

Improvement of balance between work stress and recovery after a body awareness program for chronic aspecific psychosomatic symptoms

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Abstract

Objective: A 3-day residential body awareness program (BAP) was developed to teach people with chronic aspecific psychosomatic symptoms (CAPS) to react adequately to disturbances of the balance between a daily workload and the capacity to deal with it. The long-term effects of the program in improving the balance between work stress and recovery are presented in this study. The intervening effect of 'improved balance' on quality of life is also analysed.

Methods: A pre–post design is used with post-measures at 2 and 12 months after the program, without controls ($n = 122$). Mean age is 42.5 years (S.D. = 9.0) and 60% of participants are female.

Results: The results show participants become more active physically and socially, and at the same time take the opportunity to recover. There was a difference measured in changing balance for participants who are fully employed and participants who are not working or are working part-time due to health problems: the second group reintegrated into work, the first group spent more time socialising inside the family. Personal goals are realised by 85% of the participants. Realising personal goals and becoming more active is a mediating factor for increasing quality of life. The majority of the measured changes can be interpreted as clinically relevant outcomes with medium-to-large effect sizes. Spouses of the participants also confirm these effects.

Discussion and conclusion: Evaluation of the BAP gives evidence to conclude that this program leads to long-term effects in CAPS. Participants react more adequately to disturbances between daily workload and the capacity to deal with this load. Two and 12 months after the 3-day program, they changed their behaviour to a more active lifestyle and increased self-management in coping with stress and psychosomatic symptoms.

Practice implications: By paying more attention to the balance between work stress and recovery, patient educators may be able to increase their effectiveness. Personal goal realization can be effective in guiding people by getting them out of the negative spiral.

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1. Introduction

A short body awareness program (BAP) as developed at the Lifestyle Training Center in Dalfsen (The Netherlands) was shown to be effective for chronic aspecific psychosomatic symptoms (CAPS) 2 and 12 months after the program in 122 participants [1,2]. These are individuals with psychosomatic symptoms for longer than 3 months where a direct

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physiological or psychological cause is not yet shown to be the problem. Participants became more capable of self-management with health problems. There was a statistical significant and lasting increase of the quality of life measured. This paper describes the way these 122 participants changed their behaviour with regard to coping with stress and psychosomatic symptoms, and how this changed behaviour affects quality of life 2 and 12 months after the 3-day BAP. Quality of life is defined as the individual's perception of his position in life in the context of the culture and value systems in which he lives and in relation to his goals, expectations, standards and concerns [3].

Improving quality of life for individuals suffering from chronic aspecific psychosomatic symptoms (CAPS) presents a profound dilemma for the clinician [4–12]. The influence of physical activity on quality of life has remained poorly understood so far, especially when measured in the clinical situation [13–15]. Clinicians have enough modern effective armamentarium for directly treating acute problems with a known cause, but when it comes to supporting individuals suffering from CAPS, they often do not know how to react adequately. There is a need for interventions to treat the aspecific psychological and psychosocial dimension of the CAPS problem [16,17]. This insight has led to the development of a range of psychological interventions, many emphasising long-term strategies of self-regulation [18–23] and meditation techniques [24–26].

The role of body awareness in the development of CAPS is underexposed. In this paper the concept of body awareness is defined as paying attention or having thought about the body and how it feels in stressful and non-stressful situations. In a stressful situation, the individual experiences a discrepancy between perceived state and desired state. Psychosomatic symptoms are seen as an indicator of a disturbed relationship between the conscious subject and his body [27]. From this perspective, rather than reducing symptoms by treatment, CAPS need to be clarified to the individual by means of increased body awareness. When body awareness fails, physical symptoms are no longer related to daily stress, there is no effective coping behaviour, and this ends in a negative spiral of a growing number of psychosomatic symptoms [27–29].

The aim of the intensive and short body awareness program (BAP) is to increase body awareness in order to affect psychological factors such as self-efficacy, attribution style and expression of emotions [30–39]. The assumption is that by attending to the BAP, body awareness increases, so stress signals are better recognised. It is hypothesised here that, as a program result, people become more aware of their reactions to stress and will be more active and effective in their efforts to reduce negative impacts of stress, facilitating attainment of their personal goals in life. In turn, by having more confidence in one's own body, self-efficacy will increase. When self-efficacy increases, the attribution style becomes less depressive and emotions are better faced. Conversely, it is also assumed that when emotions are better

faced, the attribution style will be less depressive. Hence, these three psychological factors may influence one another, but the exact interdependency is unknown. This produces a behavioural change in terms of a new lifestyle in accordance with the stages of change of the transtheoretical model of behavioural change [40–42]. In this model, people are willing to change within 6 months (contemplation phase) or 1 month (preparation phase), and afterwards the program will actually change their behaviour (action phase). The balance between daily workload, leisure-time activities and time spent with family and/or friends will change in a positive way, so the person becomes more physically and socially active and at the same time takes the opportunity to recover. For participants who are fully employed, their working hours are expected to stay the same and they will become more active in their private lives. Participants who are not working or are working part-time are expected to return to work. Participants learn how to change their behaviour by realising their personal pre- and post-training goals. This happens through increased body awareness so is assumed in this paper. A person will, so is assumed, actually learn to feel on his body reactions if what he is doing, is right for him at that point. And than of course he has a choice to continue or to change his behaviour according to his own goals in life. When people become more active, they should also take time to relax to get a better balance. Being more active and not take time to relax may lead to more stress and increased psychosomatic complaints. The expectation is that this improved balance between work stress and recovery will have a positive effect on the decrease of psychosomatic symptoms and will improve quality of life.

This paper describes the effects of the BAP program on behavioural change in daily activity and the mediating effect on quality of life. The purpose of the study was to determine the long-term effects of the BAP. This leads to the following specific research questions:

1. Is there a lasting effect of the BAP in improving the balance between work stress and recovery, that is do participants become more active physically and socially, and at the same time take the daily opportunity to recover?
2. To what extent participants' personal pre- and post-training goals are realised?
3. How does improved balance between work stress and recovery affect quality of life?

2. Methods

2.1. The body awareness program

The BAP is a highly structured and standardised program. It takes the form of a 3-day 'pressure cooker' course that participants attend in groups of 14. They eat a normal diet and sleep at the institute. There is no television or radio available and there is a nice environment outside the

complex to make walks through the woods. So the arrangements are more conducive to rest and relax than the home environment of most participants. Two coaches (male and female), who are certified for the applied techniques, remain with the group for the total period of 3 days. Although it is a personal goal-oriented program and not a group therapy, the BAP involves various methods and techniques given in group sessions [43–48]. The first 2 days involve three types of sessions, consisting of:

1. working with the body focusing on bodily sensations and feelings,
2. working with the mind focusing on the thoughts that come with the feelings, and
3. a creative session (in the evening) that focuses on both bodily sensations and thoughts.

