

Treating tinnitus distress via the Internet: A mixed methods approach of what makes patients seek help and stay motivated during Internet-based cognitive behavior therapy



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ABSTRACT

Background: Internet-based cognitive behavioral therapy (ICBT) has proven to be an effective treatment in improving patients' ability to cope with tinnitus. However, some patients prefer face-to-face therapy to ICBT, and a few studies have shown considerable dropout rates if the treatment is not guided. This renders it important to identify factors that contribute to the commencement and continuation of ICBT programs.

Aims: Because treatment motivation and expectations are important factors in psychological treatment, the aim of our study was to investigate what leads tinnitus patients to seek out ICBT, what helps them to keep up with the treatment, and what (if any) impact these factors have on dropout rates and treatment outcomes.

Method: 112 tinnitus patients taking part in ICBT for tinnitus responded to symptom-related questionnaires at three points in time (pre-treatment, post-treatment, and one-year-follow-up) and to a questionnaire consisting of open-ended questions about their treatment motivation and expectations before beginning treatment. Data were analyzed using qualitative content analysis, and the results were used to divide the participants into groups. The treatment outcomes of these groups were compared using *t*-tests, χ^2 -tests, and both one-factorial and mixed ANOVAs.

Results: Four main categories emerged as factors conducive to starting treatment: 1) Targets participants wanted to address, 2) circumstances that led to participation, 3) attitudes towards the treatment, and 4) training features. Participants identified six facilitators for continuing the treatment: success, training, individual attitude, hope, evidence, and support. Naming specific tinnitus-associated problems as targets was associated with greater improvement from pre-treatment to 1-year-follow-up. Describing an active involvement in the treatment was related to increased improvement from post-treatment to follow-up.

Conclusion: There are several motivational factors that tinnitus patients consider relevant for beginning and continuing ICBT. Particularly, focusing on specific targets that do not involve the tinnitus itself, and encouraging participants to take an active role in treatment may increase treatment effectiveness. However, further hypothesis-guided research is necessary to confirm our explorative results.

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1. Introduction

Tinnitus is the perception of noises in the ears or head without any evident external sound stimulation (Baguley et al., 2013a). The prevalence of tinnitus in the general population is 10–15%, but only about

1–2% experience significant impairment by this condition (Axelsson and Ringdahl, 1989; Baguley et al., 2013b). This suggests that the majority of people with tinnitus are able to deal with it in a way that does not greatly affect their quality of life. However, for those with severe tinnitus, perceiving the noise is often associated with increased levels of overall strain, difficulties in concentration, feelings of helplessness, and sleep problems (Henry et al., 2005). In addition, severe tinnitus is often accompanied by other psychological disorders, such as anxiety and depression, and a generally impaired quality of life (Härter et al., 2004; Holgers et al., 2005; Kennedy et al., 2004).

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Therefore, the development and improvement of effective treatment methods for people who experience severe tinnitus is an important task. While there is no evidence showing a cure for chronic tinnitus as a result of medical treatments (Baguley et al., 2013a), cognitive behavioral therapy (CBT) has shown moderate effect sizes for reducing the annoyance and distress caused by the noise (Hesser et al., 2011; Martinez-Devesa et al., 2010). However, many tinnitus sufferers do not have access to CBT because its dissemination is often restricted to a limited number of treatment locations. In addition, many patients hesitate to seek psychological treatment because they attribute the tinnitus to somatic, rather than psychological causes, and thus perceive psychotherapy as inappropriate (Weise et al., 2008; Wickramasekera, 1989). Internet-based CBT (ICBT) might be a viable treatment alternative to face-to-face CBT for several reasons: first, ICBT is more flexible, more easily accessible, and more time and cost effective (Andersson et al., 2014). Second, due to its rather technical appearance, ICBT might be perceived as less “psychological,” and be more easily accepted by patients who perceive their illness as somatic. Third, tinnitus patients might prefer the anonymity of ICBT over conventional CBT if they wish to avoid the perceived stigmatization that is often feared when seeing a psychotherapist (Gega et al., 2013). Internet-based tinnitus treatment has shown medium to large pre-post effect sizes, and the effectiveness has been comparable to group CBT (Andersson, 2015; Jasper et al., 2014; Kaldo et al., 2008; Weise et al., 2016). However, many patients still prefer face-to-face therapy to ICBT (Mohr et al., 2010), and several studies on ICBT with no guidance have shown considerable dropout rates (Andersson et al., 2002; cf. Donkin and Glozier, 2012), which indicates that there is still room for improvement.

Motivational factors, including expectations, have been shown to influence the process and outcomes of psychotherapy (Greenberg et al., 2006; Schneider and Klauer, 2001). An effective psychotherapy must not only combat pessimistic expectations, but also avoid unrealistic expectations likely to lead to disappointment (Westra et al., 2010). It is also recommended for psychotherapeutic treatments to focus on motivational aspects in order to facilitate the integration of new strategies into everyday life (Härter et al., 2005). Hence, knowledge of patients' specific expectations and motivation might be helpful in the development of strategies to encourage patients to seek out and keep up with psychological treatments. Although there is a large body of research on motivational factors (Rosenbaum and Horowitz, 1983) and expectations in general (Rief et al., 2015), little is known about what motivates tinnitus patients to enter psychological treatment in general, and ICBT in particular. One paper that addressed this issue found the rather counterintuitive result that participants with high levels of helplessness, low expectations and a lack of motivation to actively change behaviors had better treatment outcomes. However, this was only true for the subgroups that received therapist support; it was not true for the groups that only received self-help (Kaldo et al., 2006).

