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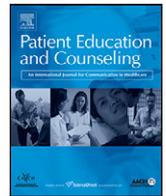
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Short communication

Effects of a cognitive behavioral self-help program on depressed mood for people with acquired chronic physical impairments: A pilot randomized controlled trial

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ABSTRACT

Objective: Aim was to examine whether a new cognitive-behavioral self-help intervention program was effective in improving depressed mood in people with acquired chronic physical impairments.

Methods: Participants were 32 persons with acquired chronic physical impairments and depressive symptoms, who were randomly allocated to the Cognitive-Behavioral Self-help program (CBS) or the Waiting List Control group (WLC). Depression scores were assessed at three measurement moments: at pretest, immediately after completion of the intervention (posttest), and again two months later (follow-up). To evaluate changes in depression scores, Repeated Measures ANCOVA's were performed.

Results: It was shown that respondents who followed the CBS significantly improved compared to the WLC after completion of the program, and that this positive effect remained at 2-months follow-up.

Conclusion: A cognitive-behavioral self-help intervention can be an effective tool to reduce depressive symptoms in people with physical impairments.

Practice implications: A self-help program may prove to be more cost-effective for individuals and for the health care system as a whole. In addition, because a self-help intervention program can be delivered through mail or internet, a high number of people could be reached while overcoming geographical and social barriers to treatment.

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1. Introduction

Estimates by United Nations Research in 2006 suggests that 10–25% of the world-wide population has serious physical impairments due to chronic conditions [1]. Acquiring a later-onset chronic impairment is a life-changing event, not only impacting on important life domains, such as independence and social functioning, but also on mental health [2]. This is reflected in the fact that the prevalence of depressive symptoms among people with various conditions has been shown to be high [3]. The WHO World health survey reported that between 9.3% and 23.0% of persons with one or more chronic physical conditions has comorbid depression [4]. Depressive symptoms on their turn have been shown to be associated with a higher number of medical symptoms and greater physical decline [3–7]. Given these facts,

improvement of depressive symptoms in people with acquired physical impairments should be a major health care goal [3].

In a recent meta-analysis study, the evidence of self-help materials for people suffering from mental health problems has been reviewed. The results showed that there was early support for the use of self-help treatment manuals with depression [8]. Self-help has a number of advantages over face-to-face therapy. The costs are usually much less than the costs of psychotherapy contact and it has the potential to reach a greater proportion of the population, especially those who experience barriers to enter psychotherapeutic services [8,9]. Also in other studies the importance has been emphasized to develop self-help intervention programs for depressive symptoms which are low in costs and easily available to a large group of people [9].

Following on this, the present study aims to test the effectiveness of a new, cognitive-behavioral self-help treatment manual for people with acquired chronic physical impairments and depressive symptoms. The content of this program was developed after the completion of a series of studies on predictors of psychological well-being among people with various medical conditions [10–16] and reflects three main components: relaxation, working on changing maladaptive cognitions, and the

