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Research report

Effectiveness of short-term and long-term psychotherapy on work ability and functional capacity — A randomized clinical trial on depressive and anxiety disorders

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Abstract

Background: Insufficient evidence exists about the effect of different therapies on work ability for patients with psychiatric disorders. The present study compares improvements in work ability in two short-term therapies and one long-term therapy.
Methods: In the Helsinki Psychotherapy Study, 326 outpatients with depressive or anxiety disorder were randomly assigned to long-term and short-term psychodynamic psychotherapy, and solution-focused therapy. The patients were followed for 3 years from the start of treatment. Primary outcome measures were the Work Ability Index (WAI), the Work-subscale (SAS-Work) of the Social Adjustment Scale (SAS-SR), Perceived Psychological Functioning Scale, the prevalence of patients employed or studying, and the number of sick-leave days.
Results: Work ability was statistically significantly improved according to WAI (15%), SAS-Work (17%), and Perceived Psychological Functioning Scale (21%) during the 3-year follow-up. No differences in the work ability scores were found between two short-term therapies. The short-term therapies showed 4–11% more improved work ability scores than long-term therapy at the 7 month follow-up point. During the second year of follow-up, no significant differences were found between therapies. After 3 years of follow-up, long-term therapy was more effective than the short-term therapies with 5–12% more improved scores. No differences in the prevalence of individuals employed or studying or in the number of sick-leave days were found between therapies during follow-up.
Conclusions: Short-term therapies give benefits more quickly than long-term therapy on work ability but in the long run long-term therapy is more effective than short-term therapies. More research is needed to confirm these findings.

Keywords: Anxiety; Clinical trial; Depression; Psychotherapy; Randomization; Work ability

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1. Introduction

Psychiatric disorders are often accompanied by problems in work functioning (Murray and Lopez, 1997). The scope of work-related problems in depressive and anxiety disorders varies from temporary deficits due to loss of energy, decreased ability to concentrate and lowered work satisfaction to impairment of work performance due to more long-term cognitive, affective and interpersonal dysfunctioning, recurrent sick-leaves and occupational disability (Adler et al., 2006; Mintz et al., 1992). Problems in work ability are important reasons for patients to apply for psychotherapy and to receive insurance subsidization of treatments. Improvement in work ability is usually regarded as one central goal of the treatment (Kessler and Frank, 1997; Lazar et al., 2006).

Psychotherapy outcome studies have so far primarily focused on measuring changes in psychiatric symptoms. The efficacy of brief psychotherapies has been demonstrated in clinical trials with short or no follow-up (Anderson et al., 1995; Barber and Ellman, 1996; Barlow and Lehman, 1996; Clarkin et al., 1996; Knekt and Lindfors, 2004). A recent study on depressive and anxiety disorders showed that symptom reduction was stronger after long-term psychotherapy than after short-term therapies (Knekt et al., in press).

However, relatively little is known about the effects of different therapies on alleviating work impairment and functional disability as there are only a few studies on the subject. According to Mintz et al. (1992), improvements in symptoms of depression appeared to occur more rapidly than improvements in the area of work. A decrease in sick-leave days following long-term, mainly psychodynamic psychotherapies, has been reported in one cohort study (Lazar et al., 2006). Trials comparing short-term therapies with waiting-list or clinical management have indicated either some positive treatment effect (O'Hara et al., 2000; Telch et al., 1995) or no effect (Mintz et al., 1992; Piper et al., 1990; Scott et al., 2000) on perceived work ability. A combination of short-term psychodynamic psychotherapy with antidepressive medication has produced better work adjustment and fewer sick-leave days than medication alone (Burnand et al., 2002). In short-term trials work outcomes were better as the duration of treatment increased from very short (1 month) to a moderate length (10 months) (Mintz et al., 1992). As far as we know, however, there are no trials comparing the effectiveness of short-term and long-term psychotherapies on work ability and functional capacity.

In this randomized trial, we studied the improvement in work ability and functional capacity due to solution-focused therapy and short-term and long-term psychodynamic psychotherapy during a 3-year follow-up in patients suffering from depressive or anxiety disorder.

2. Patients and methods

The project follows the Helsinki Declaration and was approved by the Helsinki University Central Hospital ethics council. The patients gave written informed consent. The patient sample, study design, and methods used have been described in detail elsewhere (Knekt and Lindfors, 2004) and are only summarized briefly here.

2.1. Patients and settings

A total of 459 eligible outpatients were referred to the project from psychiatric services in the Helsinki region from June 1994 to June 2000. Patients considered eligible for this study had to be 20–45 years of age and suffer from a long-standing (>1 year) disorder causing dysfunction in work ability. They were required to meet DSM-IV criteria (American Psychiatric Association, 1994) for anxiety or mood disorders and be estimated in a psychodynamic assessment interview of suffering from neurosis to higher level borderline disorder, according to Kernberg's (1996) classification of personality organization. Patients were excluded from the study on the basis of a semi-structured diagnostic interview (Knekt and Lindfors, 2004) if any of the following criteria for this study were met: psychotic disorder or severe personality disorder (DMS-IV cluster A personality disorder and/or lower level borderline personality organization), adjustment disorder, substance-related disorder, organic brain disease or other diagnosed severe organic disease, and mental retardation. Individuals treated with psychotherapy within the previous 2 years and psychiatric health employees were also excluded.

2.2. Study design

The patients who fulfilled the selection criteria at baseline were randomized into solution-focused therapy, short-term psychodynamic psychotherapy or long-term psychodynamic psychotherapy in a 1:1:1.3 ratio using a central computerized randomization schedule. Concealed assignment codes were given sequentially to patients in consecutively numbered envelopes.