The aim of the current study was to identify underlying motivational factors, such as certain expectations, that might play a role in a patient's decision to begin and complete an Internet-based tinnitus treatment, and to investigate whether these factors have an impact on rates of treatment dropout or on the treatment outcome in terms of reduction of tinnitus distress. Because little is known about this topic, and in order to gain a comprehensive understanding of our research question, we decided to use a mixed methods approach, which has the advantage that it can answer a more complete range of research questions because the researcher is not limited to use only a single method or approach (Johnson and Onwuegbuzie, 2004). First, we conducted a qualitative content analysis in order to identify crucial factors. Integrating qualitative analyses into randomized, quantitative studies can result in a more complete understanding of patients' opinions (Donovan et al., 2002; Featherston and Donovan, 1998; Svartvatten et al., 2015). Subsequently, we carried out an exploratory quantitative analysis using the results from the qualitative analysis in order to investigate what motivational factors might contribute to successful treatment

completion. Finally, due to the yet unclear evidence in terms of whether active coping attempts are helpful for dealing with the tinnitus (Andersson et al., 2004; Kaldo et al., 2006), we were interested in the potential benefit of demonstrating a motivation to assume an active role in the treatment process. For this purpose, we used background knowledge about different coping approaches (Lazarus, 1966) to differentiate between participants with different levels of reported active treatment involvement and investigated relations to treatment completion and outcome.

Our analysis has the potential to contribute to an improved understanding of how tinnitus sufferers can be encouraged to seek psychological treatment, and what helps them to maintain their progress over a longer period of time. This knowledge can in turn add to the development of well-researched, effective ICBT programs for tinnitus.

2. Methods

2.1. Participants

Data for the present article were collected as part of a randomized controlled trial carried out in Germany comparing ICBT with or without therapist support (Rheker et al., 2015). Participants were recruited through advertisements, articles on websites and in magazines, and through waitlists for participation in an ICBT study on tinnitus. Inclusion criteria for the study were, among others: 1) age ≥ 18 years; 2) tinnitus that has persisted for at least six months; 3) at least mild tinnitus distress; 4) Internet access; 5) sufficient German language skills to understand the texts; 6) no previous participation in a similar study; 7) no current psychotherapy for tinnitus; 8) tinnitus as primary problem (see Rheker et al., 2015 for a more detailed description).

All 112 included participants (42 female, 70 male) answered the questions about their expectations and motivation at pre-assessment. 98 participants completed the post-assessment, and 72 completed the follow-up. Demographics are displayed in Table 1. On average, the participants had experienced tinnitus for 11 years, with responses ranging from 6 months up to 50 years ($SD = 11.2$). Before beginning ICBT treatment, 86 participants (76.8%) reported having a hearing impairment, all participants perceived the tinnitus as annoying at least sometimes, and all but one participant claimed the tinnitus was bothersome at least sometimes (for a detailed overview of the flow of participants and the sample characteristics see Rheker et al., 2015).

Participants were informed about study design and treatment prior to the start of the study, and were asked to give their written informed consent. The ethics committee of the Department of Psychology of the University Marburg approved the study protocol. The study was registered at www.clinicaltrials.gov (NCT01927991).

Table 1
Demographics.

Characteristics	M (SD) or n (%)
Age in years, <i>M</i> (<i>SD</i>)	52.64 (11.90)
Number females, <i>n</i> (%)	42 (37.5)
Number males, <i>n</i> (%)	70 (62.5)
Citizenship, <i>n</i> (%)	
German	103 (91.7)
Other	9 (8.3)
Highest education level, <i>n</i> (%)	
Secondary school	45 (40.2)
A-level	22 (19.6)
Academic degree	45 (40.2)
Employment, <i>n</i> (%)	
Employed	74 (66.1)
Unemployed	5 (4.5)
Retired	17 (15.2)
Other	16 (14.3)

2.2. Procedure

Prior to treatment, participants answered questions about demographics and tinnitus characteristics. In addition, they completed two questionnaires assessing tinnitus-related distress as the primary outcome, and depression as the secondary outcome at three points in time (pre-treatment, post-treatment and one-year-follow-up). Finally, participants answered several open-ended questions regarding their expectations and motivation. All questions were delivered online through a treatment portal that could only be accessed with a personal code and password (Vlaescu et al., 2015). After the initial assessment, participants who met the inclusion criteria were randomly assigned to one of two groups. Both groups received an Internet-based self-help program, but one group received the ICBT program with the possibility of contacting an Internet-therapist (support on demand group), and one group received the ICBT program without support (non-support group). The randomization was done in two blocks, and treatment for the two groups began at two different points in time (in October 2012 and in May 2013). The ICBT program was identical for both groups, but the amount of therapeutic support and guidance throughout the treatment differed. In the support group participants could ask for support whenever they had questions while they worked on the self-help-program. In the non-support group participants also had an individual contact person; however, participants could only contact this person in case of technical problems or severe deterioration (c.f., Rozentel et al., 2014). The treatment lasted for a period of 10 weeks, and was comprised of 12 mandatory and 6 optional modules. It was based on an ICBT manual for treating tinnitus (Kaldo and Andersson, 2004) that was translated and modified for use in Germany (for details see Jasper et al., 2014; for a detailed description of the procedure see Rheker et al., 2015).

The post-assessment at the end of the treatment and the 12-month-follow-up assessment included the same symptom-related questionnaires as the pre-treatment assessment. The present qualitative analysis is based on the open-ended questions regarding expectations and motivation at pre-treatment. Post-assessment and follow-up data on the primary and secondary outcome measures were used for the quantitative analysis.

2.3. Measures

The qualitative analysis was based on the following three questions:

- 1) What are your expectations for changes (if any) in your tinnitus distress during the self-help program?
- 2) What motivated you personally to begin the self-help treatment?
- 3) What could help you to maintain or increase your current motivation to carry out the training?

For the quantitative analysis, the following outcome measures were used:

Mini-Tinnitus-Questionnaire (Mini-TQ; Hiller and Goebel, 2004): The Mini-TQ contains twelve items that assess tinnitus distress; it is a shortened version of the established Tinnitus-Questionnaire (TQ; Goebel and Hiller, 1992). The Mini-TQ's ability to detect improvement during treatment has proven to be comparable to that of the TQ, and it has well-established psychometric properties (Hiller and Goebel, 2004).

Tinnitus Handicap Inventory (THI; Kleinjung et al., 2007; Newman et al., 1996): The 25-item THI possesses good psychometric properties, and is an internationally well-accepted and widely used measure to quantify the impact of tinnitus on everyday life (Kleinstäuber et al., 2015). It has been used in previous treatment studies on tinnitus (Hesser et al., 2012; Kaldo et al., 2008).

Patient Health Questionnaire (PHQ-9; Löwe et al., 2002): This measure was used to assess depressive symptoms. Each of the DSM-IV criteria for depression is captured by one of the nine items. The PHQ-9 has well-established psychometric properties, and is an internationally

used standard measure when evaluating depressive symptoms in a clinical setting (Gilbody et al., 2007; Titov et al., 2011).

