

# Effects of a Cognitive Behavioral Self-help Program on Emotional Problems for People With Acquired Hearing Loss: A Randomized Controlled Trial

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The aim of the study was to examine whether a cognitive-behavioral self-help program was effective in improving depressed mood and anxiety in people with acquired deafness. Participants were 45 persons with acquired deafness, randomly allocated to the Cognitive-Behavioral Self-help (CBS) group or the Waiting List Control (WLC) group. Depression and anxiety scores were assessed at three measurement moments: at pretest, immediately after completion of the intervention (posttest), and again 2 months later (follow-up). To evaluate the effectiveness of the program, repeated measures analyses of covariance were performed. The results showed that depression and anxiety symptoms in the CBS group significantly improved after completion of the program, compared to the WLC group. There was no relapse from posttest to follow-up. It was concluded that a cognitive-behavioral self-help intervention could be an effective tool to reduce symptoms of depression and anxiety in people with acquired deafness.

Worldwide the number of people with moderate to profound hearing impairments is more than 250 million, of which the majority acquired their hearing loss in adulthood as a result of a disease, infection, tumor, head injury, or aging processes (World Health Organization, 2010). Unlike people whose deafness is congenital, people with acquired hearing loss (AHL) have usually grown up as a hearing person and their hearing has deteriorated, gradually or suddenly, later

in life. The most severe form of acquired hearing impairment is profound AHL, reflecting the inability to use sound alone (aided or unaided) to follow speech, even in optimal environmental conditions (Hallam, Ashton, Dherbourne, & Gailey, 2006). AHL causes substantial communication problems with serious complications for ordinary social activities, social relationships, employment, and mental health (Fusick, 2008; Hallam et al., 2006; Thomas & Herbst, 1980).

Although the literature on the psychological consequences of AHL is scarce, the studies that have been performed confirm that acquired deafness increases the risk of developing emotional problems. Jones & White (1990) concluded on the basis of a review of studies on the relationship between acquired hearing impairments and mental health that people with the hearing impairment were more vulnerable to depression than people from the general population. More recent studies confirmed these results for people with profound (Hallam et al., 2006) as well as for people with mild to moderate AHL (Monzani, Galeazzi, Genovese, Marrara, & Martini, 2008). In the study of Hallam et al., the prevalence rate of clinical levels of depressed mood among people with profound AHL was found to be 4.8 times higher than in the general population. In the study of Monzani et al. (2008) also significant more reports of anxiety were found in participants with AHL than in participants

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without hearing problems. In addition, Nachtegaal et al. (2009) reported the finding that the more severe the hearing loss was, the higher the risk for psychological dysfunction. Others reported a stronger negative effect of hearing impairment on psychosocial well-being among younger and middle-aged people compared to older people (Tambs, 2004). Despite these findings, it has been emphasized that the psychosocial needs of people with AHL are not being recognized or met and that this is probably true cross-nationally (Fusick, 2008; Hallam et al., 2006).

There are several barriers that prevent people with AHL from taking appropriate psychological treatment. In the first place, communication options are limited for individuals who have acquired their hearing loss in adulthood. New ways of communication, with or without hearing aids, have to be learned, such as sign language or lipreading. Not everyone will succeed in the acquisition of these new communication modalities. In the study of Hallam et al. (2006), the primary mode of communication reported by people with profound AHL was lipreading, supplemented by aided hearing where this was possible, whereas the use of signing was rarely reported (Hallam et al., 2006). Working with people with AHL therefore requires other skills than working with people with prelingual deafness. It has been noted that most mental health therapists lack the experience and knowledge about the adaptations needed when working with clients with AHL, for example, in terms of adequate lighting, seating, visibility, tone, or voice loudness (Fusick, 2008).

As a consequence, people with acquired hearing problems often do not receive adequate psychological assistance (Fusick, 2008), especially if they have mild to moderate symptoms of depression or anxiety. Given the needs of this underserved population, effective psychological intervention programs are urgently needed.

