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Feedback on patient progress and clinical support tools for therapists: Improved outcome for patients at risk of treatment failure in psychosomatic in-patient therapy under the conditions of routine practice ☆

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ABSTRACT

Objectives: Although psychosomatic in-patient treatment is effective, 5–10% of the patients deteriorate. Providing patient progress feedback and clinical support tools to therapists improves the outcome for patients at risk of deterioration in counseling, outpatient psychotherapy, and substance abuse treatment. This study investigated the effects of feedback on psychosomatically treated in-patients at risk of treatment failure.
Methods: At intake, all patients of two psychosomatic clinics were randomized either into the experimental group or the treatment-as-usual control group. Both groups were tracked weekly with the "Outcome Questionnaire" (OQ-45) measuring patient progress and with the clinical support tool "Assessment of Signal Cases" (ASC). Therapists received feedback from both instruments for all their experimental group patients. "Patients at risk" were defined as patients who deviated from expected recovery curves by at least one standard deviation. Of 252 patients, 43 patients were at risk: 23 belonged to the experimental group, 20 to the control group. The feedback effect was analyzed using a level-2-model for discontinuous change, effect size (d), reliable change index (RCI), and odds ratio for reliable deterioration.
Results: For patients at risk, the experimental group showed an improved outcome on the OQ-45 total scale compared to the control group ($p < 0.05$, $d = 0.54$). By providing feedback, the rate of reliably deteriorated patients at risk was reduced from 25.0% (control group) to 8.7% (experimental group) — odds ratio = 0.29. All reliably improved patients at risk belonged to the experimental group.
Conclusion: Feedback improves the outcome of patients at risk undergoing psychosomatic in-patient treatment.

Introduction

In psychosomatic in-patient therapy, a multi-professional team uses multi-modal and multi-method treatments on patients with mental and behavioral disorders too severe for outpatient treatment [1]. Many studies have proven the effectiveness of psychosomatic in-patient treatment (e.g. [2–4]). Nevertheless, 5–10% of the patients with mental health problems deteriorate during psychosomatic in-patient treatment [5,6]. Inspired by Bergin's first study on deterioration effects in psychotherapy [7], research has identified patient-, therapist-, and treatment-related variables that might put patients at risk of deterioration [8,9]. Managing these risk factors and reducing deterioration rates are relevant issues for clinical practice and for psychotherapy health service research [10]. To prevent deterioration, risk of treatment failure must be detected before patients at risk withdraw from treatment, so that countermeasures can be implemented. To detect risk of deterioration early on in psychotherapy, algorithms (rational and empirical algorithms) were formulated [11–13] using the self-report "Outcome Questionnaire" (OQ-45) [14]. Based on the initial severity of psychological distress (OQ-45 total score) of a given patient, these algorithms provide an expected individual recovery curve for this patient. For every further measurement point, the individual patient's progress is then tracked against the expected recovery curve. If a patient's score deviates negatively from the expected recovery curve as defined by the algorithms, the patient is classified as at risk of treatment failure. While patients not labeled as at-risk patients have deterioration rates between 0.3% and 1.3%, at-risk patients show deterioration rates between 8.4% and 19.4%

☆ The work was conducted at the Psychosomatics Department of the Hospital in Donaustauf, Germany, and the Psychosomatic Hospital "Am Schönen Moos" in Bad Saulgau, Germany.

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(results for the empirical algorithm [12,13]). Hence, patients classified as at risk have a much higher risk of leaving psychotherapy deteriorated. Furthermore, using the OQ-45 algorithms to identify patients at risk proves to be a much more accurate predictor of negative treatment outcome than subjective evaluations provided by clinicians [15]. The software OQ-Analyst [16], rated as an evidence-based practice with excellent reviews for its training material and easy implementation [17], can be employed to classify patients at risk by comparing individual progress against expected curves. To do so, the patient's progress should be tracked on a weekly basis using the OQ-45. Using the OQ-Analyst, therapists receive weekly feedback on patient progress, the expected recovery curve, and a warning signal if the patient is labeled as at risk. Tracking the patient progress, also known as monitoring, and providing (patient progress) feedback, originate from patient-focused research, aiming at improving the outcome of individual psychotherapies [18].