2.3. Treatments

After randomization the patients were monitored for three years in this study. Thus, patients were provided either with short-term therapy followed by no treatment or long-term therapy during the 3-year follow-up.

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2.3.1. The therapies

Solution-focused therapy usually included one session every second or third week, with a limit of 12 sessions, over no more than 8 months. Short-term psychodynamic psychotherapy was scheduled for 20 weekly treatment sessions over 5–6 months. The frequency of sessions in long-term psychodynamic psychotherapy was 2–3 times a week, and the duration of therapy was up to 3 years.

Solution-focused therapy is a brief resource-oriented and goal-focused therapeutic approach which helps clients change by constructing solutions (Johnson and Miller, 1994; Lambert et al., 1998). The technique includes the search for pre-session change, miracle and scaling questions, exploration of exceptions, use of a one-way mirror and consulting break, positive feedback and home assignments. The orientation was based on an approach developed by de Shazer and Berg (de Shazer, 1991; de Shazer et al., 1986).

Short-term psychodynamic psychotherapy is a brief, focal, transference-based therapeutic approach which helps patients by exploring and working through specific intrapsychic and interpersonal conflicts. Short-term psychodynamic psychotherapy is characterized by the exploration of a focus, which can be identified by both the therapist and the patient. This consists of material from current and past interpersonal and intrapsychic conflicts and the application of confrontation, clarification and interpretation in a process in which the therapist is active in creating the alliance and ensuring the time-limited focus. The orientation was based on approaches described by Malan (1976) and Sifneos (1978).

Long-term psychodynamic psychotherapy is an open-ended, intensive, transference-based therapeutic approach which helps patients by exploring and working through a broad area of intrapsychic and interpersonal conflicts. Long-term psychodynamic psychotherapy is characterized by a framework in which the central elements are exploration of unconscious conflicts, developmental deficits, and distortions of intrapsychic structures. Confrontation, clarification and interpretation are major elements, as well as the therapist's actions in ensuring the alliance and working through the therapeutic relationship to attain conflict resolution and greater self-awareness. Therapy includes both expressive and supportive elements, the use of which depends on patient needs. The orientation follows the clinical principles of long-term psychodynamic psychotherapy (Gabbard, 2004).

2.3.2. The therapists

Therapies were conducted by altogether 55 therapists of whom 6 provided solution-focused therapy, 12 short-term psychodynamic psychotherapy, and 41 long-term psychodynamic psychotherapy. All the therapists who provided solution-focused therapy had been trained for the method and had received a qualification in solution-focused therapy provided by a local institute. The mean number of years of experience in solution-focused therapy was 9 (range 3–15). None of the therapists had received any training in psychodynamic psychotherapy. The solution-focused therapy was manualized and clinical adherence monitoring was performed. All the therapists giving psychodynamic psychotherapy had received standard training in psychoanalytically orientated psychotherapy that was approved by one of the psychoanalytic or psychodynamic training institutes in Finland. Training adhered to clinical principles of psychodynamic orientation and technique although the emphasis of different theoretical models varied (e.g. ego psychological, object-relations, self-psychological and attachment models) (Gabbard, 2004). All psychodynamically oriented therapists had received a minimum of 3–6 years analytical (psychoanalysis or long-term psychotherapy) training and those giving short-term therapy received 1–2 additional years of specific short-term focal psychodynamic therapy training. Therapists providing long-term therapy had a mean of 18 (range 6–30) years of experience and therapists providing short-term therapy of 9 (range 2–20) years of experience in respective therapy after completion of clinical training. The therapists providing short-term therapy had, in addition, on average 16 (range 10–21) years of experience in long-term psychodynamic psychotherapy. None of the therapists offering psychodynamic psychotherapy had any experience of solution-focused therapy. Both psychodynamic psychotherapies were conducted in accordance with clinical practice, where the interventions might be modified according to patients' needs within the psychodynamic framework. Accordingly, no manuals were used and no adherence monitoring was organized.

2.4. Assessments

Approved methods were used for assessment of work ability and functional capacity (Knekt and Lindfors, 2004). The assessments were self-evaluations based on questionnaires administered at baseline and at 3, 7, 9, 12, 18, 24, and 36 months after baseline. Due to the multi-faceted nature of work ability, five different outcome measures were used, which focus on different aspects of work ability and functioning. Three measures, a modification of the Work Ability Index (WAI) (Ilmarinen et al., 1997; Tuomi et al., 1997), the Work-subscale (SAS-Work) of the Social Adjustment Scale

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(SAS-SR) (Weissman and Bothwell, 1976), and the Perceived Psychological Functioning Scale (Lehtinen et al., 1991), focused on self-evaluations. The WAI mainly emphasized the subject's estimated capacities and resources at work ("what I am able to do"), the SAS-Work focused more directly on the subject's actual performance ("what I have done"), and the Perceived Psychological Functioning Scale on the subject's general psychological performance. In addition to these three measures, realization of work capacity was monitored on the basis of active participation in work life or in studies and on the basis of days of sickness absence.