An alternative to or a first step (in terms of stepped care<sup>1</sup>) in professional treatment of mild to moderate depression or anxiety in people with AHL is to develop an effective self-help intervention that can easily be used by an individual, with minimal or no professional guidance. Self-help interventions are relatively inexpensive for individuals and for the health care system as a whole, in contrast to interventions that require intensive clinical contact. In addition, they

can easily be made available to large numbers of people, reduce waiting lists, and overcome numerous deafness-related barriers that people with AHL often encounter in classical individual or group-based therapy situations (Papworth, 2006; Sobel, 1995). Promising evidence has been found for self-help interventions in their potential to reduce psychological symptoms (Gellatly, Bower, Richards, Gilbody, & Lovell, 2007; Morgan & Jorm, 2008; Papworth, 2006). In the past decades, self-help interventions have been developed for many subgroups suffering from emotional problems but not explicitly for people with AHL.

To fill in this gap, the present authors prepared a cognitive-behavioral intervention program in book format for people with AHL. It involved an adaptation of an existing evidence-based self-help program for people with physical impairments, which reflects three main components: relaxation, working on changing maladaptive cognitions, and the attainment of personal life goals.

The original self-help program for people with physical impairments had been developed after a series of studies on predictors of psychological well-being among people with various conditions, which showed that the following factors were of main importance to the prevalence of depression: failing goal adjustment and a cognitive style of rumination and catastrophizing (Garnefski, Grol, Kraaij, & Hamming, 2009; Garnefski, Koopman, Kraaij, & ten Cate, 2009; Garnefski & Kraaij, 2010; Garnefski, Kraaij, de Graaf, & Karels, 2010; Garnefski et al., 2009; Schroevers, Kraaij, & Garnefski, 2008). The self-help program for people with physical impairments has been proven effective in a randomized controlled study (Garnefski, Kraaij, & Schroevers, in press). A predictor study among 119 persons with AHL confirmed that the same predictors were of importance to the prevalence of depression in this group as well (Garnefski & Kraaij, 2011). The adapted specific self-help program for people with AHL therefore included the same three main components, that is, relaxation, working on changing maladaptive cognitions, and the attainment of personal life goals. The adaptation was made in close cooperation with members of the Dutch Foundation for Sudden Deafness who tested the intelligibility and accessibility of the materials for the target group. It consisted of a rewording of introductory texts, examples, and

exercises in order to better fit the AHL population. More specifically, the self-help program consisted of a workbook, a work program, and a CD-ROM. Participants were asked to work on the intervention 4 days per week (1 hr per day) for a period of 4 weeks. In the first week, participants were asked to do relaxation exercises and to continue these exercises in the following 3 weeks. In the second and third week, participants learned to identify and change irrational cognitions and to practice counterconditioning. In the fourth week, they were guided to formulate a realistic, concrete goal and to improve their self-efficacy to reach this goal.

The aim of this article was to examine whether this cognitive-behavioral self-help program was effective in improving symptoms of depression and anxiety in people living with severe-to-profound AHL. The effectiveness of the program was tested in a randomized controlled trial with two conditions: a Cognitive-Behavioral Self-help (CBS) group and a Waiting List Control (WLC) group.

## Methods

### Participants

A total of 55 persons participated in this study. All had severe-to-profound hearing loss (60 dB or higher), had acquired their hearing loss at the age of 18 years or older, were native speakers of Dutch, and had at least mild symptoms of depression and/or anxiety at baseline, as assessed by the Hospital Anxiety Depression Scale (HADS; see measures). Further sample characteristics are described in the results section.

### Measures

*Symptoms of depression and anxiety.* Symptoms of depression and anxiety were measured by the HADS. The HADS is a 14-item self-report screening scale originally designed to assess the presence of anxious and depressive states in the setting of a medical outpatient clinic (Zigmond & Snaith, 1983). The instrument has been established as a much applied and convenient self-rating instrument to assess anxiety and depression with good specificity and sensitivity in populations with somatic and/or mental health problems (Herrmann, 1997). The HADS contains

two subscales, one for anxiety (HADS-A) and one for depression (HADS-D). An example item of the Anxiety scale is: "I get a sort of frightened feeling as if something awful is about to happen." An example item of the Depression scale is: "I can laugh and see the funny side of things." Both subscales consist of seven items, to be scored on 4-point scales. Total scores are obtained by summing up the seven items and may range from 0 to 21, with higher scores indicating more severe symptoms of depression/anxiety. As was described in the procedures, one of the inclusion criteria for participation in this study was the reporting of at least mild symptoms of depression or anxiety at baseline. This was assessed by a HADS score  $\geq 3$  on either the depression or the anxiety subscale. Psychometric properties of the HADS have been shown to be good in terms of factor structure, subscale intercorrelations, homogeneity, and internal consistency (Spinoven et al., 1997). In a study on the validity of the HADS, it was concluded that the questionnaire performed well in the assessment of depression and anxiety disorders in somatic, psychiatric, and primary care patients as well as in the general population (Bjelland, Dahl, Tangen Haug, & Neckelmann, 2002). The same study reported mean reliabilities of .83 and .82 for HADS-D and HADS-A, respectively, and correlations with other commonly used questionnaires in the range of .49-.83.