Providing patient progress feedback to therapists has been shown to improve the outcome of patients at risk in counseling [19,20], outpatient psychotherapy [21], and psychiatric care [22]. At-risk patients whose therapists received patient progress feedback also stayed longer in treatment [23], probably contributing to the improved outcome. The outcome of patients at risk can be further improved when therapists not only receive feedback on patient progress, but also are given clinical support tools (CST). CST can be described as an empirically based problem-solving strategy, helping therapists to focus on important factors which can influence the outcome of psychotherapy [24]. The CST instrument within the OQ-Analyst is the so-called "Assessment of Signal Cases" (ASC) and includes feedback on therapeutic alliance, motivation for change, social support, critical life events, and a decision tree for handling related problems [25]. The existing studies involving feedback on patient progress and CST took place in counseling [24,26,27], outpatient psychotherapy [28], substance abuse treatment [29], and in-patient eating-disorder therapy [30]. This study employed the OQ-Analyst for the first time in German psychosomatic in-patient clinics to investigate the effects of feedback on patient progress and CST for psychosomatically treated in-patients at risk of a negative outcome.

Methods

Questionnaires

Outcome Questionnaire (OQ-45): The OQ-45 was used to track patient progress. This self-report questionnaire includes 45 items measured on a five-point Likert scale. Each item pertains to the previous week. There are three subscales (symptom distress, interpersonal problems, and social role performance) and one total scale; the higher the values, the higher the distress level. This study used the total scale which comprises all 45 items and indicates the general severity of psychological distress. The total scale of the German OQ-45 version has an internal consistency of 0.93 and a retest-reliability of $r = 0.88$ [31].

Assessment of Signal Cases (ASC): The ASC served as the CST instrument. This self-report questionnaire consists of 40 items. Each item is answered on a five-point Likert scale and covers the previous week. The ASC consists of four scales: therapeutic alliance, social support, motivation for change, and life events. These four areas are considered to significantly influence patient progress [25]. The ASC used in this study was translated into German via a back-translation method. To ensure the quality of the translation, cognitive debriefing interviews with ten in-patients were done with the German version of the ASC before the study began [32]. In contrast to former studies [24,26–30], the CST was used not only for at-risk patients in this study; wanting to gather further experience and collect data with the instrument, all patients were encouraged to complete the ASC every week during the course of their psychosomatic treatment. Testing the reliability of the four ASC scales of the German ASC version with the internal consistency coefficient Cronbach's alpha, the following coefficients were found for all patients (not only at-risk patients) with an intake ASC: therapeutic alliance scale: 0.89; social support scale: 0.76; motivation for change scale: 0.78; and life events scale: 0.71.

Study design

All patients of the Psychosomatics Department of the Hospital in Donaustauf, Germany, starting treatment from 10/01/2010 to 07/06/2012 were asked to participate in the study. At the Psychosomatic Hospital "Am Schönen Moos" in Bad Saulgau, Germany, all patients with private health care who entered treatment between 01/16/2012 to 04/06/2012 were encouraged to take part in the study. Both clinics provide multi-modal and multi-method psychosomatic in-patient treatment with more than 24 treatment hours per week, including individual and group psychotherapy, relaxation and mindfulness training, physical activity therapy, creative therapy (art, dance, music), and — if required — crisis intervention, visitations by nurses, medical consultations, etc. The multi-professional teams consisted mainly of psychologists, physicians, and nurses. At clinic intake, all patients (not only at-risk patients) were randomized either into the experimental group or the treatment-as-usual control group. All patients of both treatment groups were monitored: Every patient was asked to complete the OQ-45 and the ASC (paper and pencil versions) each week sometime between Friday and Sunday during the course of their stay. After the OQ-45 and ASC data was transferred to the OQ-Analyst, the feedback reports of the OQ-Analyst were printed on the following Monday. The feedback reports were given on a weekly basis to the therapists in a closed envelope only for the patients of the experimental group. The therapists received feedback only for those experimental group patients that they worked with in individual therapy. The feedback on patient progress and CST was provided to therapists for all experimental group patients, not only for at-risk patients. As feedback on patient progress requires at least two OQ-45 scores, the therapists received the weekly feedback starting with the second measurement point of a given experimental group patient. The therapists could freely choose to discuss the feedback information with the patient, the clinic team and/or supervisors. Before the study commenced, interpretation of the feedback reports was explained in detail to the therapists. They were also motivated to view the feedback information not as prescriptive, but as a possibility to broaden clinical problem solving with their patients.