The last day consists of ‘bodywork’, ‘mind work’ and making a plan of change. The sequence of these eight sessions is important: the experiences of session 1 are referred to in session 2 and so on. Every day the intensity of the sessions increases physically and psychologically. An extensive description of the BAP is given elsewhere [1,49].

Fig. 1 presents the body awareness program model, outlining the hypothesised relations between the above-mentioned theoretical constructs. Four domains are distinguished, structured with the help of Chen’s program evaluation theory [50], which is comparable to the mediation model as proposed by Kraemer et al. [51]:

1. The treatment domain, in which the changes intended with the BAP are affected.
2. The implementation environment domain, in which the environment in which the BAP was implemented is described.
3. The outcome domain, in which the intended outcome of the BAP is described.
4. The intervening mechanisms domain, which describes the underlying mediating variables, linking the BAP to its outcome. Those variables are derived from two distinct theories: action theory (linking the BAP to its intervening mechanisms) and conceptual theory (linking the intervening mechanisms to the outcome).

The shaded arrow and two blocks in Fig. 1 are under study in this paper and represent the three posed research questions.

2.2. Procedure

This pre–post study is based on the principles of theory-driven evaluation [50]. Posing a theoretical model as described in Section 1 offers some opportunities to explain how and why the program achieves or lacks results [50,52,53]. The underlying theories are explained and used in selecting the design and the outcome measures. The most

relevant outcome variables, derived from the underlying theory, are included in the study, enhancing the possibility of finding non-trivial program effects.

All subjects were asked to complete and return mailed questionnaires before (pre-test) and 2 (post-test) and 12 months (follow-up) after the BAP. The training was monitored with evaluation forms, journals and scanning methods, including interviews with the coaches during and after the program as well as observations [50]. Evaluation forms for the participants and journals for the coaches were especially designed to measure the realization of specific goals of each group session. This was scaled as: totally realized, mostly realized, a little bit realized or not realized. The scanning methods were performed by direct contact with the coaches during and after every of the 47 BAPs and by some more ‘loosely’ observations in the dining room by the researcher during the 47 times the program was conducted. In the analysis the qualitative results of these different methods were compared to each other in order to measure if the program was conducted as planned. And in interviews with the coaches, the researcher compared the experiences of the participants with the experiences of the coaches in order to see if they were similar to each other.

2.3. Subjects

Every client who was registered to conduct to the BAP, referred by a specialist or family doctor, was called and asked if they want to cooperate in the research. The subjects were recruited on a voluntary basis by this telephone intake before they attended the BAP. People who had no physical or mental symptoms and those suffering from specific symptoms were excluded. The recruitment took place over a period of 2 years. The BAP group-program was conducted 47 times during this period. A total of 122 respondents returned all three questionnaires (response 64%). Extensive description of response and non-response is given elsewhere [2].

Most of the subjects were married (80%) and had attended college or university (55%). The mean age was 42.5 (S.D. = 9.0), with a minimum of 26 and a maximum of 65 years. There were SCL-90 scores for all individuals above the norm score for healthy individuals [2]. The four most mentioned symptoms of these participants were: tiredness, feeling tense, sleeping problems and headaches.

2.4. Measures

The questionnaires filled in by all respondents at pre-test, post-test and follow-up were for this part of the study: (1) balance between work stress and recovery, (2) goal realisation, (3) quality of life.

Balance between work stress and recovery was measured by the time (in h) participants spent at work, home, leisure-time activity (indulging in a hobby and/or playing sports), community and friends with time being recorded in a 1-week

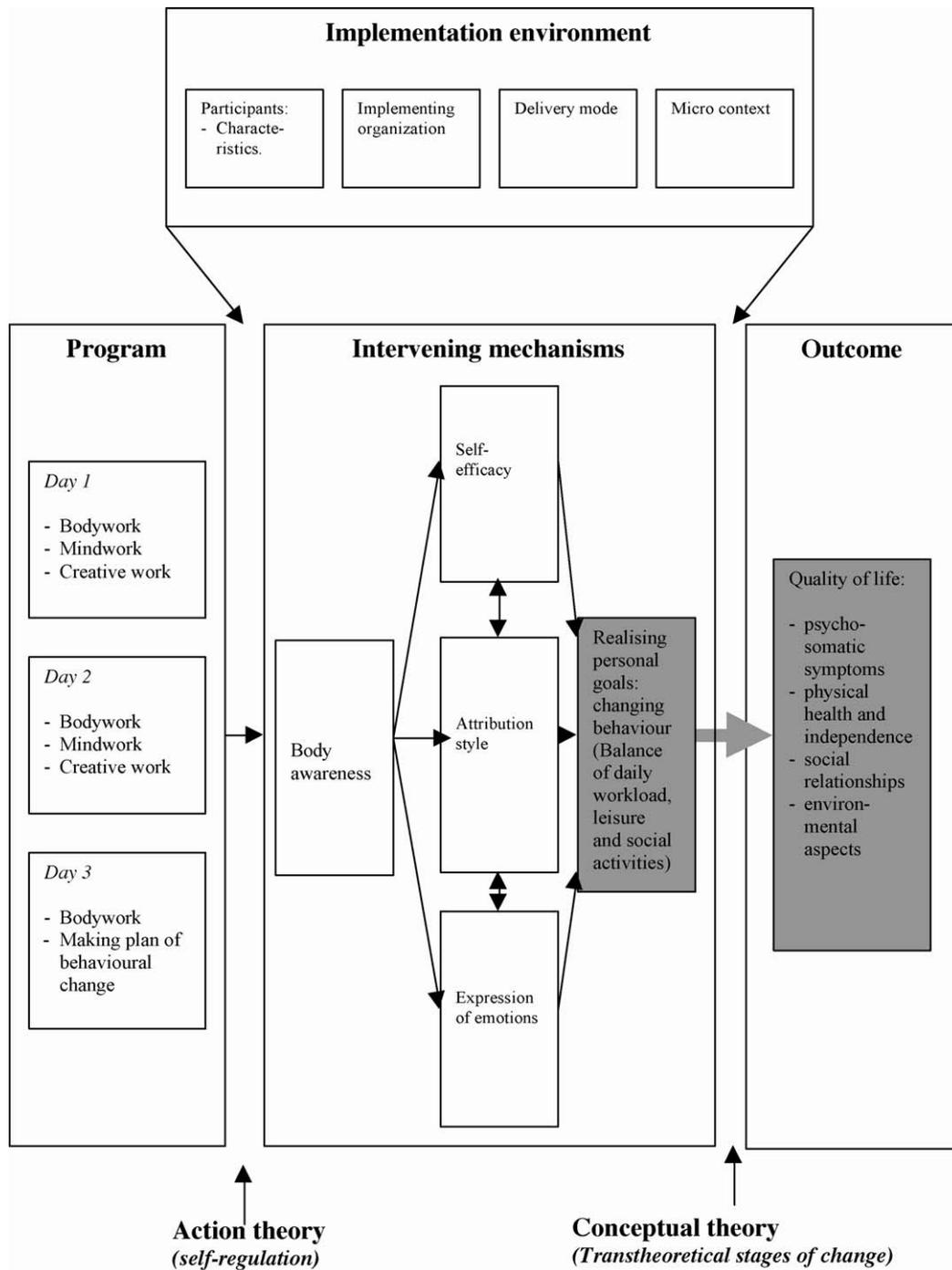


Fig. 1. The body awareness program model.