HADS scores were assessed at four measurement moments. The first measurement was to screen on the inclusion criterion. The subsequent three measurements were the main intervention measurements: preceding the intervention (baseline), immediately after completion of the intervention (posttest), and again 2 months later (follow-up).

Reliabilities of the HADS-D and HADS-A subscales at screening were .82 and .86, respectively. The mean depression score at screening was 7.05 ( $SD = 4.58$ ), reflecting mild-to-moderate depression. The mean anxiety score at screening was 7.50 ( $SD = 4.38$ ), reflecting mild to moderate anxiety (Zigmond & Snaith, 1983). By contrast, a mean depression score of 3.4 ( $SD = 3.3$ ) and a mean anxiety score of 5.1 ( $SD = 3.5$ ) were found, respectively, in a general population sample aged 18-65 years (Spinoven

et al., 1997). The depression and anxiety scores of the main baseline, posttest, and follow-up measurements are presented in the Results section.

*Hearing loss characteristics.* The following deafness-related variables were assessed: *severity of the hearing loss* (60–90 dB, reflecting “severe hearing loss” vs. >90 dB, reflecting “profound hearing loss”; the number of *years ago that the hearing loss was acquired*; the *age of acquisition* of hearing loss; whether one had a *cochlear implant* (CI) or used a *hearing aid*; and whether one had complaints of *tinnitus* or not.

*Negative life events.* A checklist was used to collect data on the *number of major negative life events* experienced (such as divorce, death of a spouse or child) from the year preceding the intervention up to pretest, from pretest to posttest measurement, and from posttest up to follow-up.

*Demographic characteristics.* The following demographic characteristics were included: age, gender, educational level, and marital status.

### Procedures

After permission was obtained from the Ethics Committee from the Leiden University Psychology Department, AHL participants were recruited via the Dutch Foundation for Sudden Deafness (Stichting Plotsdoven). All benefactors of this organization received a direct mailing, which included an information letter, an informed consent form and a short screening questionnaire. In addition, there was a call on the organization’s Web site. People could respond by e-mail if they were willing to participate, after which they received the same package. The screening questionnaire included items that enabled us to check whether someone was eligible for the present intervention study on basis of the following inclusion criteria: Having severe-to-profound hearing loss (60 dB or higher), having acquired the hearing loss at age 18 or older, and being native speaker of Dutch. In addition, because the proposed intervention was designed for use by people with existing symptoms of anxiety or depression, only participants reporting

these symptoms were included, on the basis of obtained HADS scores.

In total, 178 persons sent back the screening questionnaire and informed consent form, of whom 103 persons met the inclusion criteria. Subsequently, these 103 persons received a second mailing in which they were asked whether they were willing to participate in a study to test the effectiveness of a self-help program to improve their psychological well-being. A total of 55 persons agreed to participate in the study.

The participants were randomly allocated to CBS ( $n = 28$ ) or WLC ( $n = 27$ ) based on a computer-generated list of random numbers. In addition, participants completed the baseline questionnaire (CBS:  $n = 28$ ; WLC:  $n = 27$ ). Respondents who were allocated to the CBS condition received the self-help program at home by regular mail. After completion of the program, participants completed the posttest (CBS:  $n = 19$ ; WLC:  $n = 26$ ). Two months later, they completed the follow-up questionnaire (CBS:  $n = 17$ ; WLC:  $n = 26$ ). At all measurements, the HADS was administered to assess the symptoms of depression and anxiety. Participants on the waiting list were not offered any intervention during the course of the study. After completion of the study, all participants in this condition were offered the self-help program. See flow chart in Figure 1.