Focusing on the effects of feedback on patients at risk of deterioration, the empirical algorithm of the OQ-Analyst was applied to classify patients at risk: If the patient's progress deteriorated by at least one standard deviation from his expected recovery curve at any week during treatment, the patient was considered as being at risk and the therapist received a warning signal in the weekly feedback report, implying that this patient is at risk of treatment failure. The expected recovery curve of a given patient is based upon a norm derived from a large group of U.S. patients with a similar intake OQ-45 total score, calculated with at least 220 patients for each specific expected recovery curve [11]. Patients without an intake OQ-45 score and patients without at least three measurement points were excluded from this study: The intake OQ-45 score constitutes the baseline of the expected recovery curve. Since giving feedback requires at least two measurement points, three or more measurement points are a prerequisite to study the effects of feedback on patient progress.

Statistical analysis

The statistical analysis was performed with SPSS 19.0 FP2, applying a significance level of ≤ 0.05. All tests were performed two-tailed. Means (M) and standard deviations (SD) were calculated for the sample description. To explore differences between the two treatment groups in regard to age, gender, education, comorbidity, treatment duration, and assessment points with first at-risk signal,

t-tests were performed for metric variables and Fisher's exact tests (FET) for nominal variables.

For the statistical analysis of the feedback effects on patients at risk, three measurement points were chosen:

t1 The first measurement point (t1) was the OQ-45 total score from the clinic intake week.

t2 The OQ-45 total score of the week in which the patient deviated negatively by at least one standard deviation from the expected recovery curve ("patient at risk") was defined as the signal measurement point (t2). For the experimental group, the patient's therapist received a warning signal in the feedback report at t2 (red or yellow alarms [11–13]) implying that the patient is at risk of treatment failure.

t3 The last measurement point (t3) was the last available OQ-45 total score. As in prior studies [26,27], the last observation carried forward (LOCF) method was applied as a conservative estimation of treatment outcome. The change occurring from t1 to t3 was used to assess outcome.

The change pattern from t1 to t2 was expected to be similar for both treatment groups, but – with a warning signal given at t2 – an improved outcome from t1 to t3 was anticipated for the experimental group. To test these hypotheses, a multi-level model for discontinuous change [33, chapter 6; 34] with maximum likelihood (ML) estimation was used. A multi-level model was chosen instead of the traditional repeated-measures analysis of variance, since its assumptions are less restrictive, e.g. equidistant measurement points are not required [33,34]. Since previous studies have shown that patients at risk feel worse during the time between intake and the signal measurement point (t2), but improve from the signal to the last measurement point (e. g. [21,24,26,27]), a model for discontinuous change seems best to fit patients at risk. Our multi-level model is a level-2-model: The measurement points constitute the first level and the individuals the second level of analysis, whereby differences between experimental and control group represent models at the second level. As described by Göllner and colleagues [34, model 4] for the level-2-model for discontinuous change, the three measurement points (t1, t2, t3) were coded into two contrast variables with the first measurement point being the reference. Simple contrast tests compared the experimental with the control group from t1 to t2 as well as from t1 to t3. The mixed command in SPSS 19.0 FP2 was used for the level-2-model. The repeated subcommand was selected to produce an unstructured variance-covariance matrix.

To assess the effect size (d), Hedges' g [35] was computed for the individual measurement points t1 and t3. The adjusted feedback effect occurring between t1 and t3 was measured by adding up the specific effect sizes resulting for t1 and t3 [35].