A modification of the WAI, developed originally for employed persons (Ilmarinen et al., 1997; Tuomi et al., 1998; Tuomi et al., 1997), was used as a measure of self-estimated work ability. For this study, the index was modified to be used also with those studying or unemployed. The index included the following eight subscales: (i) subjective estimation of current work ability as compared with the lifetime best work ability (0–10 points), (ii) subjective work ability in relation to physical demands of the work (1–5 points), (iii) subjective work ability in relation to mental demands of the work (1–5 points), (iv) number of diagnosed diseases (1–7 points), (v) subjective estimation of work impairment due to diseases (1–6 points), (vi) sickness absence during the past year (1–5 points), (vii) own prognosis of work ability 2 years from now (1, 4 or 7 points), and (viii) mental resources (1–4 points). The total score (range 7–49) was calculated in accordance with the original WAI by summing the scores of all the subscales. Work ability was indicated as impaired when the WAI score was poor (7–27 points) or moderate (28–36 points) and as adequate when the score was good (37–43 points) or excellent (44–49 points) (Tuomi et al., 1998). As a sum of the subscales (i), (ii), (iii) and (v), a perceived work ability sub-score (the PWA) was formed and used as a secondary measure. The range of this sub-score was 3–26. In addition, the subscale (i) was used as a separate secondary measure.

Work role functioning was measured by using 18 items of the self-report version of the SAS-SR (Weissman and Bothwell, 1976), SAS-Work. These items measure role functioning at paid work, work at-home and work as a student during the previous month. Each role area covers (i) performance in expected tasks, (ii) friction with people, and (iii) general feelings and satisfaction. The patients were allowed to tick items in more than one work role area. The total score in each work role area (SAS-Work-paid; SAS-Work-at-home; SAS-Work-as-a-student) was formed by summing the scores of individual items in that area and dividing the sum by the number of ticked items in the area. In some cases the patients ticked items in two or even all three role areas. The overall score SAS-Work was formed as an average of role area scores. The three scores, one of each work role area were used as secondary measures.

Perceived psychological functioning was measured by a 10-item self-report scale (Lehtinen et al., 1991) which includes items describing cognitive functioning (4 items), coping with stress (3 items) and energy level (3 items). The items were scored from 1 to 4 (one from 1 to 5), a smaller score indicating better psychological functioning. A total score describing psychological functioning was calculated by summing the items. The total score thus varied from 10 to 41.

Information on realization of work capacity as active participation in work or studies and the number of sick-leave days from work during the past 3 months were collected by single-item questions included in a follow-up questionnaire developed in the project. This item was used in its original form and using the cut-off 7 days as an indicator of high-level absenteeism (Hensing et al., 1998, Lazar et al., 2006).

Since the patients of ethical reasons were allowed to use auxiliary treatment during the 3-year follow-up, information on the use of psychotherapy, psychotropic medication, and psychiatric hospitalization was continuously assessed by questionnaire and from nationwide public health registers (Knekt and Lindfors, 2004). Socioeconomic factors (sex, age, marital status, education, socio-economic status, and occupation) were assessed at baseline using a questionnaire. Psychiatric diagnosis was assessed according to the DSM-IV diagnostic criteria (American Psychiatric Association, 1994) and psychiatric history using a semi-structured interview (Knekt and Lindfors, 2004). A telephone interview, including information on the symptom status and the reason for the drop-out (Psychiatric Symptoms Questionnaire, PSQ) was carried out whenever possible for each drop-out patient.

2.5. Statistical methods

The statistical methods have been presented in more detail elsewhere (Knekt et al., in press) and will be described only briefly here.

The main analyses were based on the 'intention-to-treat' analyses and complementary 'as-treated' analyses were performed (Härkänen et al., 2005; Knekt et al., in press). The analyses were based on the assumption of ignorable drop-outs. The statistical analyses were based on linear mixed models (Verbeke and Molenberghs,

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1997). Model-adjusted score means and mean differences were calculated for different design points (Lee, 1981). The delta method was used for the calculation of confidence intervals (Migon and Gamerman, 1999). Statistical significance was tested with the Wald test.

Three primary models were used. The basic model included the main effects of time, treatment group, the difference between theoretical and realized date of measurement, and first-order interaction of time and treatment group. A complete model further included the potential confounding factors of age, sex, marital status, education, age at onset of first psychiatric disorder, separation experiences, and axes I and II diagnosis. A test for significance of effect modification of baseline diagnosis on the treatment effect was carried out in a third model by including an interaction term between diagnosis, time, and treatment group in the basic model. Complementary analyses were carried out adjusting for the baseline level of the outcome measures.

The 'as-treated' models were carried out by adding variables describing compliance (i.e. waiting time from randomization to initiation and degree of participation, including an indicator for whether the patient received the study treatment or not and for discontinuation of the study treatment), and auxiliary treatment (i.e. psychiatric medication, therapy or psychiatric hospitalization) during follow-up as the main effects in the three primary models. Since no major differences were found between the different models, the results presented are based on the basic 'intention-to-treat' model. Cohen's *d* statistic was used as a measure of effect size (Rosenthal and Rosnow, 1991). The statistical analyses were carried out with the SAS software (SAS Institute Inc., 1999).

3. Results

3.1. Patient enrollment and treatment received

Of the 459 eligible patients referred to the project, 381 were willing to participate in the study (Knekt and Lindfors, 2004). During the waiting time from the assessment of eligibility to baseline examination, 55 of these patients decided not to participate (Fig. 1). Of the remaining 326 patients, 97 were randomly assigned to solution-focused therapy, 101 to short-term psychodynamic therapy, and 128 to long-term psychodynamic therapy. Of the patients randomized, 26 patients assigned to long-term psychotherapy and 7 assigned to short-term therapies refused to participate. The main reason for not starting the allocated treatment was the type of therapy. Of the patients starting the assigned therapy a total of 42 patients discontinued the treatment prematurely. The most usual reasons were a change in life situation and disappointment with the treatment. The patients discontinuing solution-focused therapy had more symptoms than those continuing treatment (data not shown). The average number of therapy sessions among patients starting the therapy was 9.8 (SD=3.3) in the solution-focused therapy, 18.5 (SD=3.4) in the short-term psychodynamic psychotherapy, and 232 (SD=105) in the long-term psychodynamic psychotherapy group, and the mean length of therapy was 7.5 (SD=3.0), 5.7 (SD=1.3), and 31.3 (SD=11.9) months, respectively.