### Statistical Analyses

Independent *t*-tests and chi-square tests were used to calculate baseline differences in anxiety and depression, demographic characteristics, hearing loss characteristics, and negative life events between completers (those who completed the program) and dropouts (those who did not complete the program and had dropped out at posttest). The same statistical tests were used to study baseline differences between CBS and WLC participants (regarding demographic characteristics, hearing loss characteristics, and negative life events). Variables for which significant differences between CBS and WLC were found were included as control variables in the subsequent analysis of covariance (ANCOVA).

To evaluate changes in the continuous outcome measures (depression and anxiety) from pretest to

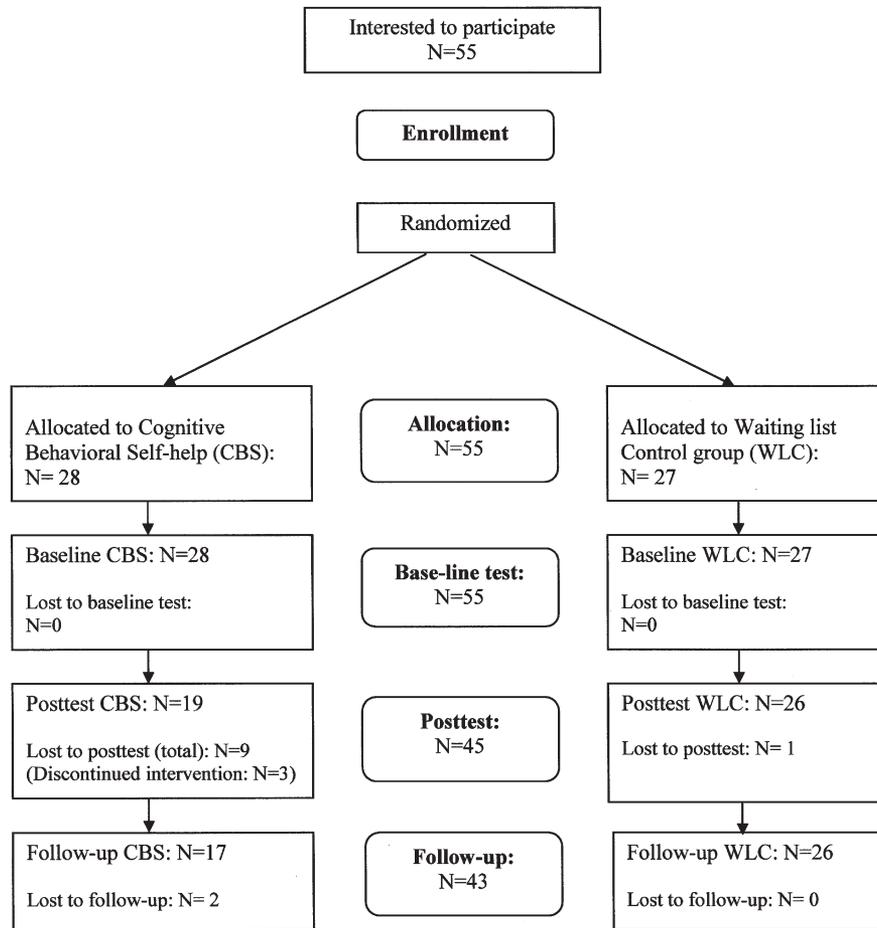


Figure 1 Flow chart of participants through the study.

posttest, a  $2 \times 2$  (group  $\times$  time) repeated measures ANCOVA was performed with group as a between-groups factor and time as a within-subjects factor and with significant baseline control measures set as the covariates. ANCOVA was also performed to evaluate changes in depression and anxiety scores from posttest to follow-up.

## Results

### Conditions

In this randomized controlled trial, two conditions were established, CBS and WLC, with three measurement moments: baseline, posttest, and follow-up. Of the 55 original participants (19 CBS and 26 WLC), 10 dropped out at posttest (9 CBS and 1 WLC) and additional 2 dropped out at follow-up (2 CBS and 0 WLC). See flow chart in Figure 1 for the details.

### Drop-out Analyses

Completers and dropouts at posttest did not significantly differ in their baseline reporting of depression, anxiety, number of life events, and demographic characteristics. They did, however, significantly differ in the reporting of tinnitus ( $\chi^2(1) = 6.10; p = .013$ ) and use of a CI ( $\chi^2(1) = 6.10; p = .013$ ): In the dropout group, 40% had tinnitus and 10% were CI users. Tinnitus was reported by 79% and a CI by 33.3% of the completers.