To explore the change of each single patient at risk, the reliable change index (RCI) [36] was applied from t1 to t3. According to Lambert and colleagues [31], a patient was classified as "reliably improved" in the total scale of the German OQ-45 if he improved by at least 21 points. He was considered "reliably deteriorated" if he deteriorated 21 or more points and "unchanged" if a change of less than 21 points was found. To further evaluate the occurrence of the event "reliable deterioration" in both groups, the odds ratio for "reliable deterioration" was calculated.

Sample

252 patients with an OQ-45 intake score and at least two further OQ-45 assessments were available for analysis (184 patients without intake score or without at least three measurement points were excluded). A total of 17 therapists, who worked with the 252 patients in individual therapy, participated in the study. 43 of the 252 patients were classified as patients at risk of deterioration (17.1% of 252): 23 of the patients at risk belonged to the experimental group and 20 were participants of the control group. 13 therapists worked with the 43 at-risk patients in individual therapy. Accordingly 4 therapists had no at-risk patients. In one clinic 6.7% of the patients were classified as at risk of treatment failure, while in the other clinic 17.7% of the patients were labeled as at risk. The distribution of at-risk and not-at-risk patients did not differ significantly between the clinics ($p = 0.48$, FET). More data however is not presented for each separate clinic/therapist to protect the confidentiality agreement with the clinics and therapists. The diagnoses of the patients were made by the clinic teams according to chapter F (mental and behavioral disorders) of the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) [37]. Considering all comorbid F-Diagnoses the patients at risk received, the most frequent diagnoses included depressive disorders F32 and F33 (76.7% of all patients at risk, 78.3% of the experimental group, and 75.0% of the control group), somatoform disorders F45 (58.1% of all patients at risk, 52.2% of the experimental group, and 65.0% of the control group), and anxiety disorders F40 and F41 (20.9% of all patients at risk, 30.4% of the experimental group, and 10.0% of the control group).

Age, gender, education, comorbidity, duration of treatment weeks, and assessment points with first at-risk signal are shown in Table 1. No significant differences between the two treatment groups were found, although the experimental group seemed to be more educated, to have less comorbid disorders, and to stay longer in treatment.

Results

The level-2-model for discontinuous change involved six fixed parameters and six parameters for the unstructured variance-covariance matrix. The six parameters of the unstructured variance-covariance matrix were: variance t1 = 365.66, variance t2 = 348.27, variance t3 = 616.52, covariance t1–t2 = 333.87, covariance t1–t3 = 346.69 and covariance t2–t3 = 367.82.

Table 2 and Fig. 1 show the fixed effects for the OQ-45 total scale of the level-2-model:

t1: First measurement point: The t1 estimate for the control group amounted to 84.45 OQ-45 points. This result was shown to be significantly different from zero ($T = 19.75$; $p < 0.05$). The estimate for the experimental group at t1 was 90.87 (84.45 + 6.42) OQ-45 points. The difference of 6.42 OQ-45 points between the experimental and the control group at t1 did not reveal any statistically significant difference ($T = 1.10$; $p = 0.28$). Thus, the psychological distress assessed with the OQ-45 in both treatment groups can be viewed as comparable at t1.

t2: Signal measurement point: At t2, the control group achieved an estimate of 100.60 (84.45 + 16.15) OQ-45 points. This value was significantly higher than the OQ-45 score of the control group at t1 ($T = 10.63$; $p < 0.05$). For the experimental group, an estimate of 105.30 (84.45 + 6.42 + 16.15 - 1.72) OQ-45 points was found at t2. The experimental group reached 1.72 less OQ-45 points than the control group when comparing t1 to t2. This result did not attain statistical significance ($T = -0.83$; $p = 0.41$). Hence, the deterioration was significant and similar for both groups from t1 to t2.

t3: Last measurement point: The t3 estimate for the control group amounted to 98.65 (84.45 + 14.20) OQ-points. The control group had a significantly higher OQ-45 score at t3 than at t1 ($T = 3.74$, $p < 0.05$). The estimate for the experimental group at t3 was 92.57 (84.45 + 6.42 +14.20 - 12.50). When comparing differences in the estimates of both groups between t1 and t3 (estimates of the degree of deterioration), 12.50 fewer OQ-45 points were calculated for the experimental group. This difference was statistically significant ($T = -2.41$; $p < 0.05$). Therefore, it can be concluded that feedback does improve the outcome of in-patients at risk in this study.