daily activity diary. This method of measuring activities is reliable and valid [55,56]. The group of participants who were fully employed ($n = 46$) was separately analysed from the group who was not working or working part-time ($n = 76$), because the change in lifestyle was expected to be different in the latter. From these 76 participants who were working part-time or not working, results showed that this is because of illness: the contract contains more hours than they work in reality and they wrote down they were working less because of illness. So they want to work more, but this is

not possible due to health problems. The ratio between working hours and leisure-time activities (volunteer work, sports, hobbies and socialising inside and outside the family) was analysed for these groups. A decreased ratio means more time spent on relaxing, an increase means more work (that is: return to work).

Realisation of personal pre-training goals and post-training (more concrete) objectives were measured according to the principles of goal attainment scaling [57]. This is a valid and reliable method in which the individual scales his

own goals to the extent to which they were realised. Before, during and after the program, individuals were asked to indicate their personal goals and objectives, which were afterwards categorised by the researchers in order to do a quantitative analysis. At follow-up, people are confronted with a copy of their own written goals and plans and asked if and to what extent these were attained. By answering these questions and explaining them, change-of-behaviour stages were measured. The preparation phase is when participants at pre-test intend to change behaviour within the next month. The action phase is when specific actions were already taken to realise personal goals, and the maintenance phase is when the individual is trying to prevent relapse.

The extent of changed symptoms and problems from the participants' perspective was measured by a questionnaire with retrospective questions about the state of their mental and physical symptoms as well as work and private problems [44]. The questions stated: 'did (1) psychological symptoms, (2) physical symptoms, (3) private problems and (4) problems at work change after the BAP?' The answers on this questionnaire were categorised as follows: solved, improved but not completely solved, unchanged or deteriorated. Respondents were asked to explain their answer by describing the way they changed their behaviour as for coping with problems and symptoms. They were also asked to what extent the BAP or other influences were responsible according to them. The statements made in this explanation were categorised by the researchers.

Participant's findings about goal realisation and extent of change caused by the BAP were compared with the experiences of persons in their direct social surroundings (spouse, employer and/or friends) with an inventory developed especially for this research. This was an open question about the changes they had noticed since the participant left the program. The qualitative results of this question were compared with the qualitative results of the questions about goal realization and extend of change. This was done by the researchers.

Quality of life was measured with the World Health Quality of Life scale [58–60]. The short version with 26 items has been shown to be sensitive to change, as well as valid and reliable in a study by O'Carroll et al. [60]. Four domains are measured: physical health and independence (seven items), psychological health (six items), social relationships (three items) and environment-related aspects like feeling safe, having access to recreation and being satisfied with living conditions (eight items); two separate items measure overall quality of life. A higher score means a better quality of life. Stress-related symptoms, as another item of quality of life, were measured with the Dutch version of the Hopkins SCL-90 [61]. This is a reliable and valid 90-item instrument consisting of the following eight subscales: phobic anxiety, anxiety, depression, somatisation, obsessive-compulsive behaviour, interpersonal sensitivity, hostility and sleeping problems. A lower score means less symptoms. The SCL-90 measures overall psychological distress,

calculated as the general severity index (GSI score = sum of all 90 items) [62,63].

2.5. Analysis

The analysis included all 122 subjects. It was determined if the difference between pre-test and follow-up test was significant ($p < 0.05$). The univariate test used for this analysis is a Friedman test for three or more dependent variables [64]. To test if the short-term effects were lasting and if there were delayed effects, the post-test and follow-up test (2 and 12 months after the 3-day BAP) were compared with a Wilcoxon signed ranks test. Pearson's correlation coefficients were used to express the correlation between the scores of the mediating factors daily activities and goal realisation. To validate the theoretical model and answer the third research question, discriminant analysis was used to obtain information about the predictive value of these two potentially causal variables [64]. The mean total scores of the difference between pre-test and follow-up test were recoded in two groups: a group with low effect in realising personal goals and changed balance between daily workload and relaxation, and a group with high effect. The cutpoint was made at the median. Then a non-parametric Mann–Whitney test was conducted to assess the hypothesised difference in the outcome measure of quality of life. The difference between pre-measures and follow-up measures on the items of the daily activity diary were correlated to the measured effects on the WHOQOL-bref and the SCL-90 with the Pearson's correlation coefficient. Significant correlations ($p < 0.05$) were tested with the Mann–Whitney test.

Effect size statistics were used to supplement the statistical testing to assess the clinical relevance of results. Cohen's effect size statistic d for paired observations was used [65]. As the variance of the post-test measure is partly explained by the pre-test scores, estimating the magnitude of change requires adjustment of the effect size d' for the correlation (r) between baseline and follow-up test scores.

Cohen defined his effect sizes as follows: trivial effect (< 0.20), small effect (≥ 0.20 and < 0.50), medium effect (≥ 0.50 and < 0.80) and large effect (≥ 0.80). In Middel's study, these thresholds for Cohen's d concurred significantly with the external criterion of patients undergoing treatment, that is experiencing no change, a little improvement, moderate improvement and a great deal of improvement [66]. This study's clinically relevant change was stated at $d \geq 0.50$.