Dropout at post-treatment and follow-up was employed as a dichotomized variable (yes/no). Participants were also asked how many modules of the training they completed, and the reported number was used as an outcome measure for the quantitative analysis.

2.4. Analyses

We analyzed data by using a mixed methods approach consisting of qualitative and quantitative analyses (Johnson and Onwuegbuzie, 2004). This approach enabled us to first identify potentially relevant factors for taking part in and keeping up with ICBT for tinnitus, and then to quantify the relationship between these factors and treatment outcomes afterwards.

In order to investigate participants' responses to the open-ended questions, qualitative content analysis (Krippendorff, 2013) was used. The object of this method is to identify a person's perspective on a certain topic (White and Marsh, 2006), which in our case was the participants' expectations and motives regarding the tinnitus treatment. An inductive approach was used in order to promote further understanding of what expectations and motives participants consider important to start and keep up with an Internet-based self-help treatment for tinnitus. This approach was chosen both because there is a lack of research on this specific topic, and as a means to avoid being anchored by predetermined categories (cf. Bengtsson et al., 2015).

According to Krippendorff (2013) the content analysis process contains the following steps: 1) data sampling; 2) unitizing data; 3) contextualizing data; 4) relating the findings to the research question. In the present study, data were analyzed line-by-line, and meaning units were extracted using the participants' own words. Categories and sub-categories were built by grouping thematically similar units together. After building the categories and coding the statements along the categories, we went through the original responses again and checked whether these were in line with the assigned categories, and also if there were any additional categories that emerged from the data. This iterative process was used to make sure that the answers were coded consistently according to their original meaning. Even though some statements could potentially be reflective of more than one category, they were assigned only to the one deemed most suitable. Because the participants had not yet been assigned to their groups when they answered the open-ended questions, group allocation did not play a role in our analysis. We present the categories and subcategories below with relevant excerpts from the patients' responses. After every statement was assigned to one of the categories by the first author, the reliability of the categories was validated by use of agreement/disagreement ratings by the second and third authors.

In addition to the qualitative analysis, we conducted some exploratory quantitative analyses to get an idea of the factors that might contribute to successful treatment completion. In these analyses, we compared groups of participants that named a certain motive to each other in terms of reported number of completed modules, dropout (yes/no) and Mini-TQ, THI and PHQ-9 scores. Comparisons were carried out by means of one-factorial ANOVAs and *t*-tests (modules completed), χ^2 -tests (dropout), and mixed ANOVAs with time as the within-subjects variable (pre-, post-, follow-up assessment), and group as the between-subjects variable ($p < 0.05$). In a final analysis, we used a deductive approach in order to investigate the potential benefits of an active involvement in the treatment process. For this purpose, we went through the data and coded whether participants' answers reflected an intention to personally contribute to improving their situation. This was done without regard for their treatment target. We compared the three categories 1) active personal treatment involvement ($n = 32$), 2) no personal involvement mentioned ($n = 49$) and 3) personal involvement ambivalent/unclear ($n = 31$). Two independent raters (authors 1 and 6) conducted the coding. The inter-rater reliability was

very good (Cohen's $\kappa = 0.86$), and disagreements were resolved with discussion.

3. Results

3.1. Qualitative content analysis

While conducting the qualitative content analysis, we realized that the answers to questions 1 and 2 differed considerably from responses to question 3. This is not surprising because the questions addressed relevant factors at different points in time: the first two questions addressed expectations and motives for treatment commencement; whereas, question 3 asked what participants considered helpful to maintain their motivation over the treatment period. Therefore, it was deemed appropriate to conduct two separate qualitative analyses, with one targeting relevant factors for starting treatment, and the other one addressing factors that maintain treatment motivation. We decided to analyze question 1 and 2 together because some participants found it difficult to differentiate between the two questions (i.e., they sometimes named expectations in question 2 and motives in question 1).

Altogether, 636 statements (based on meaning units) could be extracted from the answers to the three questions (question 1: 235, average 2.1 per participant (p.p.), range 1–6; question 2: 252, 2.3 p. p., range 1–8; question 3: 149, 1.3 p. p., range 0–4). After removing repetitions within participants and answers that were unrelated to the questions, this number decreased to 574. 437 identified relevant factors for treatment commencement ($M = 3.9$, $SD = 1.7$, range 1–11), and 137 identified factors for maintaining motivation ($M = 1.2$, $SD = 0.6$, range 0–4). The agreement/disagreement rating yielded a different categorization for 18 of the 574 statements between coder and rater 1 (percentage agreement: 96.86%), and for 2 statements between coder and rater 2 (percentage agreement: 99.65%), demonstrating a good reliability of the categories. Emerging disagreements were solved by a consensus discussion.

In the following, we first report the factors that were identified as relevant to beginning the treatment, and then what participants considered helpful in maintaining treatment motivation.

3.1.1. Factors for treatment commencement

The first qualitative content analysis regarding treatment commencement yielded four different main categories: (I) *target*, (II) *circumstances*, (III) *attitude*, and (IV) *training*. Expectations and motives related to something participants wanted to achieve with the help of the treatment were assigned to the category *target*. The category *circumstances* refers to previous experiences or the current situation of the participants. Participants also described different approaches to the treatment, which are reflected in the *attitude* category. The features of the training that contributed to participation in this kind of treatment are identified in the category *training*. Several subcategories emerged from these four categories that will be described and illustrated by participants' statements in the following sections (see Figure 1 for an overview of the categories and subcategories including how frequent they were named).

- (I) *Target*: All but two participants mentioned a target they wanted to address with the help of the treatment; the (a) *tinnitus* itself was identified most frequently. However, participants differed in terms of how they wanted to address the tinnitus. Most said they wanted to learn to deal with the tinnitus better, which led to the creation of the sub-subcategory (a1) *coping*. A much smaller number of participants, the (a2) *reduction* sub-subcategory, wanted an actual lessening of the noise: "I would be very grateful for a lessening of the noise" (participant 82). An even smaller number of participants, the (a3) *cure* sub-subcategory, wanted a complete elimination of their tinnitus: "I wish to discover a method that frees me of the tinnitus" (participant 97).