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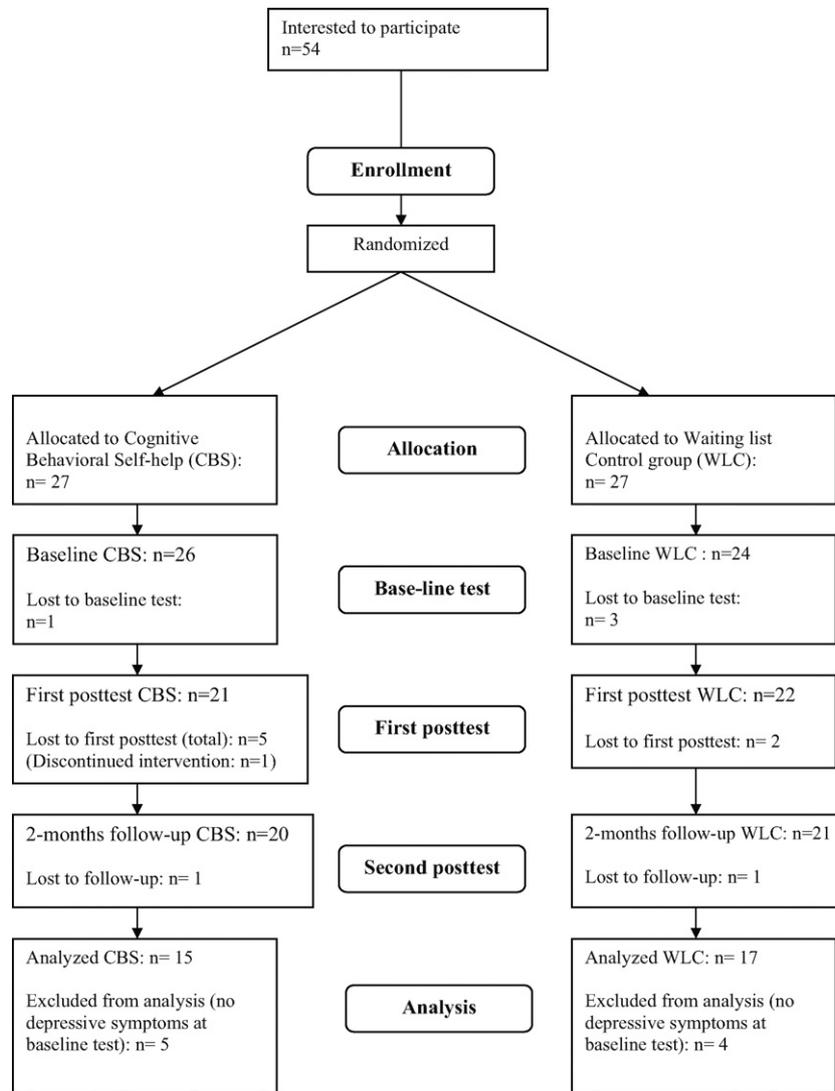


Fig. 1. Flow chart of participants through the study.

attainment of personal life goals. The intervention intends to reduce depressive symptoms.

2. Methods

2.1. Study design

A pilot randomized controlled trial was used with two conditions: a group receiving the Cognitive-Behavioral Self-help program (CBS) and a Waiting List Control group (WLC). The program was based on principles of cognitive-behavioral therapy and worked on three main components: relaxation, changing maladaptive cognitions, and the attainment of personal life goals. It consisted of a workbook, a work program and CD-rom. Participants were asked to work on the intervention 4 days a week (1 h per day) for a period of 4 weeks.

Participants on the waiting list were not offered any intervention. All participants in this condition were offered the self-help program after completion of the study.

2.2. Procedures and participants

Permission for the study was obtained from the local Ethics Committee. Participants were recruited via the snowball method, with the social networks of psychology students as starting point.

Inclusion criteria were: having acquired a physical limitation at the age of 18 years or older and being native speakers of Dutch. People were approached by telephone first. If they showed initial interest, they received written information about the study and a (formal) request to participate.

A total of 54 persons with acquired physical impairments (and native Dutch speakers) agreed to participate in the study. After giving informed consent, participants were randomly allocated to CBS or WLC based on a computer-generated list of random numbers. In addition, participants completed the baseline questionnaire. Respondents who were allocated to the CBS condition received the self-help program at home by regular mail. They worked on the intervention during four weeks, on their own, without contact with researcher or therapist. Immediately after completion of the program, participants of CBS and WLC completed the first posttest. Two months later there was a follow-up assessment. Participants without depression symptoms at base-line (as assessed by a HADS score < 2, see measures) were excluded from the analyses, because the intervention was designed to be effective for people *with* symptoms of depression.¹ The final sample consisted of 15 respondents in the CBS condition,

¹ It was not considered ethical to exclude these participants (without depressive symptoms) from the trial immediately after baseline measurement, after they had shown their interest in participation.