3. Results

Results of monitoring and scanning the BAP in the 47 measured groups showed that the program was conducted as planned. A non-response evaluation evidenced no statistical difference in characteristics or in experienced effects from

Table 1

Pre-, post-test and follow-up test results for a 1-week daily activity diary; scores in hours ($n = 122$)

Activities	Working at pre-test ^a	Pre-test		Post-test		Follow-up		p_1	p_2	r	d
		M	S.D.	M	S.D.	M	S.D.				
		Work	Employed ($n = 46$)	37.1	11.4	35.8	11.5				
	Not working ($n = 76$)	9.8	12.2	13.4	13.2	18.5	15.8	0.000	0.000	0.3	0.7
Volunteer work	Employed ($n = 46$)	1.4	2.4	1.3	2.4	1.6	2.9	0.102	0.090	0.7	0.2
	Not working ($n = 76$)	1.1	2.7	0.8	1.7	1.6	2.9	0.015	0.090	0.0	0.2
Housekeeping	Employed ($n = 46$)	11.9	9.1	10.1	6.5	12.3	8.1	0.180	0.045	0.7	0.1
	Not working ($n = 76$)	15.7	11.3	14.6	7.6	15.0	8.3	0.374	0.472	0.2	0.1
Sports	Employed ($n = 46$)	5.2	5.1	6.4	8.1	5.9	4.2	0.423	0.280	0.2	0.2
	Not working ($n = 76$)	7.3	6.1	6.8	5.9	6.9	4.1	0.136	0.207	0.3	0.1
Indulging in a hobby	Employed ($n = 46$)	11.4	8.6	11.4	7.3	10.4	7.4	0.249	0.218	0.2	0.1
	Not working ($n = 76$)	14.7	10.9	14.9	9.9	11.7	8.3	0.010	0.013	0.3	0.4
Socialising outside the family	Employed ($n = 46$)	12.4	9.6	13.0	9.2	12.8	7.9	0.326	0.460	0.7	0.1
	Not working ($n = 76$)	16.3	10.1	15.0	9.0	13.5	7.2	0.115	0.087	0.3	0.4
Socialising inside the family	Employed ($n = 46$)	21.4	14.0	22.7	13.3	25.5	13.8	0.067	0.093	0.6	0.5
	Not working ($n = 76$)	26.2	16.0	27.2	14.2	28.7	14.9	0.196	0.343	0.2	0.2
Sleeping during the day	Employed ($n = 46$)	3.9	8.3	3.7	7.3	3.1	4.7	0.416	0.303	0.7	0.2
	Not working ($n = 76$)	7.1	7.7	6.8	8.9	5.1	5.9	0.035	0.085	0.4	0.4
Sleeping at night	Employed ($n = 46$)	54.9	7.0	57.0	7.0	55.7	4.8	0.162	0.187	0.5	0.2
	Not working ($n = 76$)	59.3	7.2	59.0	6.9	58.1	6.2	0.116	0.201	0.3	0.2

^a Scores of two groups: fully employed at pre-test (working: $n = 46$) and not working or working part-time due to health problems (not working: $n = 76$); p_1 : of the Friedman test, p_2 : Wilcoxon signed ranks test between post-test and follow-up test, r : correlation coefficient between pre-test and follow-up test, d : Cohen's effect size.

the BAP. Participants' main reasons not to respond were lack of motivation to fill in the inventories [2].

3.1. Changing the balance between work stress and recovery after the BAP

Half of the sub-group receiving disability insurance ($n = 76$) returned to work, at post-test partially and at follow-up full-time. Working hours (Table 1) as well as the ratio between working hours and relaxation hours (volunteer work, sports, hobbies and socialising inside and outside the family) increased significantly and were clinically relevant (ratio changed from 0.18 to 0.24 to 0.33 at follow-up, $p = 0.000$). These people spent less time doing volunteer work, indulging in a hobby and resting or sleeping during the day. Time spent on indulging in a hobby decreased significantly at follow-up, compared with post-test ($p_2 = 0.013$, see Table 1).

The sub-group that was fully employed ($n = 46$) spent significantly more time on socialising inside the family (Table 1). The work/relaxation ratio in this sub-group was 0.83 at pre- and post-test, and decreased at follow-up to 0.69 ($p = 0.045$). Time spent on housekeeping decreased at post-test and increased significantly at follow-up when compared with the post-test ($p = 0.045$, Table 1). Working participants experienced more balance between work and private life and less communication problems at work.

3.2. Personal goal realisation due to the BAP

Personal goals at pre-test were categorised and shown in Table 2. They all point in the direction of changing behaviour. At post-test and follow-up, 85% of the participants stated

they attained their personal goals (36% fully, 49% partially). Changes in goals were mentioned by 8%, another 7% did not attain their goals because, so they stated generally, the BAP could not help them in attaining them. The objectives participants made at the end of the 3-day BAP were categorised just like the pre-training goals. The difference between goals at the start and objectives at the end of the BAP was that the objectives were more specific and concrete and there was a time limit in order to realise the objectives. These objectives were fully realised by 16%, partially by 76% and not realised by 7% of the participants. The nature of the goal or objective (the categories) did not significantly correlate with the degree of realisation.

The qualitative analysis showed that participants turned from a preparation phase during the program, with readiness

Table 2
Personal pre-training goals ($n = 122$)

Category	Sub-category	Percentage
Quality of life	Better functioning	11
	Putting things into perspective	10
	Enjoying life	3
Psychosomatic symptoms	Know and respect my limits	11
	Self-management of health problems	13
	Learn to relax	7
Psychosocial functioning	Be more certain of myself	8
	Learn to cope with emotions	10
	Knowing myself better	6
Lifestyle	Experience more balance in my life	6
	Coping with stress at work	9
	Making important decisions	6

Table 3
Participants' perception of change at post-test and follow-up test (n = 122)

	Psychological symptoms (%)		Physical symptoms (%)		Private problems (%)		Problems at work (%)	
	Post-test	Follow-up	Post-test	Follow-up	Post-test	Follow-up	Post-test	Follow-up
Solved	19	34	20	25	37	52	31	43
Improved	62	49	51	53	36	28	50	42
Unchanged	14	12	19	11	22	12	17	5
Deteriorated	5	5	10	11	5	8	2	10
Total	100	100	100	100	100	100	100	100

to change behaviour, to the action phase of changing behaviour (concrete realisable objectives) to realising personal goals and objectives. The step towards maintenance is hard and seems to take time, as was seen in statements like 'sometimes it's hard to avoid my pitfalls', or 'old habits are difficult to get rid of'.

Participants' perspective on changes of problems and symptoms is shown in Table 3. It was found that the participants experienced an overall reduction of symptoms and problems. The effect increased at follow-up, compared with post-test measures at 2 months. Participants felt that more than 40% of the positive effects were due to the program. Additional professional guidance was taken by 17%, which they indicated to be mainly a result of the positive program effects. That the effect came 'as a matter of course' was stated by 14% of the participants; 25% gave 'other' reasons not related to the BAP, like medication and changes in personal circumstances, such as having a baby or getting a new job.

Representatives of the social environment of the participants (mostly spouses) regard the effect of the BAP as follows: 88% saw positive effects like being more clear in behaviour, more relaxed, making better choices, being more flexible; 7% noticed no effect (the participants themselves did not agree with this observation); 4% were indifferent,

some stating they experienced positive effects and others observing no effect in the same participant. A negative effect (making a confused impression) was mentioned twice, at 1%.