There were also some participants who only mentioned that they wanted to do something about their tinnitus, but did not specify what they wanted to do.

The *coping* (a1) participants mostly described specific ways they hoped to deal with the tinnitus. Some said they wanted to be able to regulate or control the noise by diverting their attention away from the tinnitus and becoming less aware of it, which can be referred to as *regulation*: "Maybe to find a way to 'control' the tinnitus, which means for me, to regulate thoughts in order to not have to listen to the noise permanently all of the time" (participant 8).

Others in the *coping* (a1) sub-subcategory described wanting to learn to make peace with their tinnitus and live with it, or in other words, to obtain *acceptance* of the tinnitus: "(...) be able to live not without or against, but WITH the tinnitus" (participant 78). A third group of participants in the *coping* (a1) sub-subcategory was labeled *less impact*. This participant group made statements about wanting the tinnitus to have less impact on their lives, e.g., to give less power to the tinnitus, to feel less impaired by the tinnitus, and/or to be more indifferent to the tinnitus: "I finally want to do everything I feel like again and what is fun for me, and to free myself from these thoughts, (that) I have to slacken off, go to bed early, pay attention to my diet, just to make sure that I behave correctly so that the tinnitus does not worsen" (participant 67).

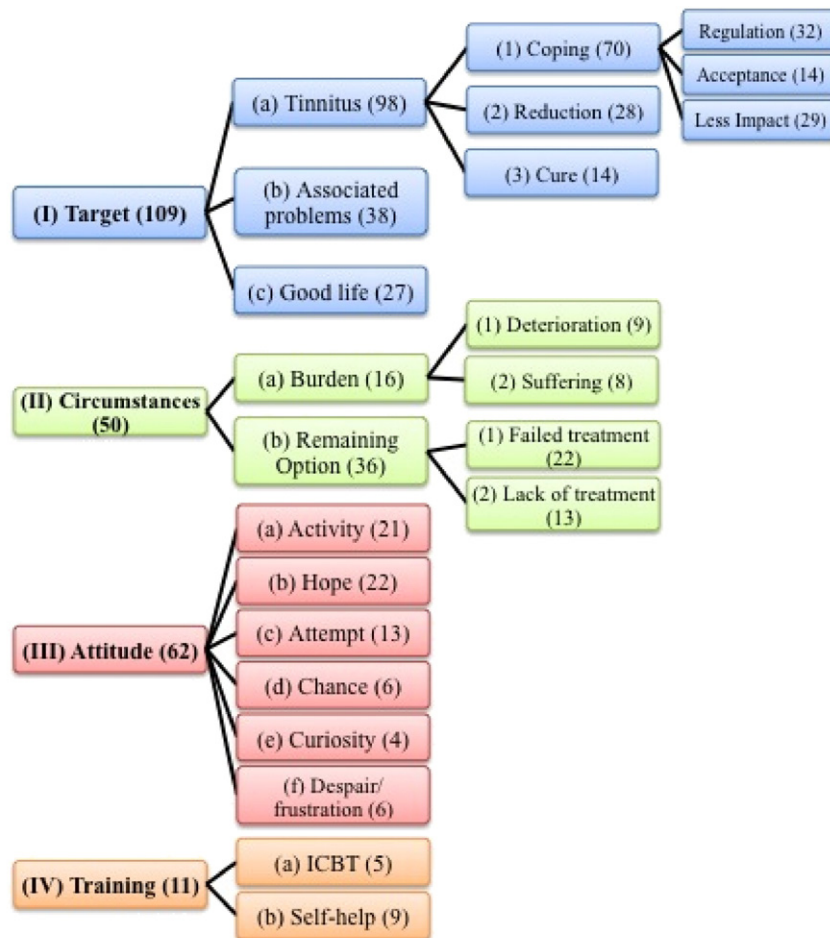
In the *target* category, a second subcategory was created and labeled (b) *associated problems*. It contained participants' statements regarding difficulties that occur concomitant with or as a consequence of the tinnitus, and that they wanted to address in the treatment, such as sleep problems or perceived low capabilities (e.g., feeling exhausted, having trouble concentrating, or wishing to get along in life better). Other participants in this subcategory reported that they wanted to address emotional issues, such as depression or fear that are caused by the tinnitus. Another fairly common "target" was the wish for an ease of mind, which refers to regaining or developing relaxation, balance, calm and serenity. Other targets in the *associated problems* subcategory were being able to take part in social life and hobbies again, and reducing the negative consequences of one's behavior for other people (e.g., to become less irritable and be less of a burden for significant others).

Other targets mentioned by the participants can be grouped together into a subcategory labeled having a (c) *good life*. This subcategory includes statements communicating expectations or motivation for increasing quality or joy in life: "I want to lead a happy and satisfied life without feeling sick or impaired" (participant 12).

- (II) *Circumstances*: This category captures factors regarding participants' current situation, including previous experiences with their tinnitus that led to their current situation. Two subcategories emerged from the participant responses: those who reported experiencing their tinnitus as a (a) *burden*, and those who considered this treatment as one (of very few) (b) *remaining options*. The *burden* subcategory included statements regarding a fairly recent (a1) *deterioration* that led to perceiving the tinnitus as more burdensome: "The long years with tinnitus were tolerable so far (...). Now, it is currently more dominant and burdensome, I have the feeling my previous methods (...) are not effective at all anymore" (participant 78).

The *burden* subcategory also included statements concerning the overall (a2) *level of suffering* caused by the tinnitus: "But if it remains this way with the ear noises, I hope that I won't get old. It really puts a strain on me (...). I have to do something in order to feel better" (participant 74).

In the (b) *remaining options* subcategory there were also two different kinds of answers. Some participants cited (b1) *failed treatments* in the past as the reason why they decided to participate in



Note: The respective number of participants who named a category is presented in brackets behind each category.

Fig. 1. Factors for treatment commencement.

the training: “Because I tried pretty much everything and the physicians (...) are not able to or do not want to help” (participant 100).

Other participants described a (b2) lack of treatment options, i.e. that there is no medical treatment available for tinnitus, or that they would have to pay for other treatments themselves.

In addition to these two subcategories, there were some participants who claimed that they participated because the treatment seemed like a suitable option for them.