Over 40% of the patients in all three therapy groups used psychotropic medication during the 3-year follow-up. Auxiliary use of psychotherapy was more common in the short-term therapy groups (35–36%) than in the long-term therapy group (16%). Only 3.1% of the patients were treated at a psychiatric hospital during the follow-up and none of these patients was from the solution-focused therapy group. After addition of the auxiliary therapies to the treatment given according to study protocol, the average total number of therapy sessions among patients starting the therapy was 29.9 (SD=43.9) in the solution-focused therapy, 46.9 (SD=61.9) in the short-term psychodynamic psychotherapy, and 235 (SD=104) in the long-term psychodynamic psychotherapy group, and in the 33 patients not starting the therapy 180 (SD=208), 148 (SD=140), and 14.2 (SD=32.0), respectively.

3.2. Characteristics at baseline examination

The patients were relatively young and predominantly female (Table 1). About half of them were living alone and over one-fifth had an academic education. A total of 84.7% of them suffered from mood disorder (67.5% major depressive disorder), 43.6% from anxiety disorder, and 18.1% from personality disorder. No statistically significant differences among treatment groups were found with respect to baseline demographic or clinical characteristics. The correlation coefficients between the WAI, SAS-Work, and Perceived Psychological Functioning Scale varied from 0.50–0.58.

3.3. Drop-out during follow-up

The mean drop-out from the work ability measurements over the 8 measurement occasions was 13% in the short-term psychodynamic psychotherapy group, 18% in the long-term psychodynamic psychotherapy group, and 15% in the solution-focused therapy group. The

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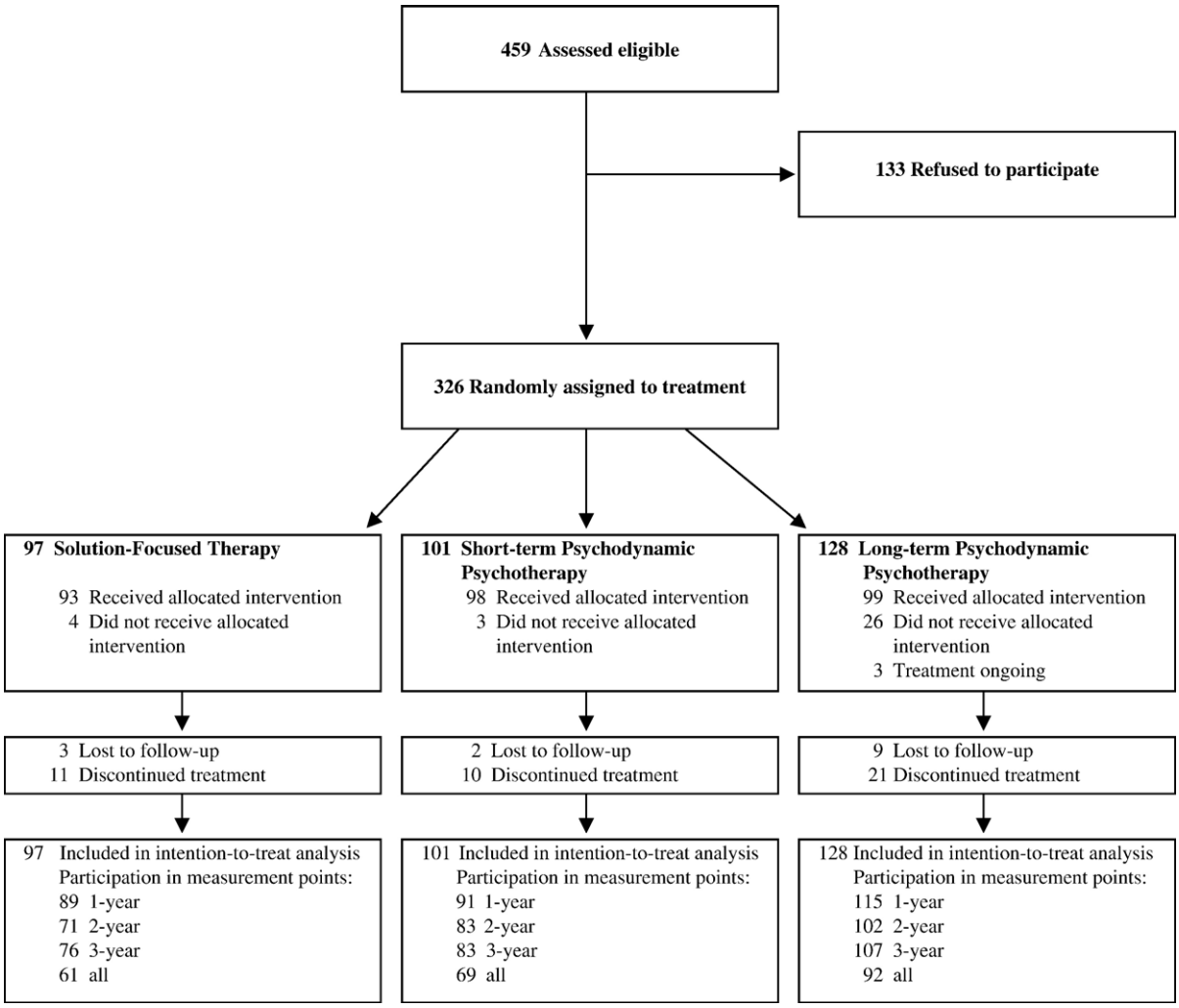