3.3. Improved quality of life after the BAP

Quality of life on all four measured domains increased significantly ($p < 0.05$), as shown in Table 4. Although the 'social relationships' domain changed in a positive direction, it was the only measured item that did not change in a clinically relevant degree ($d = 0.3$).

The average GSI scores decreased significantly and were clinically relevant from an average score of 156 to 137 and 132 at follow-up, as shown in Table 4. The same applies to the average raw scores of every subscale of the SCL-90. Only the effect size d of the scores on the 'phobic anxiety' subscale was lower than 0.5, that is not clinically relevant, but with a change in a positive direction.

3.4. Factors affecting quality of life

Pearson's correlation coefficient between the measured affecting factors (goal realisation and balance between work

Table 4
Pre-, post-test and follow-up-test results on psychosomatic symptoms and quality of life: SCL-90 and WHOQUOL-bref scores (n = 122)

	Pre-test		Post-test		Follow-up		p_1	p_2	r	d
	M	S.D.	M	S.D.	M	S.D.				
SCL-90 subscales										
Phobic anxiety	8.5	2.3	8.0	1.9	7.9	2.00	0.000	0.155	0.5	0.4
Anxiety	17.8	5.9	15.0	5.4	14.3	4.4	0.000	0.009	0.4	0.9
Depression	30.5	9.4	26.8	8.9	25.4	7.2	0.000	0.117	0.5	0.8
Somatisation	21.7	6.7	19.4	6.5	18.5	6.4	0.000	0.025	0.5	0.7
Obsession-compulsion	19.1	6.5	16.1	6.0	15.3	5.0	0.000	0.037	0.6	1.1
Interpersonal sensitivity	29.5	9.2	25.8	8.7	25.3	7.4	0.000	0.527	0.6	0.8
Hostility	8.7	2.9	8.1	2.6	7.7	2.1	0.000	0.345	0.6	0.6
Sleeping problems	6.5	3.2	5.4	2.6	5.4	2.7	0.000	0.776	0.5	0.6
General severity index (GSI)	155.6	38.6	136.9	38.7	131.9	31.1	0.000	0.030	0.6	1.1
WHOQUOL-bref domains										
Physical health and independence	13.5	2.5	14.6	2.5	15.6	2.5	0.000	0.000	0.4	1.1
Mental health	12.8	2.3	14.00	2.5	14.7	2.5	0.000	0.000	0.4	1.0
Social relationships	14.1	2.4	14.7	2.6	14.8	2.5	0.005	0.951	0.4	0.3
Environment	15.9	1.6	16.4	1.8	16.7	1.6	0.000	0.033	0.6	0.7
Overall quality of life	6.8	1.4	7.2	1.3	7.6	1.3	0.000	0.001	0.4	0.8

p_1 : of the Friedman test; p_2 : Wilcoxon signed ranks test between post-test and follow-up test; r : correlation coefficient between pre-test and follow-up test; d : Cohen's effect size for pre-test and follow-up test.

Table 5

Discriminant analysis of high- and low-effect groups on goal realization and changed balance between daily workload and recovery ($n = 122$)

Mediating variables	Effect	Outcome variables (positive score means positive effect)											
		GSI differences between pre-test/follow-up test		WHOQUOL scores difference between pre-test and follow-up test									
		Mean (S.D.)	p	1 ^a		2		3		4		Total score	
		Mean (S.D.)	p	Mean (S.D.)	p	Mean (S.D.)	p	Mean (S.D.)	p	Mean (S.D.)	p	Mean (S.D.)	p
Goal realisation	Low ($n = 70$)	24.8 (33.5)	0.433	1.8 (2.9)	0.110	1.7 (2.6)	0.223	0.2 (2.5)	0.011	-0.4 (1.3)	0.134	0.8 (1.7)	0.434
	High ($n = 52$)	22.2 (26.9)		2.4 (2.1)		2.1 (1.7)		1.2 (2.8)		0.6 (1.5)		0.8 (1.3)	
Changed balance between daily workload and relaxation	Low ($n = 48$)	21.8 (31.8)	0.342	2.1 (2.6)	0.466	1.4 (2.5)	0.043	0.5 (2.5)	0.332	-0.3 (1.6)	0.323	0.8 (1.7)	0.442
	High ($n = 62$)	24.8 (29.7)		2.1 (2.4)		2.6 (2.2)		0.8 (2.7)		-0.5 (1.2)		0.9 (1.3)	

 p -value is of the Mann–Whitney test of difference in outcome variables between low- and high-effect groups on mediating variables.^a HOQUOL domains: (1) physical health and independence, (2) mental health, (3) social relationships, (4) environment.

stress and recovery) is low and not significant ($r = 0.05$). At baseline, high- and low-effect groups analysed for goal realization and balance did not differ from each other on the measured variables of process and outcome or on age, gender and educational level. The discriminant analysis of these high- and low-effect groups showed a statistically significant relation between goal realisation and the 'social relationships' domain, and between balance and the 'mental health' domain of the quality of life WHOQUOL-bref score as shown in Table 5. The other analysed relations were not significant on the discriminant test.

Correlation of the difference between pre-test and follow-up measures on the items of the daily activity diary with the measured effects on the WHOQUOL-bref and the SCL-90 showed a statistically significant relation ($p < 0.01$) for the 'work' item: the more time spent on work, the higher the quality of life and the less psychosomatic symptoms ($r = 0.3$). The Mann–Whitney test where a high-effect group on the 'work' item was compared with a low-effect group showed statistical significant differences on the SCL-90 score ($p < 0.05$), but not on the WHOQUOL scores.

4. Discussion and conclusion

This study confirms the hypothesis that the BAP improves the balance between work stress and recovery: participants become more active physically and socially, and at the same time take the opportunity to recover. There is a difference in changing balance for participants who are fully employed and participants who are not working or are working part-time. The BAP improved reintegration in the short term for the group who was not working or was working part-time, who in turn spent less time on volunteer work and resting or sleeping during the day. The ratio between work and relaxation increased in this group. As expected, this ratio decreased in the working group that

spent more time socialising inside the family and less on working overtime.

Personal goals at pre-test all point in the direction of changing behaviour. At pre-test and follow-up, 85% of the participants stated they attained their personal goals. Objectives made at the end of the 3-day BAP were more concrete than personal goals, and were fully (16%) or partially (76%) attained by 92% of the participants. From the participants' perspective of changes of problems and symptoms, as well as from the measures of the quality of life scores, there is a significant and clinically relevant reduction of symptoms and problems as an effect of the BAP.