Because only two persons dropped out at follow-up, it was not considered informative to compare them with the remaining participants at follow-up.

### Characteristics of the Final Sample

Sample characteristics are presented in Table 1 (for total group, treatment group, and control group).

**Table 1** Demographic and other background characteristics of participants in self-help CBS and WLC ( $N = 45$ )

	Total ( $n = 45$ )	CBS ( $n = 19$ )	WLC ( $n = 26$ )
Demographic and background characteristics			
Mean age in years ( $SD$ )	57.07 (14.98)	59.05 (15.30)	55.61 (14.86)
Gender, $N$ (%)			
Male	17 (37.8)	7 (36.8)	12 (63.2)
Female	28 (62.2)	10 (38.5)	16 (61.5)
Educational level, $N$ (%)			
Lower	22 (48.9)	9 (47.4)	10 (52.6)
Higher	23 (51.1)	13 (50.0)	13 (50.0)
Marital status, $N$ (%)			
Single	13 (28.9)	6 (31.6)	7 (26.9)
Married/cohabiting	32 (71.1)	13 (68.4)	19 (73.1)
Mean number of negative life events from year before intervention up to posttest ( $SD$ )	0.84 (1.02)	0.63 (0.90)	1.00 (1.10)
Mean number of life events between posttest and follow-up	0.44 (0.72)	0.21 (0.41)	0.62 (0.85)
Hearing loss characteristics			
Mean time since acquisition hearing loss in years ( $SD$ )	17.12 (14.26)	22.06 (16.25)	13.51 (11.65)*
Mean age of acquisition hearing loss ( $SD$ )	40.48 (15.39)	36.99 (15.74)	43.14 (14.88)
Profound hearing loss 90 dB or higher, $N$ (%)	24 (53.3)	14 (73.7)	10 (38.5)*
Tinnitus, $N$ (%)	34 (79.1)	14 (73.7)	20 (79.1)
Cochlear implant, $N$ (%)	15 (33.3)	7 (36.8)	8 (30.8)
Hearing aid, $N$ (%)	20 (44.4)	7 (36.8)	13 (50.0)

Note. CBS, Cognitive-Behavioral Self-help; WLC, Waiting List Control.

\* $p < .05$ .

The mean age of the persons who participated in this article was 57.07 years ( $SD$  14.98). The majority were female (62.2%), were married or cohabiting (71.1%), and had higher educational levels (51.1%). The mean age at which they had acquired their hearing loss was 40.48 ( $SD = 15.39$ ) and the mean time since acquisition was 17.12 years ( $SD$  14.26 years). Of the participants, 53.3% had a profound hearing loss of 90 dB or higher, with the remainder having severe hearing loss (60–90 dB), 79.1% had tinnitus, 33.3% had a CI, and 44.4% had a hearing aid (3% had both CI and hearing aid). Both the mean number of life events experienced from the year before intervention up to posttest and from posttest to follow-up was below 1. Demographic and illness-related characteristics did not differ between the treatment group and the control group, except for mean time since acquisition of hearing loss ( $t(43) = 2.06$ ;  $p = .046$ ) and severity of hearing loss ( $\chi^2 = 5.47$ ;  $p = .019$ ). The CBS group acquired their hearing loss a longer time ago than the WLC group and reported significantly more often a hearing loss of 90 dB or higher (Table 1).

Therefore, these two variables are controlled for in the ANCOVA.

In Table 2, mean depression and anxiety scores at baseline, posttest, and follow-up<sup>2</sup> are presented for the total group, as well as for the CBS and WLC groups separately. No baseline differences were observed between participants in CBS and WLC regarding depression ( $t(43) = 0.35$ ;  $p = .725$ ) and anxiety scores ( $t(43) = 0.00$ ;  $p = .999$ ).