The effect size (Hedges' g) at t1 reached $d = 0.31$. At 1, the experimental group showed more psychological distress than the control group. For calculating the effect size, the following values at t1 were used: experimental group: $M = 90.87$, $SD = 18.58$; control group: $M = 84.45$, $SD = 20.68$.

At t3, an effect size (Hedges' g) of $d = 0.23$ was found. The experimental group suffered less psychological distress than the control group at t3. The means and standard deviations at t3 used for the calculation of the effect size were: experimental group: $M = 92.57$, $SD = 25.40$; control group: $M = 98.65$, $SD = 25.46$.

Table 1
Comparison of age, gender, education, comorbidity, treatment duration and assessment points with first at-risk signal between experimental and control group.

Variable		Experimental group N = 23	Control group N = 20	Statistics
Age: M (SD)		43.45 (9.93)	47.34 (11.86)	t(41) = 1.17; p = 0.25
Gender: n (%)	female	14 (60.9%)	10 (50.0%)	p = 0.55 (FET)
	male	9 (39.1%)	10 (50.0%)	
Education: n (%)	lower secondary school	6 (26.1%)	9 (45.0%)	p = 0.50 (FET)
	intermediate secondary school	8 (34.8%)	6 (30.0%)	
	higher secondary school	6 (26.1%)	2 (10.0%)	
	other type of graduation	3 (13.0%)	3 (15.0%)	
Comorbidity of mental and behavioral disorders: M (SD)		2.26 (0.96)	2.65 (1.09)	t(41) = 1.24; p = 0.22
Treatment weeks from intake to discharge: M (SD)		6.22 (3.29)	5.49 (3.17)	t(41) = −0.74; p = 0.46
Treatment weeks from t1 to t3: M (SD)		5.13 (3.28)	3.95 (3.03)	t(41) = −1.22; p = 0.23
Treatment weeks from t1 to t2: M (SD)		2.65 (1.64)	1.95 (0.94)	t(41) = −1.69; p = 0.10
Treatment weeks from t2 to t3: M (SD)		2.48 (3.13)	2.00 (3.06)	t(41) = −0.51; p = 0.62
Frequencies of patients receiving the first at risk signal at different assessment points: n (%)	Intake week + 1 week	5 (21.7%)	8 (40.0%)	p = 0.55 (FET)
	Intake week + 2 weeks	8 (34.8%)	6 (30.0%)	
	Intake week + 3 weeks	6 (26.1%)	6 (30.0%)	
	Intake week + 4 weeks	1 (4.3%)	–	
	Intake week + 5 weeks	2 (8.7%)	–	
	Intake week + 8 weeks	1 (4.3%)	–	

Hence, the adjusted feedback effect occurring from t1 to t3 was d = 0.54 (d = 0.31 + d = 0.23) in favor of the experimental group.

Table 3 displays the results of the RCI for at-risk patients of the experimental and control group from t1 to t3. By providing feedback, patients at risk showed less reliable deterioration and more reliable improvement on the OQ-45 total scale. The odds ratio of reliable deterioration amounted to 0.29, indicating that reliable deterioration occurred about one-quarter (25%) to one-third (33%) less likely in the experimental group than in the control group.

Fig. 2 shows the individual change scores, OQ-45 total score t3 − OQ-45 total score t1, for all at-risk patients confirming the tendency of favoring the experimental group.