(III) *Attitude*: This category reflects participants' different ways of approaching the treatment. The statements in this category were often non-specific, i.e., they were not related to a specific target, but rather, to an overall attitude towards the treatment. Six different subcategories emerged. In the first subcategory, (a) *activity*, participants stated that they wanted to assume a proactive role in changing their situation with the help of the treatment: “I think that a long-lasting improvement can only happen at the hands of myself” (participant 95).

Participants in the second subcategory, (b) *hope*, said that a feeling of hope was their primary motivation for participation. In the (c) *attempt* subcategory, participants regarded the treatment as simply a new approach or another shot at improving their condition. Participants in the fourth subcategory, (d) *chance*, claimed to view the treatment as a chance for

them that maybe they otherwise would not have had. These motives for treatment participation are fairly general, so it can be difficult to understand exactly what they mean, but they appear to all be pointing towards wanting some kind of improvement of their situation.

Another motive participants cited for participation was their (e) *curiosity* about the rather unconventional treatment method. The final attitude subcategory was not quite as positive. Participants in this subcategory said that they began the treatment out of (f) *despair/frustration*: “(...) I have to turn the corner with the tinnitus, otherwise, ‘life’ is not possible anymore. (...) The self-treatment would firstly be a straw I clutch at and I clutch at many things in hope of not having to drown in the tinnitus terror” (participant 66).

(IV) *Training*: A small amount of patients mentioned features of the training that motivated them to take part in the study. These participants described unique features of ICBT that raised their interest in the study, or mentioned the *self-help* aspect of the training. Participants who cited the unique features of ICBT expressed a liking for the time flexibility, the ability to do the training from home, and the modern technology.

(V) *Additional motives*: There were several statements that did not fall under any of these categories, but were named too seldom to warrant the creation of new categories. These statements included stating explicitly that they would not expect too much

Table 2
Treatment outcome depending on whether specific tinnitus-associated problems were mentioned in qualitative description.

	Within groups			Between groups				
	Pre M (SD)	Post M (SD)	FU M (SD)	Time effect ^a	Pre-post	Pre-FU	Group effect ^a	Interaction ^a
THI								
Associated problems	61.92 (15.23)	33.38 (17.89)	28.56 (16.06)	F (1.671, 70) = 98.275***	t (24) = 6.499*** t (46) = 7.795***	t (24) = 9.888** t (46) = 6.998***	F (1.671, 70) = 1.208	F (1.671, 70) = 5.700**
Associated problems not mentioned	58.68 (17.85)	39.74 (20.59)	38.98 (23.27)					
Mini-TQ								
Associated problems	17.60 (4.36)	9.84 (4.54)	8.12 (4.94)	F (1.833, 70) = 98.275***	t (24) = 6.272*** t (46) = 9.077***	t (24) = 8.489** t (46) = 9.217***	F (1.833, 70) = 1.153	F (1.833, 70) = 3.463*
Associated problems not mentioned	16.98 (3.83)	11.32 (5.21)	10.49 (5.77)					
PHQ-9								
Associated problems	10.28 (4.25)	6.32 (3.84)	4.24 (2.62)	F (1.834, 70) = 42.163***	t (24) = 3.819** t (46) = 3.858**	t (24) = 6.236*** t (46) = 4.865***	F (1.834, 70) = 0.457	F (1.834, 70) = 7.272**
Associated problems not mentioned	9.09 (4.67)	7.04 (4.64)	6.66 (5.19)					

Note. n = 25 in the Associated problems group, n = 47 in the no associated problems group; FU = follow-up; THI = Tinnitus Handicap Inventory; Mini-TQ = Mini-Tinnitus Questionnaire; PHQ-9 = Patient Health Questionnaire.

^a Degrees of freedom have been corrected according to Greenhouse-Geisser.

*** p < 0.001.

** p < 0.01.

* p < 0.05.

of the treatment (n = 3) and claiming that their primary participation motive was to make a contribution for other people (i.e., supporting research progress or sharing treatment experiences with other affected people; n = 3).

3.1.2. Facilitators for treatment maintenance

The factors participants considered relevant for maintaining treatment motivation can be grouped into six categories. The most pronounced factor was (I) success (n = 59). Participants in this category said that the feeling that the training could potentially help them to reach or get closer to their individual treatment goal would increase their motivation. Sometimes they specified their treatment goals, but more often they kept their answers rather unspecific, which could be due to the fact that they had already discussed this on previous questions.

Other participants stated that their motivation could be sustained by learning something new about their tinnitus, or feeling like the training was comprehensible and/or pleasurable. This category of participants was labeled (II) training (n = 25). Another group of participants described their own (III) attitude (i.e., intrapersonal dispositions like a high self-motivation or a lot of self-discipline; n = 16) as absolutely sufficient to maintain treatment motivation. In contrast to these participants who did not see any need for external motivation, others said it would help them if they received some kind of feedback or support from either the study team or their social environment. This group of participants was labeled (IV) support (n = 15). Another category of participants believed that (V) hope (n = 11) would sustain their motivation. This category differs from the success (I) category because simply the prospect of success is sufficient for them. The final category was labeled (VI) evidence (n = 8), and it contains the participants who said that receiving information about the effectiveness of the treatment or hearing about the experiences of others would keep them motivated. This could be studies showing treatment success or reports by other patients.

Similar to the first analysis, making a contribution for other people or future research was mentioned as a source of motivation, but only twice, so it did not warrant the creation of a new category.

3.2. Quantitative analyses

Results regarding the general treatment efficacy are reported in the original paper (Rheker et al., 2015). In the present study, we investigated whether certain participant categories were associated with dropout, module completion and improvement on the THI, Mini-TQ and PHQ-9. All participants who completed the follow-up assessment (N = 72) were included. We decided to use only the complete sample in order to be able to investigate relations between qualitative and quantitative results.

