in individual cases that observed changes in behaviour are really a function of the therapeutic procedures applied to produce these changes (Leitenberg, 1973). In this case study, two treatment strategies were analysed that seem to be incompatible in some ways, but also bear similarities. What is similar is the practising of difficult social situations, indicating an inherent exposure component in both strategies. However, dissimilarities lie in the focus of attention in those situations: on the anxiety, while not doing anything to exclude it (EXP), or on the task and the environment (TCT).

Although it is impossible to fully disentangle both strategies in human behaviour, attempts were made to optimize the implementation of the respective techniques. In one week, in-session exercises and homework were carried out along the lines of EXP; in the following week these activities followed the lines of TCT. This design is a variation of the reversal design (for its multiple reversal of techniques), or an extended form of the ABCB design (A is the baseline, B and C are two different treatments). When a stable baseline with few non-therapeutic sessions is first established, behavioural changes that appear afterwards can be reliably attributed to therapeutic interference. By alternating both treatments frequently, potential differential changes in the outcome measures might be attributed to either of the treatments.

Measures

Questionnaires

The following questionnaires were completed at assessment occasions (i.e., pre-baseline, post-baseline, post-treatment, 1-month follow-up, 1-year follow-up):

Fear Questionnaire (FQ; Marks & Mathews, 1979). The main phobia and the social phobia subscale were used. The main phobia is the situation that is most feared, described in the patient's own words, and rated on a 9-point scale for the degree of fearfulness and avoidance (0 = "not fearful"/"not avoided", 8 = "extremely fearful"/"always avoided"). This patient's main phobia was "to blush in a situation where everyone can see me and where I must say something". The social phobia subscale

https://doi.org/10.1017/S1352465899272062 Published online by Cambridge University Press

consists of five descriptions of common social situations, to be rated in the same way (range 0–40).

Blushing, Trembling, and Sweating Questionnaire (BTS-Q; Bögels & Reith, in press). The six subscales of the BTS-Q measure the various aspects of fear of blushing, trembling, and sweating. Four subscales were used: (1) ''Fear of Blushing'' measures, by means of visual analogue scales (VASs), the extent to which the respondent experiences blushing as a problem and is afraid to blush (range 0–100). (2) ''Behavioural Problems'' indicates to what extent the patient, when blushing, is hindered by disturbances in mental processes, such as black-outs or problems in concentrating (range 0–4). (3) ''Blushing Cognitions'' consists of positive and negative beliefs about blushing and its social consequences, each belief rated proportionally from 0% (''I do not believe it at all'') to 100% (''I'm totally convinced'') (range 0–100). (4) ''Avoidance of Blushing'' measures the extent to which strategies are used to avoid or hide blushing, such as wearing make-up or avoiding eye contact (range 0–4). Research into the psychometric properties of the BTS-Q indicates that it is a highly reliable instrument and that it has good discriminant validity (Bögels & Reith, in press).

Social Phobia and Anxiety Inventory (SPAI; Turner, Beidel, Dancu, & Stanley, 1989; Dutch translation: Scholing, Bögels, & van Velzen, 1995). From the SPAI, the social phobia subscale was used, which measures aspects of social phobia in general. Each item is scored on a 7-point scale, rescaled from 0 (''never'') to 6 (''always'') (range 0–192).

Blushing Propensity Scale (BPS). The BPS consists of circumscribed social situations for each of which the individual indicates how often she feels herself blushing (Leary & Meadows, 1991; Dutch translation Bögels, Alberts, & de Jong, 1996). Answers range from ''0'' (''I never feel myself blushing in that situation'') to ''4'' (''I always feel myself blushing in that situation'') (range 0–76).

Brief Fear of Negative Evaluation Scale (Brief-FNE; Leary, 1983). This scale measures people's concerns about being evaluated unfavourably by others (range 0–48).

Diaries

Diary recordings served as continuous measurements. The patient was instructed to daily record blushing, anxiety, and associated behaviour systematically on self-monitoring diaries. On a 5-point scale, she indicated the number of social situations she had encountered (range 0 = ''none'' to 4 = ''a lot''), how often she had feared blushing (range 0 = ''never'' to 4 = ''each time''), and the intensity of this fear (range 0 = ''no fear at all'' to 100 = ''extreme fear''). Furthermore, three diary items inquired into the extent to which she had conducted avoidance behaviour to diminish anxiety (including safety strategies, subtle avoidance behaviour). Finally, the frequency of actual blushing was sought (the patient carried an event marker, to reliably establish the frequency of blushing).