Discussion

In this study of psychosomatic in-patient treatment, 43 of 252 patients (17.1%) were at risk of treatment failure. This percentage of in-patients at risk was comparable to the percentage of at-risk patients in counseling [21]. The psychosomatically treated in-patients at risk showed a significantly improved outcome (adjusted effect size from t1 to t3: d = 0.54) when feedback on patient progress and CST was provided to therapists on a weekly basis. On average, the scores of patients at risk of the experimental group were only M = 2 OQ-45 points higher from the time of intake (t1) to the last measurement point (t3). On the other hand, patients at risk of the treatment-as-usual control group scored M = 14 additional OQ-45 points on average during this time period. In accordance with the results of studies pertaining to counseling [24,26,27], outpatient psychotherapy [28], and substance abuse treatment [29], this study showed that feedback on patient progress and CST can reduce the average deterioration of patients at risk in psychosomatic in-patient therapy. Therefore, feedback can have an additional effect to the common strategies for risk patients in psychosomatic in-patient treatment, e. g. intervision and supervision. Since no differences between the change patterns of the two treatment groups can be found from intake to the signal week, one can assume that the effect of weekly feedback can only be observed after a warning signal is displayed on the feedback reports. In view of the relatively small sample size of this study, conducting more studies preferably with larger samples in order to replicate the feedback impact on patients at risk in psychosomatic in-patient treatment would seem advisable. It also should be noted, that even when feedback was provided to therapists, at t3 the in-patients at risk were worse off than at t1. Feedback on patient progress and CST only could reduce the average deterioration (M = 2 vs. M = 14). Studies investigating how in-patients at risk can be discharged in an improved condition are necessary in the future.

Despite the positive effect of feedback for psychosomatically treated in-patients at risk shown in this study, our effect size of d = 0.24 at t3 is lower than the results reported for a mega- and meta-analytical study based on counseling center data (computing two effect sizes: a) intent-to-treat analysis: d = 0.70, and b) efficacy analysis: d = 0.44) which compared feedback on patient progress and CST to no feedback [19]. In an other study evaluating at-risk patients in outpatient psychotherapy however, only a small effect size of d = 0.16 was found at t3 for feedback on patient progress and CST in comparison to treatment-as-usual [28]. Simon and colleagues suggest "that the interventions do not work as well with more disturbed patients as with the less disturbed" [28, p. 645]. Future studies analyzing the factors leading to these differences of effect sizes are required to shed light on this question. Furthermore, they could point to ways of further improving treatment. Differences between the studies pertaining to the treatment integrity could also play a role regarding the different effect sizes [38].

Considering the RCI classification of patients at risk from t1 to t3, the experimental group showed about 65% fewer reliably deteriorated patients at risk than the control group (8.7% vs. 25.0%, odds ratio: 0.29). The effect of feedback for patients at risk was further supported by the fact that the only two reliably improved at-risk patients belonged to the experimental group (13.0% vs. 0.0%). In a study on

Table 2
Fixed effects of the level-2-model (see text for details).

Parameter	Estimate OQ-45 total score	SE	df	T-statistics	p-Value
t1: Control group	84.45	4.28	43	19.75	<0.01
t1: Experimental group vs. control group	6.42	5.85	43	1.10	0.28
t1 → t2: Control group	16.15	1.52	43	10.63	<0.01
t1 → t2: Experimental group vs. control group	−1.72	2.08	43	−0.83	0.41
t1 → t3: Control group	14.20	3.80	43	3.74	<0.01
t1 → t3: Experimental group vs. control group	−12.50	5.20	43	−2.41	0.02

Abbreviations: SE = standard error, df = degrees of freedom, t1 = intake week, t2 = signal week, t3 = week of the last available OQ-45 score.