Below, we first report the relations between the extracted factors and treatment progress over time, and subsequently, their correlations with module completion and dropout. Finally, we report whether the intention to assume an active role in the treatment process has an influence on treatment outcome and completion. Our main interest was to investigate if the factors extracted in our qualitative analysis were associated with treatment progress over time. To perform this analysis, we began by employing mixed ANOVAs and paying particular attention to the time x group interactions. The analyses showed a significant interaction effect for the category (Ib) associated problems. That is, participants who mentioned specific problems associated with the tinnitus (e.g. sleep disturbances or fears) as a target (n = 25) improved more over the course of the treatment on the THI, the Mini-TQ and the PHQ-9 than those who did not mention specific associated symptoms as a target (n = 47) (F [1.671, 70] = 5.70, p < 0.01 for the THI; see Table 2). Furthermore, participants who mentioned an activity

Table 3

Treatment outcome depending on whether qualitative statements revealed an active role in the treatment process.

	Pre <i>M</i> (<i>SD</i>)	Post <i>M</i> (<i>SD</i>)	FU <i>M</i> (<i>SD</i>)	Within groups			Between groups			
				Time effect ^a	Pre-post	Pre-FU	Group effect Pre-post-FU ^a	Post-FU	Interaction Pre-post-FU ^a	Post-FU
THI										
Active personal treatment involvement	53.88 (14.15)	37.76 (18.55)	29.53 (21.08)	$F(1.598, 69) = 77.165^{***}$	$t(16) = 4.050^{**}$	$t(16) = 5.647^{***}$	$F(1.598, 69) = 0.771$	$F(2, 69) = 0.295$	$F(3.196, 69) = 1.007$	$F(2, 69) = 2.777^{\cdot}$
No personal involvement mentioned	63.29 (17.13)	38.06 (19.37)	38.18 (20.48)		$t(33) = 7.274^{***}$	$t(33) = 7.013^{***}$				
Personal involvement ambivalent/unclear	58.95 (18.00)	37.50 (19.81)	35.52 (23.53)		$t(20) = 5.454^{***}$	$t(20) = 5.536^{***}$				
Mini-TQ										
Active personal treatment involvement	16.88 (3.39)	10.88 (4.51)	7.65 (5.49)	$F(1.759, 69) = 98.880^{***}$	$t(16) = 4.594^{***}$	$t(16) = 6.548^{***}$	$F(1.759, 69) = 0.654$	$F(2, 69) = 0.578$	$F(3.517, 69) = 1.365$	$F(2, 69) = 3.839^*$
No personal involvement mentioned	17.68 (3.98)	10.88 (4.77)	10.76 (5.08)		$t(33) = 7.472^{***}$	$t(33) = 7.757^{***}$				
Personal involvement ambivalent/unclear	16.67 (4.58)	10.62 (5.93)	9.52 (6.19)		$t(20) = 5.984^{***}$	$t(20) = 6.763^{***}$				
PHQ-9										
Active personal treatment involvement	8.29 (2.64)	6.12 (3.72)	4.29 (3.37)	$F(1.182, 69) = 28.660^{***}$	$t(16) = 2.486^*$	$t(16) = 4.688^{***}$	$F(1.182, 69) = 1.355$	$F(2, 69) = 0.936$	$F(3.624, 69) = 4.94$	$F(2, 69) = 0.900$
No personal involvement mentioned	10.44 (4.72)	7.35 (4.42)	6.44 (4.72)		$t(33) = 3.580^{**}$	$t(33) = 4.486^{***}$				
Personal involvement ambivalent/unclear	8.95 (5.25)	6.43 (4.833)	6.05 (5.14)		$t(20) = 3.225^{**}$	$t(20) = 4.150^{***}$				

Note. $n = 17$ in the Active personal treatment involvement group, $n = 34$ in the No personal involvement mentioned group, $n = 21$ in the Personal involvement ambivalent/unclear group; FU = follow-up; THI = Tinnitus Handicap Inventory; Mini-TQ = Mini-Tinnitus Questionnaire; PHQ-9 = Patient Health Questionnaire.

^a Degrees of freedom have been corrected according to Greenhouse–Geisser.

*** $p < 0.001$.

** $p < 0.01$.

* $p < 0.05$.

[·] $p < 0.10$.

approach (category III a; $n = 10$) improved more from post-test to follow-up on the Mini-TQ ($F[1, 70] = 3.99; p = 0.05$), but not on the other outcome measures ($p < 0.17$). The comparison between participants aiming for a (Ia3) cure or a (Ia2) reduction in their tinnitus symptoms and the participants who aimed to improve their (Ia1) coping abilities yielded no significant differences in improvement on any of the three outcome measures ($p < 0.17$). Similarly, improvements on the THI, the Mini-TQ and the PHQ-9 scores were not affected by how participants wanted to cope with their tinnitus ($p < 0.27$). No significant effects could be detected for the other treatment initiation (good life, burden, remaining option, hope) and motivation maintenance categories (success, attitude, support, and hope) that were frequent enough for a quantitative analysis.

When using the number of completed modules as an outcome variable, the only significant difference was found between participants who named a good life (Ic) as a target for the treatment ($n = 28$) and those who did not ($n = 84$), with the former completing more modules ($M = 9.28, SD = 5.52$) than the latter ($M = 7.23, SD = 6.13$), $t[110] = 1.987, p = 0.049$. With regard to dropout, a significant difference was only detected between participants who described burden (IIa) as a motivating factor and those who did not, with the former showing fewer dropouts (2/16 vs. 38/96; $\chi^2[1] = 4.381, p = 0.04$).

In a final analysis, we were interested in the relevance of demonstrating a willingness to assume an active participation role in the treatment process. We compared the three categories 1) active personal treatment involvement ($n = 32$), 2) no personal involvement mentioned ($n = 49$) and 3) personal involvement ambivalent/unclear ($n = 31$). A one-way ANOVA using completed modules as outcome variable showed a trending difference between groups 1 and 3: the ambivalent participants generally completed more modules than the active group: $F[2, 109] = 2.684, p = 0.07$; $M_{gr1} = 6.56, M_{gr2} = 7.45, M_{gr3} = 9.90$). The comparison with regard to treatment outcome (see Table 3) yielded no overall interaction effect ($p < 0.25$) and no difference between the groups from pre- to post-treatment ($n_{gr1} = 24, n_{gr2} = 45, n_{gr3} = 29; p < 0.16$ for the interaction effect), but the active group improved more from post-treatment to follow-up than the other groups ($n_{gr1} = 17, n_{gr2} = 34, n_{gr3} = 21$) on the Mini-TQ ($p = 0.03$). A trend was found in the same direction for the THI ($p = 0.07$), but there was no significant difference between the groups when comparing results from the PHQ-9 ($p = 0.41$). With respect to dropout, more participants in the active group left the treatment from pre to post treatment assessment ($\chi^2[2] = 6.541, p = 0.04$), but there was no significant difference in follow-up participation ($\chi^2[2] = 2.453, p = 0.29$).