From the diaries two target outcome variables were chosen: ''fear of blushing'' and ''avoidance''. ''Fear of blushing'' was calculated by multiplying the item ''how often did you experience fear of blushing'' by ''the intensity of this fear'', resulting in a

range of 0–400 (divided by 100 in order to standardize the scores). ''Avoidance'' was a composite variable, constructed from the three ''avoidance'' diary items (range 0–4). Note that a ''fear of blushing'' score of 4 implies a continuously present, extreme fear of blushing (which would be virtually impossible). A score of 0, on the other hand, implies that fear of blushing is never experienced.

Idiosyncratic dysfunctional beliefs

Four idiosyncratic dysfunctional beliefs with regard to blushing were assessed during the intake. Before and after each treatment session, the patient rated these beliefs on VASs. The beliefs of this patient were: (1) when I blush, I come across as stupid; (2) when I blush, everyone will notice; (3) when I blush, I come across as insecure; (4) when I blush, I will lose face. An average conviction score was computed for each measurement occasion. The mean conviction score at the end of an EXP session and the mean score at the start of the next session (in the meantime, the patient had practised EXP) were averaged; the same was done for TCT weeks. Such a procedure allows one to determine whether changes in conviction occurred during EXP or TCT.

Credibility of the treatment rationale

Treatment credibility of the different treatments was assessed after the sessions in which the rationale was explained and, again, at post-test. To this end, the patient was asked to answer three questions on a 9-point scale (range 1 = ''not at all'' to 9 = ''extraordinary''): (1) how logical does this form of treatment seem to be for you?; (2) how confident are you that this treatment will help you to overcome your fear of blushing?; and (3) to what extent would you advise this treatment to a friend with similar problems? At post-test, the patient was asked to look back, while the questions were slightly reformulated.

Treatment integrity

Treatment integrity was assessed on a continuous basis. In the diary, a section was included in which the patient indicated to what extent she had used several techniques to diminish her fear, irrespective of what technique she *should* have applied in that week. These techniques included relaxation, thinking less catastrophically, concentrating on the task at hand (TCT), or simply staying in the situation until the anxiety diminished (EXP). The patient was asked to answer these questions honestly, since this information could show us whether it would be difficult to switch techniques.

Procedure

The treatment was carried out by the first author and supervised by the second author. First, the patient received a pre-treatment session, in which the procedure was explained globally, and all assessments were made. Furthermore, the diary and the event-marker were introduced to the patient. Then, the baseline period started, during which the

patient returned to the mental health centre three times in 7 weeks for a short appointment in which she scored the idiosyncratic dysfunctional beliefs, handed in the diaries, and discussed potential completion problems.

In the first post-baseline session, both treatment rationales (TCT and EXP) were explained. The TCT rationale explained how blushing and SFA mutually reinforce each other and, as a consequence, increase anxiety, (perceived) blushing, negative self-thoughts, problems in concentration, and unskilful behaviour. The patient was taught that redirecting her attention to the task would help her to be able to break through the vicious circle and to cope with blushing (Bogels et al., 1997). The EXP rationale emphasized the role of (subtle) avoidance strategies and safety behaviours in the maintenance of fear of blushing. The patient was taught that tolerating fear and blushing, without avoiding or doing anything to decrease the fear, would eventually lead to a decrease in fear. The importance of practising this technique for prolonged time and/or repeatedly was stressed (e.g., Butler, 1985). Furthermore, a hierarchy of social situations in which the patient experienced fear of blushing was constructed in this session.

In the second post-baseline session, the patient was asked to explain in her own words the contents of both treatment rationales. Then, EXP exercises were done in the session (having eye contact without saying anything). For homework, the patient was asked to practise these general EXP exercises with several people, and to describe them on a form, designed for this purpose. In the next session, homework was first discussed, whereafter TCT exercises were done in the session. In TCT, the patient and the therapist sat with their backs to each other (no eye contact), while the patient was instructed to concentrate on listening to short neutral stories, related by the therapist, and to summarize them afterwards. Listening exercises were built up hierarchically (for more details, see Bogels et al., 1997). The patient was instructed to practise neutral TCT exercises for homework and to describe them on a form, designed for this purpose. In the following sessions, TCT and EXP treatments were alternated, while the fear hierarchy was worked through.