Fig. 1. Number of eligible patients who were assigned to study group and completed the protocol.

corresponding values among individuals starting the therapy after randomization were 12%, 5% and 12%, respectively. A total of 2 patients from the short-term psychodynamic psychotherapy group, 9 from the long-term psychodynamic psychotherapy group, and 3 from the solution-focused therapy group participated only at baseline measurement. Of these 14 patients, however, 2 participated in the assigned therapy. The major reason for drop-out from a study occasion was refusal, because the study occasion was experienced as mentally stressful or because the patient was disappointed with the treatment. Disappointment with the study treatment was statistically significantly a more common reason for drop-out in the solution-focused therapy group than in the two psychodynamic psychotherapy groups ($P<0.001$). Of the patients refusing to participate in a study occasion, 42% gave information on their symptoms and perceived need for psychiatric treatment by answering questions on the PSQ. Symptoms and perceived need for psychiatric treatment were statistically more common in the solution-focused therapy group (data not shown).

3.4. Treatment effects

A statistically significant improvement of work ability was noted for the three self-report scores on capacities and resources at work, actual work performance and general psychological performance ($P<0.001$, Table 2). The average score improvement during the 3-year follow-up was 15% (range of effect sizes (ES) between treatment groups=0.52–0.88) in the WAI, 17% (ES=0.45–0.85) in the SAS-Work and 21% (ES=0.79–1.28) in the Perceived Psychological Functioning Scale, respectively. No

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Table 1
Baseline characteristics of the 326 patients by treatment group

Characteristic	Solution-focused therapy ($N=97$)	Short-term psychodynamic psychotherapy ($N=101$)	Long-term psychodynamic psychotherapy ($N=128$)	P-value for difference
Socioeconomic variables				
Age (years)	33.6 (7.2)[a]	32.1 (7.0)	31.6 (6.6)	0.08
Males (%)	25.8	25.7	21.1	0.63
Employed or student (%)	83.2	85.1	75.4	0.14
Living alone (%)	56.7	48.5	49.2	0.44
Academic education (%)	28.9	19.8	28.1	0.26
White collars or entrepreneur (%)	71.1	55.4	65.6	0.06
Psychiatric treatment				
Psychotherapy (%)	20.0	18.8	19.0	0.98
Psychotropic medication (%)	27.8	21.8	17.6	0.19
Hospitalization (%)	2.1	0.0	2.4	0.31
Psychiatric diagnosis				
Mood disorder (%)	86.6	78.2	88.3	0.09
Anxiety disorder (%)	46.4	49.5	36.7	0.12
Personality disorder (%)	18.6	24.8	12.5	0.06
Psychiatric co-morbidity (%)	45.4	48.5	36.7	0.17

[a] Mean (SD).

differences in the work ability scores were found between solution-focused therapy and short-term psychodynamic psychotherapy. Short-term therapies more effectively improved work ability than long-term therapy at the 7 months follow-up point, showing statistically significantly improved values for the Perceived Psychological Functioning Scale and non-significantly improved values for the SAS-Work and for the WAI. The mean Perceived Psychological Functioning scale score difference between short-term and long-term-psychodynamic therapies after 7 months of follow-up was −2.40 (CI=−3.97, −0.84). The corresponding difference between solution-focused therapy and long-term psychodynamic psychotherapy was −1.90 (CI=−3.49, −0.30). During the second year of follow-up, no significant differences were found between the three psychotherapies. After 3 years of follow-up, long-term psychodynamic psychotherapy was statistically significantly more effective than short-term psychodynamic psychotherapy for all three scores. The mean differences for WAI, Perceived Psychological Functioning Scale and SAS-Work between the therapies were −2.48 (−4.56, −0.39), 2.14 (CI=0.64, 3.65), and 0.21 (0.05, 0.37), respectively. The difference between long-term psychodynamic psychotherapy and solution-focused therapy showed a similar, but weaker pattern. The associations for the secondary variables considered (i.e. PWA, current work ability as compared with the lifetime best work ability, SAS-Work-paid, SAS-Work-at-home, and SAS-Work-as-a-student) were similar to those of the primary variables (data not shown). A statistically significant part (53–75%) of the 209 patients with impaired work ability (i.e. with WAI values ≤36) at baseline reached an adequate work ability during the follow-up. The improvement was strongest in the short-term therapy groups during their treatment period and weakest in the solution-focused group at the 3-year follow-up time point.

The realization of work capacity was monitored on the basis of participation in work life or studies and days of sickness absence from work (Table 2). The prevalence of individuals employed or studying at baseline was 80.8%, and it did not significantly change during follow-up, being 78.2% at the end of follow-up. No differences in prevalence of individuals employed or studying or in the number of sick-leave days were found between the three therapy groups in any of the measurement points during follow-up. The number of sick-leave days during the past three months among persons employed was 5.5 days at baseline and 3.6 days at the end of follow-up in the whole study population. Only in the long-term psychodynamic psychotherapy group there was a significant reduction of days from 5.3 to 2.4. Among the patients working, the percentage of those with more than 7 days of sickness absence during the last 3 months, both psychodynamic psychotherapies showed a

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Table 2
Mean score levels (s.e.) of work ability variables in treatment groups and mean score differences (95% confidence interval) between the treatment groups during the 3-year follow-up