#### Effects on Outcome Depression

Repeated measures ANCOVA evaluated the changes in depression scores over time (Table 3). The first two analyses evaluated the significance of changes in depression scores from pretest to posttest, with and without the covariates (time since acquisition and severity of hearing loss). Without inclusion of covariates, the difference in effectiveness between CBS and WLC (time by condition) was found to be close to statistical significance ( $p = .057$ ). With the inclusion of covariates, the effect was statistically

**Table 2** Observed baseline, posttest, and follow-up depression scores for participants in self-help CBS and WLC ( $N = 45$ )

	Total ( $n = 45$ )	CBS ( $n = 19$ )	WLC ( $n = 26$ )
<b>Depression</b>			
Mean baseline depression score ( <i>SD</i> )	7.07 (3.99)	7.32 (4.57)	6.88 (3.59)
Mean posttest depression score ( <i>SD</i> )	6.85 (4.00)	6.54 (4.03)	7.08 (4.05)
Mean follow-up depression score ( <i>SD</i> )	6.79 (4.15)	6.65 (4.50)	6.88 (3.99)
Mean change score 1 (posttest—baseline) ( <i>SD</i> )	−0.27 (2.55)	−0.77 (2.68)	0.12 (2.43)
Mean change score 2 (follow-up—posttest) ( <i>SD</i> )	−0.06 (2.52)	0.02 (1.96)	−0.08 (2.89)
<b>Anxiety</b>			
Mean baseline anxiety score ( <i>SD</i> )	7.58 (4.28)	7.58 (4.37)	7.58 (4.30)
Mean posttest anxiety score ( <i>SD</i> )	6.30 (4.04)	5.17 (3.09)	7.13 (4.49)
Mean follow-up anxiety score ( <i>SD</i> )	6.59 (4.00)	5.67 (3.45)	7.19 (4.27)
Mean change score 1 (posttest—baseline) ( <i>SD</i> )	−1.44 (2.58)	−2.41 (2.63)	−0.70 (2.33)
Mean change score 2 (follow-up—posttest) ( <i>SD</i> )	0.41 (2.58)	0.95 (2.65)	0.06 (2.52)

Note. CBS, Cognitive–Behavioral Self-help; WLC, Waiting List Control.

significant ( $p = .050$ ), supporting the observation that the decrease in depression scores from pretest to posttest was larger in the CBS condition than in the WLC condition. No significant changes in depression were found from posttest to follow-up (neither with nor without covariates), indicating that improvement in depression scores remained stable after posttest.

#### Effects on Outcome Anxiety

Repeated measures ANCOVA were also used to study changes in anxiety scores over time (Table 3). The first two analyses studied the significance of changes in anxiety scores from pretest to follow-up (with and without covariates). The results showed that the decrease in anxiety scores from pretest to posttest was significantly larger in the CBS condition than in the WLC condition, both with ( $p = .011$ ) and without the inclusion of covariates ( $p = .017$ ).

The subsequent two analyses evaluated the significance of changes in anxiety scores from posttest to follow-up, with and without covariates. No significant effects were found, indicating that improved anxiety scores remained stable after posttest.

#### Discussion and Conclusion

This article provides evidence that a cognitive–behavioral self-help program can produce beneficial effects with regard to symptoms of depression and anxiety in adults with severe-to-profound hearing loss. The results showed that respondents who followed the self-help program significantly improved compared to the WLC group after completion of the program and that this positive effect remained after a follow-up period of 2 months. Because a self-help intervention program can be delivered through regular mail or through the Internet, a high number of people could

**Table 3** GLM with repeated measurements: Multivariate effects for Time and Time  $\times$  Condition ( $N = 45$ )

	Wilks' Lambda	<i>F</i>	<i>df</i>	$\eta^2$	<i>p</i>
<b>Effects on Depression scores (time <math>\times</math> condition)</b>					
From pretest to posttest	0.90	3.86	1,36	.10	.057
From pretest to posttest, with covariates <sup>a</sup>	0.89	4.11	1,34	.11	.049 <sup>b</sup>
From posttest to follow-up	0.99	0.30	1,34	.01	.586
From posttest to follow-up, with covariates <sup>a</sup>	0.99	0.03	1,32	.00	.875
<b>Effects on Anxiety scores (time <math>\times</math> condition)</b>					
From pretest to posttest	0.84	7.15	1,38	.16	.011 <sup>b</sup>
From pretest to posttest, with covariates <sup>a</sup>	0.85	6.30	1,36	.15	.017 <sup>b</sup>
From posttest to follow-up	0.96	1.60	1,36	.04	.214
From posttest to follow-up, with covariates <sup>a</sup>	0.95	1.68	1,34	.05	.203

<sup>a</sup>Severity of hearing loss and duration of hearing loss were included as covariate.