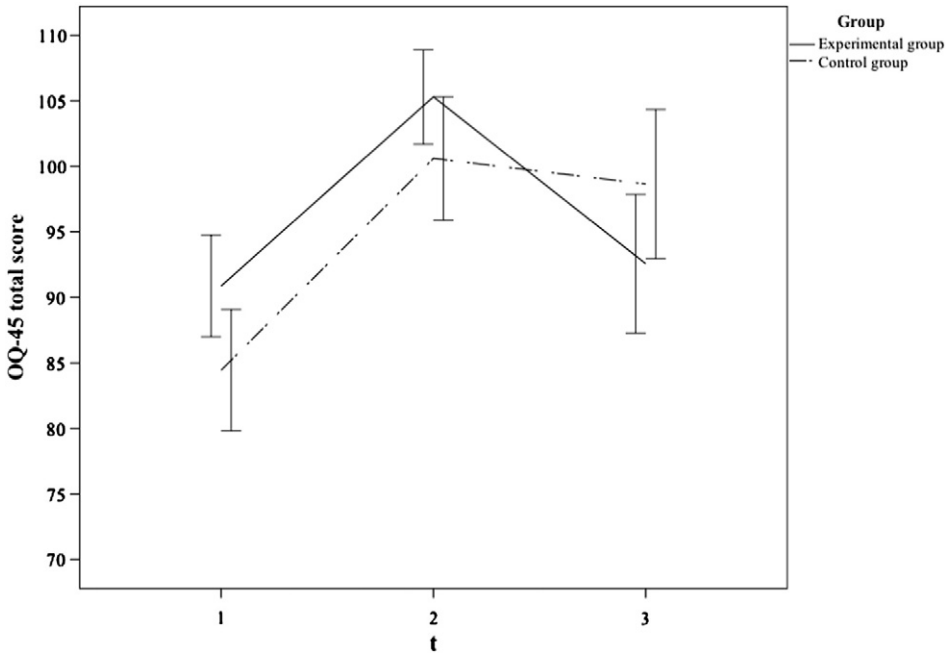

Fig. 1. OQ-45 total scale mean at t1 (intake week), t2 (signal week), and t3 (last measurement point) for experimental and control group +/− 1 SE.

outpatient psychotherapy, the number of reliably deteriorated patients could be reduced through feedback on patient progress and CST by about 50% [30]. Our results indicate that feedback could be even more powerful in reducing deterioration in in-patient than in outpatient psychotherapy. In this context, it should be noted that the current study used the more conservative RCI (21 points of change) from the German normative samples [31] and not that from the samples of the U.S. where the RCI requires only 14 or more points, thus possibly providing lower estimates of reliable change in comparison to past research.

No significant differences between the two treatment groups regarding age, gender, education, comorbidity, treatment weeks (from intake to discharge, from t1 to t3, from t1 to t2, from t2 to t3), or initial psychological dysfunction (intake OQ-45 total score) could be found. Hence, the improved outcome of the experimental group could not be attributed to significant differences in these variables between experimental and control groups. Although not statistically significant, it should be noted that the experimental group tended to be more educated, to have less comorbid disorders, and to stay longer in treatment than the control group. Furthermore, there are more patients with somatoform disorders in the control group (65.0% vs. 52.2%) who are known to improve on average less during psychotherapy than other diagnostic groups [2,39]. However, it should be taken into account that in this study the diagnoses were made by the clinic teams and not by standardized interviews, resulting in an uncertain validity of the diagnoses [40].

In psychosomatic treatment several therapists are involved in the treatment of a patient. This study showed that patients at risk have a better outcome when one therapist, the one responsible for individual psychotherapy with the patient, is provided with weekly feedback on patient progress and CST. For further studies of psychosomatic in-patient treatment, it would also be interesting to investigate if the positive effect of feedback could be further enhanced when all therapists involved in the treatment of a patient received the feedback.

Another point for future research relates to the expected recovery curves. The expected recovery curves of the empirical algorithm used in this study are based on thousands of patients from the U.S., coming from different psychotherapy settings. Expected recovery curves based solely on psychosomatically treated in-patients could allow assessing at-risk patients more precisely by comparing individual patient progress against the expected progress in psychosomatic in-patient treatment. Nevertheless, in this study the expected recovery curves from the U.S. showed predictive power in German psychosomatic in-patient treatment: When in-patients were first classified as at-risk in the signal week (t2), both groups – on average – deteriorated significantly compared to intake (t1). Furthermore, 7 of altogether 8 patients who deteriorated at t3 were labeled as patients at risk. This hit rate of 87.5% was comparable to the results from the U.S. [12,13]. In addition, the 7 at-risk patients with deterioration (87.5% of all deteriorated patients) were detected during the first four treatment weeks (intake week + 3 weeks). In the U.S., 85% of all patients who deteriorated were identified during the first four weeks (intake interview + 3 sessions) [12]. Early feedback on risk of deterioration is essential, since the later at-risk patients are detected the less opportunities therapists have to take action based on the feedback. On average, the first warning signal appeared in the feedback reports M=2.65 (experimental group) and M=1.95 (control groups) weeks after the intake week.