As was measured with qualitative analysis and confirmed by the social environment of the participants, they experienced changing behaviour to better handle daily stress. The balance between work stress and recovery became 'more flexible', which means participants experienced more behavioural alternatives. This led to easier realisation of personal goals and objectives to change behaviour with less psychosomatic symptoms, resulting in improved quality of life. These findings were partially confirmed by statistical analysis of affected balance between work stress and recovery, and realising personal goals on the outcome variable of quality of life. The total scores on the balance between work stress and recovery correlated moderately with the score on realising personal goals. This indicates that distinct constructs are being measured. Participants who scored a high long-term positive lasting effect on the balance between daily workload and relaxation also scored a significantly higher effect on a few of the outcome variables of quality of life and psychosomatic symptoms as shown by a discriminant analysis. This was also the fact with daily activities and realising personal goals: the more positive the effect on this variable, the higher the effect on quality of life. These are positive indications of the potential validity of the hypothesised body awareness program model.

These measured changes in pattern of daily activity are in line with other research on extended stress reduction programs [18,22,26,67]. The specific positive relation between decrease of the depression score of the SCL-90 and reintegration was also found in other Dutch research [68]. The follow-up analysis showed that the positive changes concerning balance between work stress and recovery, realising personal goals and objectives, and improving quality of life after 2 months improved further at 12 months. This is an unusual but promising result because, in accordance with the transtheoretical model of behavioural change, lasting positive effects on psychological factors and quality of life need more than just one short program [40]. For most of the variables, the highest change was measured at 2 months with a little further improvement at 12 months, except for the balance of work stress and recovery. There was a delayed effect in this factor in the working group: at post-test, no significant or clinically relevant change in balance was measured; at follow-up, the change was positive and significant. Most of the measures on mediating and outcome variables showed significant and clinically relevant improvements at 12 months.

An interesting, unexpected effect was the change in hours spent on housekeeping in the working group; at post-test this item decreased significantly; at follow-up the amount of hours increased significantly compared with post-test. When the follow-up score was compared with the pre-test score, no change was measured. Perhaps participants intended to spend less time doing housekeeping, but could not change behaviour on this item and ‘relapsed’ into old habits. The qualitative analysis gives some support, although not specifically measured, for the conceptual theory of the stages of change of Prochaska et al. [40]. It showed that participants turned from a preparation phase during the program, with readiness to change behaviour, into the action phase of changing behaviour (specific plans), to realise personal goals and plans. The step towards maintenance is hard and seems to take time, according to the statements participants made.

4.1. Methodological reflection

In interpreting the results of this study, the following considerations are important. The absence of a control group, which is not unusual in program evaluation, poses some limitations on this research. This research design seems to show enough evidence that the found effects are more likely due to BAP than to coincidence. A number of measures were taken to strengthen the design. First, a program theory was specified, and hypotheses derived from it were measured with specific instruments and confirmed by the results. Second, the effects of the 47 groups all point in the same direction. This was shown in the pre- and post-test measures, as well as in a process evaluation. The standardised program was executed as planned. When one group is seen as a case study, this becomes a multiple case

study research design. The more case studies point in the same direction of results, the more generalizable are the conclusions [69]. Third, using triangulation shows that effectiveness interpretation from the patient’s perspective did not differ from the researcher’s perspective nor from the perspective of the representatives of the participants’ social environment and implementors of the BAP [70]. Fourth, there was a theoretical model formulated that has some internal limitations as mentioned above. When a theoretical model is not available, one has to draw from intuition, the best practices of others and informal information sources together with social theory to attack the problem [71]. The researchers tried to extract the implicit theory of the stakeholders and made it as specific, measurable and potentially testable as possible in this stage of the research [72]. Stakeholder’s theory was linked to social science theory. The fact that the model was partially validated with statistical analysis, strengthens the hypothesis that the posed model comes close to a conceptual framework that can be useful in developing an effective program.

All variables in this study were measured with questionnaires. One problem in interpreting results from questionnaires is that there will be regression to the mean. This notwithstanding, the significant and clinically relevant results found in this study clearly reflect that the measured changes are more than just regression to the mean. Participants may also recover naturally, and not necessarily as an effect of the BAP. Still, the duration of the symptoms, having been present for more than a year when starting the BAP, makes it an unlikely all-inclusive explanation of the clinically relevant changes found. Part of the found effects can be explained as a placebo effect, such as getting some personal attention. This is expected to have influence in the short-term and will decrease in the long run. In this study, however, the positive effect measured at 2 months after the BAP increased even more after 12 months were there is no personal attention anymore from the BAP-implementors.

There may be a selection bias for two reasons. First, participants who benefit from the program may be more likely to respond. A non-response evaluation however showed no statistical between-group differences on the measured process and outcome variables, or on experienced program effects; respondents and non-respondents did not differ in age, gender or educational level [2]. Second, participants expressed a desire to change. In terms of the stages of change theory [40], they are already in an advanced stage of readiness to change their behaviour. Hence, the chances for measuring positive effects increase because participants may be more motivated than others, who are not attending the BAP, to change their behaviour. Given that the purpose of this study was to determine the effectiveness of the BAP, since BAP participants have to be motivated to change, internal validity of this study increased because of this motivation. Some caution is still recommended when generalizing results to the population of persons suffering from CAPS.

In conclusion, in this study the BAP was shown to produce significant and clinically relevant effects that lasted 12 months after the program in persons suffering from chronic aspecific psychosomatic symptoms. They reacted more adequately and flexible to disturbances of the balance between work stress and recovery, as was seen in their daily activity pattern as well as in effectively realizing personal goals. This seems to play a crucial role as a intervening variable in increasing quality of life. The negative spiral of problems and symptoms is broken through, and participants are more capable of preventing chronicity and achieving self-management in coping with stress and/or psychosomatic symptoms; this in turn leads to increased quality of life.

4.2. Practice implications

This article sheds new light on the difficulties that individuals with psychosomatic symptoms and the professionals treating them encounter when attempting to manage the chronicity of these problems. By paying more attention to the balance between work stress and recovery, patient educators may be able to increase their effectiveness. Personal goal realization can be effective in guiding people by getting them out of the negative spiral. It can also help to prevent chronicity when a program is started at an early stage of development of psychosomatic symptoms, especially when a medical explanation lacks [73]. Employers and health insurance companies benefit more from early intervention, as well as from short and thus relatively cost-effective programs. In The Netherlands, work stress is clearly seen as a major public health issue [74], and legislative changes in the Work Disability Act in recent years are increasing responsibility of both employers and employees. The earlier interventions are successfully implemented, the lower the costs for employers, health insurance companies and society. Therefore, research into the effectiveness and efficiency of programs such as the Dutch BAP, which is short and easy to implement, is necessary so doctors can successfully choose and refer patients to the most adequate program.