<sup>b</sup>Indicates significant result ( $p < .05$ ).

be reached while overcoming existing barriers to psychological treatment (Papworth, 2006).

That cognitive-behavioral self-help programs may have positive effects on depression, and anxiety is not new (Gellatly et al., 2007; Morgan & Jorm, 2008). Recently, positive effects of self-help were also confirmed in people with acquired physical impairments and in people with HIV (Garnefski, Kraaij, & Schrevers, in press; Kraaij et al., 2010). This article suggests that an adapted form of this self-help program may also be beneficial to help people adjust to and cope with their acquired hearing problems. In the present sample, the self-help intervention had stronger effects on anxiety symptoms than on depression symptoms. In our previous studies in other target groups, the effects that we found for depression were stronger (Garnefski et al., in press; Kraaij et al., 2010). It is, however, too early to conclude that this result is specific to people with AHL. For this conclusion to be drawn, we need replication studies with larger samples and comparison studies with other samples.

Despite the encouraging data presented here, this study had several limitations. First, the sample size of this article was rather low. Therefore, it was not possible to analyze differential effects between subgroups of participants. In addition, although intervention effects were significant, mean depressive symptom change scores were modest. Another limitation of the design was that symptoms of depression and anxiety were measured by self-report, which may have caused some bias. Future studies should also include other measurement methodologies, such as expert judgments or clinical diagnosis.

Although it is obvious that self-help programs have advantages in their potential to reach a great proportion of the population, especially those who experience barriers in accessing psychotherapeutic services (Papworth, 2006), self-help also has disadvantages. A disadvantage of participating in a self-help program is that there is no contact with a treatment provider. Therefore, the participant needs motivation and self-discipline. Lack of motivation or discipline may result in attrition and a lower commitment to complete the program. In this article, the drop-out in the self-help group was rather high. This suggests that some minimal guidance and/or other

motivational components might have to be added to the program. Suggestions for future studies are to investigate individual differences in motivation and self-discipline skills in relation to drop-out and effectiveness and to compare the effectiveness of self-help programs with and without minimal guidance. It might also be of interest to explore the characteristics of those who benefited most from the intervention and of those who benefited least. Unfortunately the present sample is too small to perform such secondary analyses.

In addition, it is important to acknowledge that self-help may not be equally suitable for all patients. It is reasonable to assume that there is no one best treatment for every patient. Therefore, self-help should not be seen as a replacement for face-to-face therapy. Some patients may benefit more from individualized face-to-face contact, whereas others may benefit more from group-based sessions or a self-help program. It is important that future research will focus on questions such as which individuals benefit from which type of treatment. This might be done by using larger samples and more complex designs that allow studying the influence of patient characteristics on the effectiveness of self-help in comparison to other treatment programs.

Another issue that should be noted refers to the communication problems and decreased social interactions that often make people with AHL feel isolated. Some of the psychological symptoms of people with acquired hearing problems may even be directly related to this isolation. The isolation itself is not being directly addressed by the self-help program. More than that, working on a self-help program without any form of personal contact might even intensify these possible feelings of isolation. Some form of guidance may therefore be of particular importance to the present target group. In this context, it could be worthwhile to investigate whether an Internet forum could be established for participants, in future. Another idea is to set up a system of coaching, run by individuals who successfully completed the program at an earlier occasion.

Concluding, the results showed that a self-help intervention program, focusing on relaxation, changing maladaptive cognitions, and the attainment of

personal life goals, was effective in reducing symptoms of depression and anxiety in people with severe-to-profound AHL. Although self-help has limitations, the reality is that at present too many people with hearing loss do not receive the psychological help they need. This article suggests that a self-help intervention can be an effective tool for this purpose. Further studies are, however, necessary to focus on questions such as which persons benefit most from self-help and under what circumstances. It is recommended to include some form of (minimal) guidance or coaching in the present and future self-help programs for people with AHL.

## Notes

1. Stepped care refers to care offered in stages (steps), starting with the lowest intensity interventions, continuing with higher intensity interventions if no or too little effect has been obtained.

2. Reliabilities of the HADS depression subscale were .83, .81, and .83 and the reliabilities of the HADS anxiety scale were .89, .85, and .87 at baseline, posttest, and follow-up, respectively.

## Conflicts of Interest

No conflicts of interest were reported.

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