Table 1
Demographic and other background characteristics of participants in self-help CBS and WLC (N = 32).

	Total (N = 32)	CBS (N = 15)	WLC (N = 17)
<i>Demographic characteristics</i>			
Mean age in years (SD)	47.28 (15.68)	49.20 (15.60)	45.59 (16.03)
Gender, N (%)			
Male	5 (15.6%)	2 (13.3%)	3 (17.6%)
Female	27 (84.4%)	13 (86.7%)	14 (82.4%)
Educational level, N (%)			
Lower	15 (46.9%)	6 (40%)	9 (60%)
Higher	17 (53.1%)	9 (52.9%)	8 (47.1%)
Marital status, N (%)			
Single	12 (38.5%)	4 (26.7%)	8 (47.1%)
Married/cohabiting	20 (62.5%)	11 (73.3%)	9 (53.9%)
<i>Other background characteristics</i>			
Mean time since acquisition impairment in years (SD)	5.18 (3.04)	4.47 (3.11)	5.96 (2.84)
Mean severity physical impairment, MOS-SF 36 (SD)	20.29 (5.34)	21.43 (5.20)	19.00 (5.41)
Mean severity of pain (SD)	3.03 (0.97)	2.80 (0.94)	3.24 (0.97)
Mean number of negative life events from year before intervention up to post-test (SD)	0.68 (0.81)	0.95 (0.97)	0.38 (0.50) [*]
Mean number of life events between posttest and follow-up	0.24 (0.64)	0.21 (0.71)	0.28 (0.57)
Type of impairment, N (%)			
Limb impairments	21 (65.6%)	9 (60.0%)	12 (70.6%)
Limb + other impairments	6 (18.8%)	2 (13.3%)	4 (23.5%)
Other	5 (15.6%)	4 (26.6%)	1 (5.9%)

* $p < .05$.**Table 2**
Observed baseline, posttest and follow-up depression scores for participants in self-help CBS and WLC (N = 32).

	Total (n = 32)	CBS (n = 15)	WLC (n = 17)
Mean baseline depression score (SD)	5.78 (3.02)	6.00 (3.13)	5.59 (3.00)
Mean posttest depression score (SD)	5.25 (3.57)	4.67 (2.52)	5.76 (4.29)
Mean 2-months follow-up depression score (SD)	5.07 (3.74)	4.38 (2.66)	5.63 (4.44)
Mean change score 1 (posttest-baseline) (SD)	-0.53 (2.86)	-1.33 (2.92)	0.17 (2.70)
Mean change score 2 (follow-up-baseline) (SD)	-0.79 (3.08)	-1.62 (3.01)	-0.06 (3.04)
Mean change score 3 (follow-up-posttest) (SD)	-0.10 (2.93)	0.15 (2.15)	-0.31 (3.50)

and 17 respondents in the WLC condition, 32 in total (see flow chart, Fig. 1).

Dropout-analyses showed that the only significant difference between dropouts and non-dropouts was severity of physical impairments. They did not differ on depressive symptoms nor on demographic and illness characteristics. No significant differences were found between the non-depressed who were excluded from the analyses and people who remained in the analyses

2.3. Outcomes

The main outcome was depressive mood, measured by the Hospital Anxiety Depression Scale (HADS [17,18]). In addition, three illness-related characteristics were assessed: (1) *severity of the physical impairment*, measured by the Physical Functioning Scale (PF-10), subscale of the Medical Outcomes Study Short Form (MOS-SF 36 [19]); (2) *severity of pain*, measured by a single item (To what extent do you have pain complaints that are associated with the physical limitation(s)?) and scored on a 5 point scale (5 = severe pain); and (3) number of years ago that the *physical limitation was acquired*. In addition, the *number of major negative life events* (such as divorce, death of a spouse or child) from the year preceding the intervention up to posttest measurement, and from posttest to follow-up, were assessed.