Outcome variable	Time (month)	Mean scores[a] (s.e.)						Mean score difference[b] (95% confidence interval)					
		Solution-focused therapy (SFT) (N=97)		Short-term psychodynamic psychotherapy (SPP) (N=101)		Long-term psychodynamic psychotherapy (LPP) (N=128)		SFT vs LPP		SPP vs LPP		SPP vs SFT	
Work Ability Index (score)	0	33.5	(0.70)	34.1	(0.68)	33.4	(0.61)	0		0		0	
	7	37.6*	(0.73)	38.1*	(0.71)	36.2*	(0.66)	+1.55	(−0.17,+3.27)	+1.68	(−0.00,+3.36)	+0.13	(−1.63,+1.89)
	12	37.6	(0.78)	37.9	(0.74)	37.2	(0.70)	+0.51	(−1.39,+2.42)	+0.41	(−1.43,+2.25)	−0.10	(−2.05,+1.84)
	24	37.9	(0.85)	38.7	(0.76)	39.6*	(0.70)	−1.76	(−3.81,+0.29)	−1.15	(−3.06,+0.77)	+0.61	(−1.51,+2.74)
	36	37.9	(0.87)	37.8	(0.80)	39.9	(0.76)	−2.08	(−4.28,+0.12)	−2.48	(−4.56,−0.39)	−0.40	(−2.63,+1.84)
Effect size		−0.75		−0.52		−0.88							
P-value (time)[a, c]							<0.001						
P-value (group)[b, d]							0.006						
Adequate work ability (%)	0	0		0		0		0		0		0	
	7	55.1*	(6.8)	51.5*	(6.8)	34.5*	(6.3)	+20.6	(+2.4,+38.7)	+17.0	(−1.2,+35.1)	−3.6	(−22.4,+15.3)
	12	60.0	(7.0)	50.2	(6.8)	59.2*	(6.2)	+0.7	(−17.6,+19.1)	−9.0	(−27.1,+9.0)	−9.8	(−28.9,+9.4)
	24	62.5	(7.9)	67.7	(7.1)	71.3	(6.0)	−8.8	(−28.2,+10.6)	−3.6	(−21.7,+14.6)	+5.2	(−15.5,+26.0)
	36	53.0	(7.3)	61.8	(6.7)	74.6	(6.2)	−21.6	(−40.4,−2.8)	−12.8	(−30.6,+5.0)	+8.8	(−10.6,+28.2)
P-value (time)[a, c]							<0.001						
P-value (group)[b, d]							0.012						
SAS-Work (score)	0	2.21	(0.06)	2.13	(0.06)	2.23	(0.05)	0		0		0	
	3	2.06*	(0.06)	2.12	(0.06)	2.14	(0.05)	−0.09	(−0.23,+0.04)	−0.01	(−0.14,+0.12)	+0.09	(−0.05,+0.22)
	7	1.99	(0.06)	1.96*	(0.06)	2.11	(0.05)	−0.13	(−0.28,+0.02)	−0.10	(−0.25,+0.04)	+0.03	(−0.12,+0.18)
	9	1.96	(0.06)	1.90	(0.06)	1.97*	(0.05)	−0.02	(−0.17,+0.12)	−0.03	(−0.17,+0.11)	−0.01	(−0.16,+0.14)
	12	1.95	(0.06)	1.91	(0.06)	2.00	(0.06)	−0.06	(−0.21,+0.09)	−0.05	(−0.20,+0.10)	+0.01	(−0.14,+0.17)
	18	1.95	(0.07)	1.86	(0.07)	1.96	(0.06)	−0.02	(−0.19,+0.15)	−0.05	(−0.22,+0.11)	−0.03	(−0.20,+0.14)
	24	1.94	(0.07)	1.87	(0.06)	1.85*	(0.06)	+0.08	(−0.08,+0.24)	+0.06	(−0.10,+0.21)	−0.03	(−0.20,+0.15)
	36	1.88	(0.07)	1.88	(0.06)	1.72*	(0.06)	+0.16	(−0.01,+0.33)	+0.21	(+0.05,+0.37)	+0.05	(−0.12,+0.22)
Effect size		0.64		0.45		0.85							
P-value (time)[a, c]							<0.001						
P-value (group)[b, d]							0.05						
Perceived psychological functioning scale (score)	0	25.5	(0.54)	24.7	(0.53)	25.5	(0.47)	0		0		0	
	7	21.2*	(0.65)	20.3*	(0.63)	22.8*	(0.59)	−1.90	(−3.49,−0.30)	−2.40	(−3.97,−0.84)	−0.51	(−2.14,+1.13)
	12	20.8	(0.65)	20.5	(0.61)	21.8	(0.58)	−1.27	(−2.90,+0.36)	−1.13	(−2.71,+0.44)	+0.14	(−1.53,+1.80)
	24	21.7	(0.74)	20.7	(0.66)	19.9*	(0.60)	+1.64	(−0.17,+3.44)	+1.04	(−0.64,+2.73)	−0.59	(−2.47,+1.29)
	36	20.6	(0.61)	20.7	(0.56)	18.9*	(0.53)	+1.67	(+0.08,+3.26)	+2.14	(+0.64,+3.65)	+0.48	(−1.14,+2.10)