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References

- [1] Landsman JA, Van Wijck R, Groothoff JW, Rispen P. The short term effects of a Dutch body awareness program: better self-management of health problems for individuals with chronic aspecific psychosomatic complaints. *Patient Educ Couns* 2004;55:155–67.
- [2] Landsman JA, Van Wijck R, Groothoff JW. The long-term lasting effectiveness on self-efficacy, attribution style, expression of emotions and quality of life of a body awareness program for chronic aspecific psychosomatic symptoms. *Patient Educ Couns* 2006;60:66–79.
- [3] WHOQOL Group. The World Health Organization quality of life assessment (WHOQOL): development and general psychometric properties. *Soc Sci Med* 1998;46:1569–85.
- [4] Jenkins R. Defining the problem: stress, depression and anxiety: causes, prevalence and consequences. In: Jenkins R, Warman D, editors. *Promoting mental health policies in the workplace*. London: HMSO; 1993.
- [5] Lazarus RS. Coping with the stress of illness. *WHO Reg Publ Eur Ser* 1992;44:11–31.
- [6] Carmack CL, Boudreaux E, Amaral MM, Brantley PJ, de-Moor C. Aerobic fitness and leisure physical activity as moderators of the stress–illness relation. *Ann Behav Med* 1999;21:251–7.
- [7] Salmon P. Effects of physical exercise on anxiety, depression, and sensitivity to stress: a unifying theory. *Clin Psych Rev* 2001;21:33–61.
- [8] Livneh H, Livneh CL, Maron S, Kaplan J. A multidimensional approach to the study of the structure of coping with stress. *J Psychol* 1996;130:501–12.
- [9] Gottlieb BH. Advances in research on social support and issues applying to adolescents at risk. In: Guenter A, Hans-Uwe O, editors. *The psychological study of the nature, determinants, and health-protecting effects of social support*. Berlin: Walter de Gruyter; 1991. p. 199–216.
- [10] Thoits PA. Stress, coping and social support processes: where are we? What next? *J Health Soc Behav* 1995;53:79.
- [11] Halford SG. The art of fitting into our lives. *AORN J* 2000;72:484–92.
- [12] Cassel EJ. The nature of suffering and the goals of medicine. *N Engl J Med* 1982;306:639–45.
- [13] Lewis BA, Marcus BH, Pate RR, Dunn AL. Psychosocial mediators of physical activity behavior among adults and children. *Am J Prev Med* 2002;23:26–35.
- [14] Masse LC, Dassab C, Gauvin L, Giles-Corti B, Motl R. Emerging measurement and statistical methods in physical activity research. *Am J Prev Med* 2002;23:44–55.
- [15] Bauman AE, Sallis JF, Dzwealtowski DA, Owen N. Toward a better understanding of the influences of physical activity. The role of determinants, correlates, causal variables, mediators, moderators and confounders. *Am J Prev Med* 2002;23:5–14.
- [16] Turner JA, Chapman CR. Psychological interventions for chronic pain: a critical review. I. Relaxation training biofeedback. *Pain* 1982;12:1–21.
- [17] Turner JA, Chapman CR. Psychological interventions for chronic pain: a critical review. II. Operant conditioning, hypnosis and cognitive therapy. *Pain* 1982;12:22–46.
- [18] Timmerman IG, Emmelkamp PM, Sanderman R. The effects of a stress-management training program in individuals at risk in the community at large. *Behav Res Ther* 1998;36:863–75.
- [19] Hyman RB, Feldman HR, Harris RB, Levin RF, Malloy GB. The effects of relaxation training on clinical symptoms: a meta-analysis. *Nurs Res* 1989;36:216–20.
- [20] Murphy LR. Stress management in worksettings: a critical review of the health effects. *Am J Health Promot* 1996;11:112–35.
- [21] Kiselica M, Baker S, Thomas R, Reedy S. Effects of stress inoculation training on anxiety, stress and academic performance among adolescents. *J Couns Psychol* 1994;41:335–42.
- [22] McCraty R, Barrios CB, Rozman D, Atkinson M, Watkins AD. The impact of a new emotional self-management program on stress, emotions, heart rate variability, DHEA and cortisol. *Integr Physiol Behav Sci* 1998;33:151–70.
- [23] McCubbin LA, Wilson JF, Bruehl S, Ibarra P, Carlson CR, Norton L. Relaxation training and opioid inhibition of bloodpressure response to stress. *J Consult Clin Psychol* 1996;64:593–601.
- [24] Astin JA. Stress reduction through mindfulness meditation. Effects on psychological symptomatology, sense of control, and spiritual experiences. *Psychother Psychosom* 1997;66:97–106.
- [25] Williams KA, Kolar MM, Reger BE, Pearson JC. Evaluation of a wellness-based mindfulness stress reduction intervention: a controlled trial. *Am J Health Promot* 2001;15:422–32.