4. Discussion

The current study explored which factors tinnitus patients describe as reasons to begin an ICBT self-help program, and which factors are considered relevant to maintain motivation over the course of the treatment. In addition, we investigated whether any of these factors are related to dropout and treatment outcome. Given the lack of research on this specific topic, our study provides explorative results that will be discussed below, and that should be further examined in future research. The qualitative and quantitative results will be discussed in conjunction with each other. First, we discuss the relevant factors for treatment commencement in the order in which they are described in the results section and in Fig. 1 (target, circumstances, attitude, and training). Then we discuss the facilitators of treatment motivation maintenance. We close the discussion with outlining some important limitations of our study.

First of all, it is quite encouraging that there were very few participants who said explicitly that they expected little or even nothing at all from their treatment, which reflects a largely hopeful attitude towards treatment outcomes. In the first category of participants in the qualitative analysis, the target category, tinnitus was frequently mentioned, but there were substantial differences in participant

expectations. Many participants described a desire to become better at coping with their tinnitus. A possible reason for this result might be that participants were informed at the very beginning that the treatment addresses the tinnitus-related distress, not the tinnitus itself (e.g., its loudness). However, there were still some participants who reported that they wanted a reduction of their tinnitus, or even a cure (i.e., a disappearance of the noise). Although our explorative analysis did not show poorer treatment outcomes or a heightened dropout rate for these participants, it is important to mention this because disappointed treatment expectations might be associated with poor treatment outcome (Westra et al., 2010). Many participants who expressed wanting to improve their coping skills described specific strategies for dealing with the tinnitus, but a comparison of the strategies yielded no difference in treatment outcome. However, the described quantitative results might be biased by the fact that quite a few participants named more than one target/strategy (e.g., wanting to improve coping, but ideally hoping for a cure), which shows they are open to regarding multiple treatment outcomes as "success". The resulting methodological issue was that the categories were not mutually exclusive, which we did not account for in our analysis. To simplify the analysis, participants were assigned to the category they described mainly/first. Apart from this issue, the expectation of certain coping strategies might have had a minor influence on which strategies participants actually used (because this is likely to be more dependent on what is suggested by the treatment). In the literature there are suggestions that predominantly acceptance-based coping is associated with lower tinnitus distress (Moreland, 2007), while other coping strategies do not lead to the intended outcome (Andersson et al., 2004). One problem with the regulation approach could be that attempts to control the tinnitus might hinder acceptance of and habituation to the noise (Moreland, 2007). Further research is required to clarify the relationship between different coping strategies and treatment outcome.

Aside from the tinnitus, participants often mentioned associated problems as treatment targets fairly similar to the ones described in the literature (Henry et al., 2005; Tyler and Baker, 1983). Our results provide some evidence that it is beneficial to focus on these consequences of the tinnitus, rather than on the tinnitus itself. This is in line with the idea that it is not the tinnitus itself that bothers affected persons, but the perceived consequences and related fears of what the tinnitus might be a sign of (Dobie, 2004; Moreland, 2007). Similarly, it is also consistent with the suggestion that it is only beneficial to control things that can be controlled (Andersson et al., 2004). In a previous study with tinnitus patients, impaired concentration, feeling depressed, and perceived negative attitudes of the social environment were the most significant variables for predicting variability in quality of life (Erlandsson and Hallberg, 2000). Thus, it is reasonable that targeting these things can help patients to live a good life, despite the tinnitus.

Having a good life was also described as a target. According to our results, focusing on having a good life might help increase module completion, but not treatment success directly. A possible reason for this could be that focusing on having a better life quality motivates participants to work through the modules, but is too general to have an impact on a specific tinnitus-related treatment outcome.

In a second category, participants described the circumstances of their current situation, including former treatment experiences. One pronounced factor within this category was the burden elicited by the tinnitus, either because of a recent deterioration or chronic suffering. Self-reported tinnitus burden has shown to be strongly related to quality of life and depression (Zeman et al., 2014). Therefore, the perceived burden might be a distinguishing factor between tinnitus sufferers who seek treatment, and tinnitus sufferers who are able to cope on their own. There was also an observed tendency for participants who mentioned burden as a treatment motive to be less likely to drop out, suggesting that the patients who suffer the most tend to stick to the treatment. An additional characteristic of members of the circumstances

category was regarding the ICBT program as one of very few *remaining options*. Although tinnitus patients tend to have largely somatic illness perceptions, and thus might have trouble accepting psychological treatment (Rief et al., 2005), there were quite a few patients in our study who were aware of the fact that no explicitly physical treatment exists. However, many of these patients' statements on this issue suggest that they only agreed to psychological treatment because numerous previous (medical) treatments failed. In order to help tinnitus sufferers avoid reaching this point of desperation, it might be beneficial to provide tinnitus patients with information about the mental causes of tinnitus and the psychological treatments available.