Effect size		0.91		0.79		1.28							
P-value (time) [a, c]							<0.001						
P-value (group) [b, d]							<0.001						
Currently employed or studying (%)	0	83.1	(4.0)	85.1	(3.9)	75.5	(3.5)	0		0		0	
	3	81.1	(4.6)	76.6 *	(4.4)	71.0	(4.2)	+8.8	(−2.4,+20.0)	+3.1	(−7.7,+13.9)	−5.7	(−17.0,+5.6)
	7	82.7	(4.4)	81.3	(4.4)	71.8	(4.1)	+9.7	(−1.5,+20.8)	+6.5	(−4.4,+17.5)	−3.1	(−14.6,+8.3)
	9	84.1	(4.6)	76.1	(4.4)	75.1	(4.0)	+7.1	(−4.5,+18.6)	−2.0	(−13.2,+9.2)	−9.1	(−21.1,+2.9)
	12	87.0	(4.4)	79.6	(4.2)	76.4	(3.7)	+8.0	(−2.8,+18.8)	−0.0	(−10.5,+10.5)	−8.1	(−19.4,+3.3)
	18	83.7	(4.8)	75.9	(4.6)	77.1	(4.2)	+3.9	(−8.6,+16.4)	−4.7	(−16.8,+7.4)	−8.5	(−21.4,+4.3)
	24	80.2	(5.1)	82.2	(4.5)	81.5	(3.9)	−4.7	(−17.3,+7.8)	−3.6	(−15.3,+8.2)	+1.2	(−12.2,+14.5)
	36	76.6	(4.9)	80.4	(4.5)	76.3	(4.0)	−2.0	(−14.4,+10.3)	+0.8	(−10.9,+12.5)	+2.8	(−10.1,+15.7)
P-value (time) [a, c]							0.41						
P-value (group) [b, d]							0.71						
Number of sick-leave days during last 3 months (days)	0	6.10	(1.36)	4.60	(1.30)	5.33	(1.20)	0		0		0	
	3	4.66	(1.09)	3.12	(1.05)	4.35	(1.13)	+0.29	(−2.76,+3.33)	−1.06	(−4.04,+1.92)	−1.34	(−4.26,+1.57)
	7	3.83	(1.03)	2.97	(1.03)	4.08	(1.08)	−0.25	(−3.11,+2.62)	−0.92	(−3.77,+1.93)	−0.68	(−3.46,+2.11)
	12	3.82	(0.98)	2.94	(0.95)	4.80	(1.01)	−1.06	(−3.80,+1.69)	−1.75	(−4.45,+0.95)	−0.70	(−3.34,+1.95)
	18	2.45	(0.60)	2.02	(0.61)	2.26 *	(0.59)	+0.12	(−1.54,+1.78)	−0.11	(−1.79,+1.56)	−0.23	(−1.91,+1.45)
	24	3.15	(0.83)	3.68	(0.75)	2.57	(0.66)	+0.46	(−1.62,+2.54)	+1.17	(−0.79,+3.13)	+0.71	(−1.47,+2.90)
	36	5.42	(1.57)	4.81	(1.41)	2.44	(1.37)	+3.28	(−0.83,+7.38)	+2.45	(−1.39,+6.30)	−0.83	(−4.97,+3.32)
Effect size		0.11		−0.02		0.35							
P-value (time) [a, c]							0.004						
P-value (group) [b, d]							0.85						
More than 7 sick-leave days during last 3 months (%)	0	22.7	(5.3)	19.9	(5.1)	16.5	(4.7)	0		0		0	
	3	17.4	(4.5)	11.5	(4.3)	15.2	(4.7)	+4.2	(−8.8,+17.1)	−2.6	(−15.4,+10.3)	−6.8	(−19.3,+5.8)
	7	14.7	(4.1)	10.6	(4.1)	11.0	(4.3)	+3.9	(−8.5,+16.2)	−2.8	(−15.0,+9.4)	−6.7	(−18.9,+5.6)
	12	11.4	(4.5)	9.1	(4.4)	16.4	(4.7)	−4.9	(−18.4,+8.7)	−7.5	(−20.8,+5.9)	−2.6	(−15.9,+10.7)
	18	8.3	(3.6)	4.4	(3.7)	7.2 *	(3.5)	−3.5	(−12.9,+5.8)	−8.2	(−17.6,+1.1)	−4.7	(−14.3,+4.9)
	24	10.9	(5.0)	20.1	(4.5)	6.7	(4.0)	+8.7	(−4.7,+22.1)	+13.5	(+0.7,+26.3)	+4.7	(−9.6,+19.0)
	36	20.7	(4.8)	10.9 *	(4.3)	9.4	(4.2)	+14.1	(+0.0,+28.1)	−0.8	(−13.7,+12.0)	−14.9	(−29.1,−0.7)
P-value (time) [a, c]							0.02						
P-value (group) [b, d]							0.26						

Underlined entries have *P*-values < 0.05.

[a] Basic model.

[b] Basic model adjusted for the baseline level of the outcome measure considered.

[c] *P*-value for time difference for the treatment groups combined.

[d] *P*-value for group difference over time.

* A statistically significant change occurred in comparison with the value at the previous time point.

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reduction during follow-up. Accordingly psychodynamic psychotherapy was more effective than solution-focused therapy at the end of follow-up.

The results of the comparisons between treatment groups were mainly the same in all the 'intention-to-treat' models adjusting for potential confounding factors. No significant interactions between treatment group and diagnosis were found (data not shown). The results of the 'as-treated' models were similar (data not shown).

4. Discussion

We found improvements in the patients' self-reported capacities and resources at work, their actual performance at work, and their general psychological performance. These findings are in line with earlier studies showing that the patient's experience of improvement in his or her work ability changes soon after initiation of treatment (Adler et al., 2006; Mintz et al., 1992; Telch et al., 1995). In line with the results from a previous study (Lazar et al., 2006), the realization of work capacity showed much smaller changes, however. The percentage of individuals employed or studied remained at the same level at baseline and at follow-up and the number of sick-leave days was reduced only in the psychodynamic psychotherapies. This may be due to the patient population having more problems related to sickness presenteeism (continuing in work despite of low work performance due to clinical reasons) than to sickness absenteeism. This may also be related to the finding that sickness absence is only weakly predicted by subjective experience of ill health due to that sickness absence is multifactorial influenced by cultural values, personality characteristrics, and attitudes towards sick listing (Lazar et al., 2007). It has also been proposed that sickness presenteeism in the form of work cutback days is far more often an expression of reduced work capacity than actual absence from work (Kessler et al., 2006).