Results

Treatment credibility

Before treatment, the patient's credibility rating of the TCT rationale was 5.7, whereas she rated the credibility of EXP 3.0. At post-test, she rated TCT 7.3 and EXP 5.3. Thus, both at the start of treatment and afterwards, she believed more in TCT than in EXP. However, there was a positive shift towards both treatments, from pre-test to post-test.

Treatment integrity

From the diaries, it was deduced that the patient conducted TCT (without anything else) in the weeks that she should have done that. Mean degree of the implementation of TCT (range 0–4) was 1.5 in TCT weeks. In the EXP weeks, however, she combined EXP with another technique in 5 out of 6 weeks (TCT in 4 weeks and relaxation in 1 week). Mean degree of the implementation of EXP was 1.1, combined with 0.2 TCT

Table 1. Patient's scores on the questionnaires at pre-baseline test (Pre 1), post-baseline test (Pre 2), post-test, 1-month follow-up (FU-I), and 1-year follow-up (FU-II)

Variable	Pre 1	Pre 2	Post	FU-I	FU-II
FQ-Main phobia (0–8)[1]	6.5	6.5	2	1.5	3
FQ-Social phobia (0–40)[1]	20.5	21.5	8.5	2.5	7
SPAI-Social phobia (0–192)	94	96.7	69	48	53
BTS-Q					
Fear of blushing (0–100)[2]	61	63	31	10	17.7
Behavioural problems (0–4)[3]	3	3	2	1	1.3
Positive beliefs (0–100)[4]	37	46	41	35	35
Negative beliefs (0–100)[4]	64	59	15	5	13
Avoidance (0–4)[3]	1	1	0	0	0.23
Mean blushing frequency per day in the past week (diary)	2.4	2.3	0.3	0.3	0.4
Blushing propensity scale (0–76)	45	50	13	14	30
Brief-FNE (0–48)	18	9	7	5	8

[1]Mean fear and avoidance score; [2]Mean VAS score; [3]Mean items score; [4]Mean % score.

and 0.01 relaxation in EXP weeks. In the follow-up period of 4 weeks, in which the patient was free to use any technique, she appeared to have applied 0.9 TCT and 0.1 EXP, on average. In the week that preceded the 1-year follow-up, she used 1.0 TCT and 0.7 EXP.

Questionnaires

As can be seen in Table 1, pre- and post-baseline values were not very far apart, indicating a stable baseline. An exception was the Brief-FNE score, showing a reasonable decrease at post-baseline. Next, strong decreases can be observed between pre-treatment (i.e., post-baseline) and post-treatment on most variables. Exceptions are the Brief-FNE and the BTS-Q positive beliefs, showing little or no change. The strong improvements indicate that the treatment, altogether, had favourable effects. From post-test to 1-month follow-up, further improvements can be noticed on almost all variables (except for the BTS-Q positive beliefs and the BPS). The BTS-Q avoidance value, which was 0 at post-test, remained 0 at 1-month follow-up. At 1-year follow-up, most variables increased slightly, although most values fluctuated around post-test values. Thus, the obtained treatment effects remained at long-term follow-up.

Continuous measurements: diaries

As can be seen in Figure 1, baseline values of fear of blushing and avoidance fluctuate between 0.4 and 1.3, and between 0.3 and 0.9, respectively. Subsequent values of fear and avoidance, obtained during treatment, fluctuate between 0.1 and 0.7, and between 0 and 0.5, respectively. This indicates an apparent decrease in the treatment phase, compared to baseline. During the post-treatment phase, fear of blushing values decrease even further, while avoidance values stabilize at 0. At 1-year follow-up, scores