- [26] Lee MS, Ryu H, Chung H-T. Stress management by psychosomatic training: effects of ChunDoSunBup Qi-training on symptoms of stress: a cross-sectional study. *Stress Med* 2000;16:161–6.
- [27] Van Dixhoorn J. Body awareness and levels of self-regulation. In: Haruki C, Kaku D, editors. *Meditation as health promotion: a lifestyle modification approach*. Delft: Eburon Publishers; 2000. p. 65–80.
- [28] Kabat ZJ. *Full catastrophe living*. New York: Delta; 1990.
- [29] Edwards J. The determinants and consequences of coping with stress. In: Cooper C, Payne R, editors. *Causes, coping and consequences of stress at work*. Chichester: Wiley; 1988.
- [30] Bandura A. Self-efficacy: toward a unifying theory of behavioural change. *Psychol Rev* 1977;84:191–215.
- [31] Rykman RM, Robbins MA, Thornton B, Gold JA, Kuehnel RH. Physical self-efficacy and actualization. *J Res Person* 1985;19:288–98.
- [32] Weinberg R, Gould D, Jackson A. Expectations and performance: an empirical test of Bandura's self-efficacy theory. *J Sports Psychol* 1979;2:320–31.
- [33] Abramson LY, Seligman MEP, Teasdale JD. Learned helplessness in humans: critique and reformation. *J Abnorm Psychol* 1987;87:49–74.
- [34] Duda JL, White SA. Goal orientations and beliefs about the causes of sport success among elite skiers. *Sport Psychol* 1992;6:334–43.
- [35] Peterson LG. Attribution of style questionnaire. *Cogn Ther Res* 1982;6:287–300.
- [36] De Heus P, De Roode Y, Van Egmond M. Attributiestijl en depressie (attribution style and depression). *Gedrag and Gezondheid Tijdschr Psychol Gezondh* 1987;15:165–73.
- [37] Van Yperen D, Diderich MC. Knikkers of het spel? Verschillen tussen werknemers in doel-oriëntatie, attributies van succes en motivatie (marbles or the game? Differences between workers in goal-orientation, attribution of success and motivation) *Ned Tijdschr Psychol* 1998;53:76–84.
- [38] Folkman S, Lazarus RS. The relationship between coping and emotion: implications for theory and research. *Soc Sci Med* 1988;26:309–17.
- [39] Lazarus RS, Kanner AD, Folkman S. Emotions: a cognitive-phenomenological analyses. In: Plutchik R, Kellerman H, editors. *Theories of emotion*. New York: Academic Press; 1980.
- [40] Prochaska JO, Redding CO, Evers KE. The transtheoretical model and stages of change. In: Glanz K, Lewis FM, Rimer BK, editors. *Health behavior and health education, theory, research and practice*. San Francisco: Jossey-Bass; 1997.
- [41] Marcus BH, Owen N. Motivational readiness, self-efficacy and decision-making for exercise. *J Appl Soc Psychol* 1992;22:3–16.
- [42] King AC, Blair SN, Bild DE, Dishman RK, Dubbert PM, Marcus BH. Determinants of physical activity and interventions in adults. *Med Sci Sports Med* 1992;24:221–36.
- [43] Bhagwan SR. *Het oranje meditatieboek (the orange meditation book)*. Deventer: Uitgeverij Ankh-Hermes bv; 1982.
- [44] Kabat-Zinn J, Lipworth L, Burney R. The clinical use of mindfulness meditation for the self-regulation of chronic pain. *J Behav Med* 1985;8:163–90.
- [45] Dychtwald K. *Bodymind*. Jeremy P. Tarcher Inc.: Los Angeles, New York; 1986 (distributed by St. Martin's Press).
- [46] Kabat-Zinn J. Mindfulness meditation: health benefits of an ancient buddhist practice. In: Goleman, Gurin, editors. *Mind/body medicine*. New York: Consumer Reports Books; 1993. p. 259–75.
- [47] Lowen A. *Bio-energetica: de revolutionaire therapie die de taal van het lichaam gebruikt om de problemen van de geest te genezen (bio-energetics: the revolutionary therapy that uses the language of the body to heal the problems of the mind)*. Amsterdam: Uitgeverij Bert Bakker; 1980.
- [48] Veldman F. *Tasten naar zinvol contact (touching for significant contact)*. Leiden: Spruyt, Van Mantgem en De Does; 1977.
- [49] Landsman JA, Van Wijck R, Verbeek S. The Dutch body awareness programme: background and content. *Dalfsen: Leefstijl Trainingscentrum*, in press.
- [50] Chen HT. *Theory driven evaluations*. Newbury Park, London, New Delhi: Sage Publications; 1990.
- [51] Kraemer HC, Stice E, Kazdin A, Offord D, Kupfer H. How do risk factors work together? Mediators, moderators, and independent, overlapping, and proxy risk factors *Am J Psychiat* 2001;158:848–56.
- [52] Chen HT, Rossi PH. The multi-goal, theory-driven approach to evaluation; a model linking basic and applied social science. In: Freeman HE, Solomon MA, editors. *Evaluation studies: review annual*. London: Sage; 1981.
- [53] Weiss CH. How can theory based evaluation make greater headway? *Eval Rev* 1997;21:501–24.
- [54] Follick MJ, Ahern DK, Laser-Wolson N. Evaluation of a daily activity diary for chronic pain patients. *Pain* 1984;19:373–82.
- [55] Peters PHM, Pols MA. Het meten van lichamelijke activiteit: de vragenlijst (measurement of physical activity: the questionnaire). *Geneeskunde Sport* 1991;24:178–82.
- [56] Kiresuk ThJ, Lund SH. Goal attainment scaling. In: Attkinsson CC, Hargreaves WA, editors. *Evaluation of human services programs*. New York: Academic Press; 1987.
- [57] De Vries J, Van Heck GL. The World Health Organization quality of life assessment instrument (WHOQOL-100): validation study with the Dutch version. *Eur J Psychol Assess* 1997;13:164–78.
- [58] WHOQUOL Group. Development of the World Health Organization WHOQUOL-BREF quality of life assessment. *Psychol Med* 1998;28:551–8.
- [59] O'Carroll RE, Cossar JA, Couston MC, Hayes P. Sensitivity to change following liver transplantation. *J Health Psychol* 2000;5:69–74.
- [60] Arrindell WA, Ettema JHM. SCL-90: handleiding bij een multidimensionele psychopathologie indicator (SCL-90: manual to a multidimensional psychopathology indicator). Lisse: Swets en Zeitlinger; 1975.
- [61] Derogatis LR, Rickels K, Rock AF. The SCL-90 and the MMPI: a step in the validation of a new self-report scale. *Br J Psychiat* 1976;128:280–9.
- [62] Derogatis LR. SCL-90: administration, scoring en procedures manual-I for the R(evised)version. Baltimore: Johns Hopkins University School of Medicine, Clinical Psychometrics Research Unit; 1977.
- [63] Stevens J. *Applied multivariate statistics for the social sciences*. New Jersey: Lawrence Erlbaum Associates; 1986.
- [64] Cohen J. *Statistical power analyses for the behavioural sciences*, revised ed. New York: Academic Press; 1977.
- [65] Middel B. *Assessment of change in clinical evaluation*. Groningen: University of Groningen Stichting Drukkerij C. Regenboog; 2001.
- [66] Kabat-Zinn J, Lipworth L, Burney R, Sellers W. Four-year follow up of a meditation based program for the self-regulation of chronic pain. *Clin J Pain* 1987;2:159–73.
- [67] TNO-arbeid, Trimbosinstituut. *Psychische klachten, interventies en werkhervatting; project 035/1998 (Psychological symptoms, interventions and reintegration)*. TNO arbeid, Trimbosinstituut Eindhoven, 2001.
- [68] Yin RK. *Case study research: design and methods*. Applied social research methods series, 2nd ed. USA: Sage Publications; 1994.
- [69] Swanborn PG. *Methoden van sociaal wetenschappelijk onderzoek (methods of social science research)*. Boom: Meppel/Amsterdam; 1987.
- [70] Rog DJ, Huebner RB. Using research and theory in developing innovative programs for homeless individuals. In: Chen HT, Rossi PH, editors. *Using theory to improve program, policy evaluations*. New York: Greenwood Press; 1992. p. 129–44.
- [71] Lipsey MW, Pollard JA. *Driving toward theory in program evaluation: more models to choose from*. *Eval Progr Plan* 1989;12:317–28.
- [72] Van Mens-Verhulst J, Van Dijkum C, Van Kuijk E, Lam N. The self-regulation of fatigue and associated complaints: an exploratory simulation. *Pat Educ Couns* 2003;49:53–7.
- [73] Houtman ILD, Kompier MAJ. *Courses on work stress: a growing market, but what about their quality?* In: Murphy LR, editor. *Washington, DC, USA: American Psychological Association; 1995. p. xiii, 337–49, 439.*