Suggestively the WAI and the Perceived Psychological Functioning Scale values were more improved in the short-term therapies than in the long-term psychodynamic psychotherapy during the first 7 months of follow-up. At the end of the 3-year follow-up, however, the long-term psychodynamic psychotherapy was slightly more effective than the short-term therapies for all three measures of work ability. The timing of the more beneficial effects of short and long-term psychotherapies in the self-reported work ability was largely similar to that observed in psychiatric symptoms (Knekt et al., in press). A fairly synchronous occurrence of decreased severity of depressive symptoms and improvement in work ability has also been found in longitudinal cohort studies (Wang et al., 2003) although improvements in symptoms also have been reported to occur more rapidly than improvements in the area of work (Mintz et al., 1992). No differences were found between short and long-term therapy in relation to realization of work capacity. The relatively small benefits of the far more intensive long-term therapy in comparison with the short-term therapies might be an accurate finding. There are, however, several competing interpretations because of which no firm conclusion can be made yet. First, it may be that the effects on the realization and sustenance of work ability emerge only after a longer follow-up than 3 years. Second, the effects may be related to the nature of the patient population, with low level of personality disorders and realized sickness incapacity at baseline, and thus suitable for short-term therapy. Third, although on average the differences in the relative effectiveness of long and short-term therapy may seem small, in specific subpopulations suitable for long-term therapy these differences might be considerable (Hoglend, 1993; Laaksonen et al., 2007). Finally, the extensive use of auxiliary treatment in the short-term therapy groups might possibly have distorted the results in favor of short-term therapies.

With one exception, possibly due to multiple comparisons, no differences were noted in work ability between short-term psychodynamic psychotherapy and solution-focused therapy at any measurement occasion during the 3-year follow-up. As far as we know, no comparative evaluation concerning work ability between these and other short-term therapies of equal length has been carried out before. However, the comparative post-treatment work impairment rates of different short-term treatments of depression have shown significant variation (Mintz et al., 1992).

The work ability improvement was much smaller than the changes in depressive and anxiety symptoms in the present study population (Knekt et al., in press). This finding is in agreement with findings from earlier treatment trials on depressive (Mintz et al., 1992) and anxiety patients (Telch et al., 1995) and suggests that changes in perceived and realized work performance represent an area of more modestly improving current life functioning (Howard et al., 1993). It may be that a more profound process of improvement in one's self-esteem and coping capacity is required for regaining functional ability than for recovery from symptoms (Serretti et al., 1999). Whether an improvement in work ability will proceed after the end of treatment in the long-term psychodynamic psychotherapy, remains to be seen.

As far as we know, this is the first randomized clinical trial comparing the effect of short-term and long-term

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psychotherapies on work ability and functioning. The advantages in this study are the relatively large randomized sample ensuring that relevant effects can be detected and the long follow-up time with frequently repeated measurements offering the possibility to obtain a comprehensive picture of the changes in the work ability variables. Work ability and functional capacity are multi-faceted concepts and their uncontroversial measurement remains elusive (Ziebland et al., 1993). In the present study we used five primary measures which together relatively comprehensively covered different dimensions of work ability and functional capacity. The fact that there was only slight differences in the results for the different measures used, underlines the consistency of our findings.

There are, however, also several issues complicating the interpretation of the results. These methodological weaknesses have been described in more detail elsewhere (Knekt et al., in press) and will be only briefly discussed here. First, because of the long follow-up, no non-treatment control group could be included for ethical reasons. Second, since we aimed to study the effectiveness of treatment given in normal clinical practice conducted in a sample of outpatients; no treatment manuals were used in the psychodynamic therapies. The possibilities and benefits of applying manuals and adherence monitoring have been a controversial issue and pose a dilemma especially in long-term treatments, where general process guidelines rather than detailed manuals may be of use (Piper et al., 1999). Third, the fact that over 20% of the patients in the long-term psychotherapy group withdrew from treatment after randomization might potentially have caused bias in the data. Fourth, the fact that those individuals discontinuing solution-focused therapy had more symptoms than those completing treatment may have biased the results. Fifth, the fact that the occurrence of auxiliary treatment was lower in the long-term psychodynamic psychotherapy group during the 3-year follow-up than in the short-term treatment groups was a potential source of bias. Adjustments for withdrawal, discontinuing, and auxiliary treatment in 'as-treated' analyses did not, however, noticeably alter the results from those of the 'intention-to-treat' analyses. Finally, although the rate of drop-out of patients from the measurement occasions during follow-up was low, the fact that those who dropped out from the solution-focused group more often had psychiatric symptoms and more often needed psychiatric treatment might have biased the results in the basic 'intention-to-treat' analyses. Analyses based on multiple imputation and taking into account the need for treatment at the time of drop-out did not, however, notably alter the results, suggesting that the results presented here are unbiased (data not shown).

To summarize, the short-term therapies more effectively improved work ability during the first 7 months of follow-up, whereas long-term therapy was more effective at the end of the 3-year follow-up. No differences were found between the two short-term therapies.

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Conflict of interest

We declare that we have no conflict of interest.

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