3. Results

Sample characteristics are presented in Table 1. Baseline differences between CBS and WLC participants were evaluated with *t*-tests and chi-square tests. The only significant difference was that the CBS group experienced more negative life events in

the year before intervention up to posttest than the WLC group. Therefore, only this variable is controlled for in the main data-analyses. No differences in baseline depression scores between CBS and WLC were observed.

In Table 2, mean depression scores at baseline, first posttest and follow-up are presented, for the total group, and for the CBS and WLC groups separately. In addition, mean change scores for depression over time are presented.

To evaluate the significance of changes in depression scores over time, three 2×2 (group \times time) repeated measures ANCOVA's were performed: from pretest to posttest, from pretest to follow-up and from posttest to follow-up, with negative life events as covariate. Table 3 shows that the intervention significantly improved depression scores from pretest to posttest and from pretest to follow-up, as reflected by the interaction effects for time by condition. No significant changes were found in depression scores from posttest to follow-up.

Table 3
GLM with repeated measurements: multivariate effects for time and time \times condition (N = 32).

	Wilks' lambda	F	df	p	η^2
Time (pretest–posttest)	.83	5.92	1,29	.021	.17
Time \times condition ^a	.83	5.78	1,29	.023	.17
Time (pretest–follow-up)	.80	6.51	1,26	.017	.20
Time \times condition ^b	.86	4.33	1,26	.047	.14
Time (posttest–follow-up)	.99	0.16	1,26	.693	.01
Time \times condition ^c	.99	0.06	1,26	.816	.00

^a Number of life events as covariate (Wilks' lambda = .86; $F(1,29) = 4.79$; $p = .037$).^b Number of life events as covariate (Wilks' lambda = .86; $F(1,26) = 4.20$; $p = .051$).^c Number of life events as covariate (Wilks' lambda = .98; $F(1,26) = 4.79$; $p = .037$).

4. Discussion and conclusion

4.1. Discussion

This study provides preliminary evidence that a cognitive-behavioral self-help manual can produce beneficial effects on depressed mood in adults with chronic acquired physical impairments. Respondents who followed the self-help program significantly improved after completion of the program, compared to the waiting list control group. This positive effect remained after a follow-up period of two months. This is a promising finding, given the fact that, at present, many people of the target group do not obtain the psychological treatment they need, due to impairment-related, geographical and social barriers. Because a self-help intervention program can be delivered through mail or Internet, more persons can be reached while overcoming such barriers [8].

Despite the encouraging results, this study had several limitations, such as the use of self-report instruments, the small sample size and the fact that participants were recruited via the networks of psychology students, which limits the generalizability. Another limitation was that we did not screen on the presence of depressive symptoms before inclusion in the study. Instead we excluded participants without depression from the analyses. We acknowledge that this was not ideal and we advise future studies to screen beforehand. In addition, it should be noted that self-help may not be equally suitable for all patients. For example, a participant needs motivation and self-discipline. Lack of motivation or discipline may result in a lower commitment to complete the program and attrition. Future studies should therefore investigate which patient characteristics are of influence on the effectiveness of self-help programs.

4.2. Conclusion

The results of this pilot study showed that a self-help intervention program, working on relaxation, changing maladaptive cognitions, and attainment of personal life goals, might be effective in reducing depressed mood in people with acquired chronic physical impairments. Further studies are however necessary to focus on questions such as which persons benefit most from self-help and under what circumstances.

4.3. Practice implications

Given the high prevalence of depressive symptoms among people with acquired chronic physical impairments, effective psychological interventions are urgently needed. A cognitive-behavioral self-help intervention might be an effective tool for this purpose. A self-help program may prove to be more cost-effective for individuals and for the health care system as a whole, in contrast to interventions that require extensive

clinical contact. In addition, it can easily be made available to large numbers of people, without the existence of a waiting-list, and it may overcome numerous impairment-related barriers that people often encounter in classical individual or group-based therapy situations.

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