Another factor to consider in this study is the applicability of the ASC (CST instrument) in psychosomatic in-patient setting, where the social support scale may not be that useful as in outpatient psychotherapy, since in-patients usually do not have that much contact to the family or friends. Accordingly, further analysis of our ASC data should concentrate on evaluating the applicability in psychosomatic in-patient settings.

To summarize – if the results of this study are replicated – monitoring and feedback in psychosomatic in-patient treatment should be applied in routine care, since it can improve the outcome of patients at risk of

Table 3
Reliable change index (RCI) classification (t1 to t3).

RCI	Experimental group N = 23	Control group N = 20
Reliably improved (improved by at least 21 OQ-45 points)	3 (13.0%)	0 (0.0%)
Unchanged (fewer than 21 OQ-45 points change)	18 (78.3%)	15 (75.0%)
Reliably deteriorated (worse by at least 21 OQ-45 points)	2 (8.7%)	5 (25.0%)

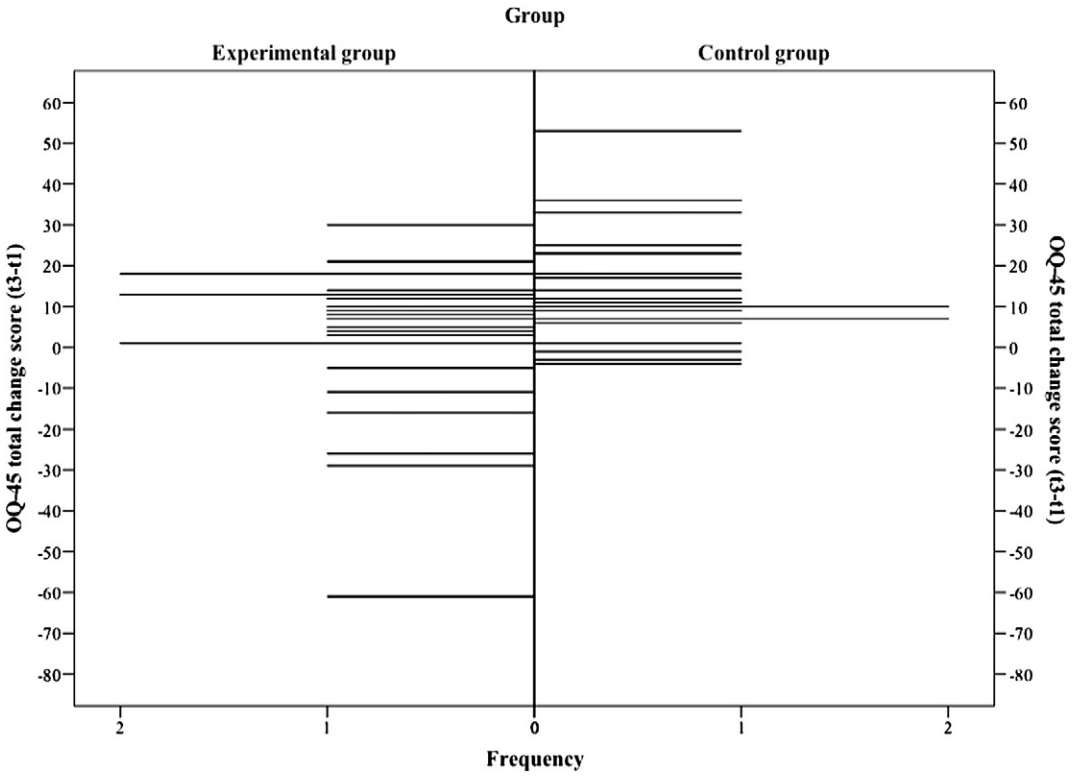

Fig. 2. Frequencies of individual OQ-45 total change scores (t3–t1) for all patients at-risk. Positive values indicate deterioration. Negative values indicate improvement.

treatment failure. The Ethics Code of the APA advising that "Psychologists take reasonable steps to avoid harming their clients/patients… and to minimize harm where it is foreseeable and unavoidable" [41, p.1065] strongly supports this position.

Conflict of interest

The authors report no financial or other relationships relevant to the subject of this article.

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