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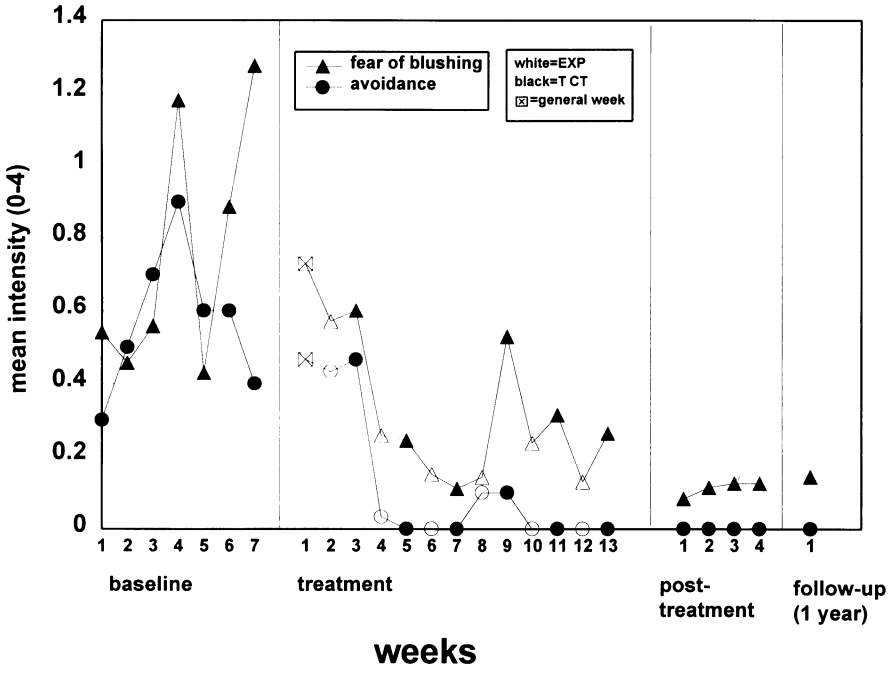

Figure 1. Diary weekly averages on fear of blushing and avoidance during baseline, treatment, 1-month follow-up and 1-year follow-up. Means during treatment represent the weeks following EXP and TCT sessions (implying the practising of either of the techniques), respectively.

remained almost unchanged. Taken together, the treatment was successful in diminishing fear of blushing and avoidance behaviour.

With regard to potential differential treatment effects, EXP seems to have had a more powerful influence on the reduction of fear of blushing than TCT. That is, EXP values decline more strongly, compared to TCT values, on most occasions. In TCT weeks, values sometimes even increase, indicating an elevation of fear. With respect to avoidance values, differential effects are somewhat less pronounced, because the values drop rather fast to a minimum. In the fourth week of treatment, however, the strongest decline is observable. In this week, EXP was practised.

Continuous measurements: idiosyncratic dysfunctional beliefs

As can be seen in Figure 2, the conviction of the idiosyncratic dysfunctional beliefs decreased during the treatment phase, compared to baseline. Moreover, conviction declined even further at 1-month follow-up and at 1-year follow-up. Thus, beliefs changed as well as a result of treatment.

When examining differential treatment effects, EXP weeks seem to have had more influence on the decrease of the conviction than TCT weeks.

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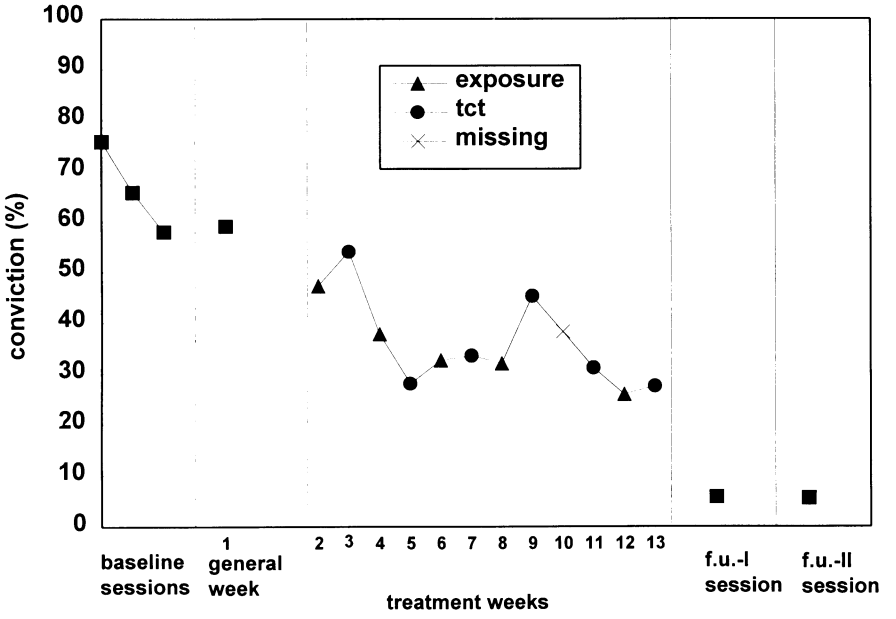

Figure 2. Mean conviction of idiosyncratic dysfunctional beliefs, scored before and after sessions, during baseline, general week (explanation of the rationales), treatment, 1-month follow-up and 1-year follow-up. Note that values taken at the end of a session and values taken at the start of the next session are averaged.

Discussion

The results of this case study can be summarized as follows. (1) Fear of blushing was lastingly reduced by behavioural treatment; (2) EXP seemed to have produced more favourable results than TCT; (3) the conviction of idiosyncratic dysfunctional beliefs decreased, while no specific cognitive techniques were implemented.

The finding that fear of blushing can be reduced with behavioural treatment is in line with earlier findings concerning the effectiveness of behavioural treatment for social phobia (see Feske & Chambless, 1995, for a review). Furthermore, the effects of different cognitive-behavioural treatment methods for fear of blushing are not very far apart (Scholing & Emmelkamp, 1993).

However, the finding that EXP seemed to lead to more progress than TCT was somewhat unexpected. After all, TCT aimed specifically at reducing SFA, which was expected to be of major importance in the maintenance of fear of blushing. Perhaps the effect of dropping the safety behaviours in EXP is more powerful than influencing SFA. With respect to the efficacy of this type of EXP, Wells et al. (1995) clearly indicated that EXP plus decreased safety behaviours was significantly better than EXP alone in reducing within-situation anxiety and belief in the feared catastrophe.

At the same time, however, the present results should be interpreted with some caution. That is, at times when TCT leads to an increase in fear (in weeks 9, 11, and 13), important events happened to take place: in week 9, the patient resumed her studies

https://doi.org/10.1017/S1352465899272062 Published online by Cambridge University Press

after quite a while (note that her studies were the main reason for seeking treatment); in week 11, she was the panel chairperson in her study group for the first time after a very long period (a task that all students fulfil once in two months); in week 13, she performed the most difficult item in her fear hierarchy (practising the job of a lawyer in a court roleplay, with many spectators present). In weeks 10 and 12, no events of comparable difficulty had taken place. Furthermore, the integrity results showed that the patient appeared to have combined EXP with TCT in the EXP weeks, whereas she had applied TCT purely in the TCT weeks. This indicates that a combination of EXP and TCT provided the ameliorative effects in the EXP weeks. Apparently, the patient was not able to switch techniques totally. Indeed, it would be difficult for her to "forget" what she did in the past week. Yet, this "forgetting" appeared to be most difficult after TCT weeks, when she kept using it together with EXP, while the opposite did not seem to occur. Note also that the patient had far more confidence in the TCT rationale than in the EXP rationale. After treatment, confidence remained more positively for TCT. Thus, at least, this study evaluated the effectiveness of a combination of TCT and EXP. At best, it turned out to be a test of TCT versus EXP plus TCT. For the time being, we have at least established that in this case, a combination of both techniques produced favourable effects. Controlled treatment outcome research in which a true independent comparison of both techniques can be made is needed to specifically address the question whether TCT or EXP is more effective.

Interestingly, the treatment led to significant cognitive change, as measured by four idiosyncratic dysfunctional beliefs. This finding is in accordance with the finding of Newman, Hofmann, Trabert, Roth and Taylor (1994), who showed that cognitive restructuring can occur without specific cognitive treatment, and that interventions for phobia are not necessarily mode-specific. Both EXP and TCT might address cognitions implicitly, by giving patients the opportunity to experience disconfirming information: TCT by making patients aware of their environment, and EXP by dropping the safety behaviours, which had prevented them from experiencing the true outcome of a social situation. This finding has an important practical implication: whereas the techniques of TCT and EXP can be acquired by therapists relatively easily, cognitive therapy is a complex technique, requiring experienced therapists (Bogels et al., 1997). Thus, since TCT and EXP both lead to cognitive changes, these treatments might be efficient alternatives to cognitive therapy.

A remarkable result of this case study is, finally, that the self-reported blush frequency decreased after treatment, and remained low at long-term follow-up. It is, however, unclear whether the physiological blush frequency indeed has decreased, or that the patient's self-report reflects a reduced preoccupation with blushing. It might also be that the patient always overestimated her blush frequency and is able to report a more factual picture after treatment. In line with that suggestion, Mulkens, de Jong, Dobbelaar and Bogels (in press) found that individuals with fear of blushing tended to overestimate their physiological blush reaction.

In sum, this case study showed that a combination of TCT and EXP substantially and lastingly decreased fear of blushing, related avoidance behaviour, and dysfunctional beliefs about blushing. Future research, however, should determine the relative contribution of TCT and EXP in the treatment of erythrophobia.

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