Participants also gave a range of *attitudes* towards the treatment as reasons to begin the program. These attitudes seem to be rather unspecific motives for participation, and it is questionable if they have any relevance for treatment outcome. Expressing an attitude that pertained to feelings about an *activity* (i.e., when the intention to have a proactive role in changing one's situation served as a motive for participation) appears to be beneficial when comparing results on at least one outcome measure from post-treatment to follow-up. Similarly, a comparison between participants whose statements reflected a willingness to take an active role in the treatment process, and participants who did not mention their own activity at all or appeared ambivalent towards the issue of their personal involvement, yielded a greater improvement from post-treatment to follow-up for the former group of participants. A possible explanation for this could be that during treatment all participants receive reinforcement in the form of new treatment modules and weekly reminders, but after the treatment when there are no more supportive measures, participants have to assume a more active role in their treatment, which might be easier for participants who initially expressed a willingness or even a desire to do so. This result is in agreement with previous research showing that patients with more actively oriented expectations achieved greater treatment improvement (Schneider and Klauer, 2001). Additionally, other studies have shown that active coping attempts are more beneficial in dealing with negative life events (Billings and Moos, 1981) and chronic pain (Jensen et al., 1991), as well as with lower levels of perceived tinnitus handicap (Hallberg et al., 1993). However, active coping has also shown to be associated with greater distress in tinnitus patients, which suggests that there is a complex relationship between active coping and treatment success (Andersson et al., 2004; Kaldo et al., 2006; Moreland, 2007). Furthermore, participants who described an active involvement in the treatment process were more likely to drop out between pre- and post-treatment, which is rather counterintuitive. There are a few potential explanations for this observation. First, it is questionable whether statements of active involvement truly reflect actual involvement, especially when considering the lower number of completed modules in the active group. Another possible explanation could be that the active participants who dropped out abandoned the treatment because they had already reached a sufficient improvement in their tinnitus distress. A third explanation is that participants aiming at an active treatment involvement are more likely to set unrealistic expectations that they have difficulty meeting. This may then lead them to believe they do not have the capacity to contribute to the treatment as much as they would like to, so they abandon the training altogether. However, if they are able to complete the treatment, their active attitude might help them to achieve longer-lasting benefits. For clinical practice, it might be useful to include interventions to support active patients in keeping up with the treatment, as well as to increase ambivalent and inactive patients' motivation to take an active stance in the treatment process (e.g., interventions to encourage the utilization of individual capabilities, foster self-compassion, or strengthen self-efficacy). It is also important to note that while assuming an active position can be beneficial for issues with the potential for change or improvement, it can actually be counterproductive for permanent conditions. Future studies might ask tinnitus patients for their initial intentions to actively contribute to an ICBT self-help treatment and investigate to what extent

these are related to their actual involvement (i.e., actually working through the modules), and whether this has an impact on treatment completion and reduction of tinnitus distress over the course of the treatment. Also, interactions with treatment goals could be investigated in order to find out whether an active approach is more beneficial for certain targets than for others.

Features of the *training* emerged as a fourth factor for treatment commencement. Interestingly, specific features of ICBT (e.g., having the possibility to do the training from home at one's convenience) were reported fairly infrequently as motives for participation. This could indicate that the specific kind of Internet-based treatment is not the main reason for participation; perhaps participants were just looking for treatment of any kind. However, it is also conceivable that ICBT features played a crucial role when the patients decided to take part in the program, but did not come to mind when they answered the questions. To explore the importance of training features, it could therefore be beneficial to ask participants explicitly whether certain ICBT specific factors were relevant for their decision to participate.

When it comes to factors the participants considered important in order to maintain treatment motivation, i.e., the *facilitators*, treatment success was named the most frequently. This indicates that participants expected to have their motivation sustained by the feeling that they have something to gain from the training. Therefore, when developing treatment programs, it might be important to either provide strategies that quickly benefit participants, or to help patients generate realistic expectations of treatment outcome to avoid dropouts due to disappointment. However, given that *hope* was also reported as a facilitator to maintain motivation, developing positive expectations is still important. The overall quality of the *training* (e.g., comprehensibility), providing *evidence* (e.g., presenting study results or reports by affected people), and offering both social and therapist *support* could all work as additional facilitators to maintain treatment motivation. While some participants did claim that their own *attitude* (e.g., high self-motivation or self-discipline) would render further facilitators unnecessary, these participants did not show fewer dropouts or a significantly higher number of completed modules, which suggests that this self-evaluation is not a suitable indicator of treatment motivation.

4.1. Limitations

The present study has several limitations that need to be considered. First, our study was carried out in a very specific context. Even though this was done consciously, it limits the generalizability of the findings to other disorders and other forms of interventions. Likewise, our sample was selective; participants largely had a high education level and were required to have sufficient motivation for self-help treatment and Internet access. Although our sample could be representative of tinnitus patients considering taking part in Internet-based self-help treatments, and therefore be appropriate for our investigation, it is still not representative of tinnitus patients in general. A second issue that might have affected our results is social desirability, especially because the participants were assessed before being included in the study. This may have led them to conceal their true expectations and motives, and say what they thought would make a favorable impression, e.g., they might have presented themselves as more proactive than they actually were. Third, the participants might have varied in their motivation to answer the questions thoroughly. Some answers were very long and it seemed that participants had really thought them through; whereas, other responses were just one or a few words that may have simply been what came to the participants' minds first. This might have led to only the most salient, conscious, or primed motives being included in our analysis, while others were left unreported. Some factors were perhaps mentioned infrequently or not at all because they were assumed to be obvious. For the qualitative analysis, this introduces the risk of overlooking some actually relevant categories, but this might have affected the results of our quantitative analyses even more

drastically. In-depth interviews could be a viable strategy for a more comprehensive gathering of relevant motives and expectations. Fourth, our quantitative analyses were based only on the complete sample. Thus, the quantitative results could be biased by the considerable number of participants who dropped out, especially from post-test to follow-up, which also limits the generalizability of our findings. Fifth, the results might as well be influenced by the fact that some categories were not mutually exclusive so participants were put in the category they appeared to put the most emphasis on for some group comparisons. Sixth, it is important to note that our findings are of correlational nature, and are based on post-hoc analyses, so no definite causal conclusions can be drawn. Finally, we only analyzed the pre-treatment data, and it is conceivable that participants' expectations and motives changed over the course of the treatment, which might have influenced treatment outcomes. As a consequence, our results must be regarded as preliminary, and they need to be replicated by prospective and hypothesis-guided quantitative studies that ask participants explicitly about the significance of particular motives and expectations. Furthermore, due to the broad focus of our study where we looked at both the reasons to start treatment and the reasons to continue with it, future studies could investigate these aspects individually, e.g., by the use of in-depth interviews, in order to get a more complete understanding of each of these aspects.

5. Conclusion

The present study explored factors that are conducive to the commencement and continuation of an Internet-based tinnitus treatment, and their relationship to treatment completion and outcomes. Particularly, the desire to address different more or less tinnitus-related targets and the presence of a current burdensome situation were described. According to our results, it might be beneficial to encourage patients to strive for specific targets other than the tinnitus, and to encourage them to take an active role in the treatment. In order to facilitate this active patient participation, it might be beneficial to include interventions that focus on patients' resources and self-efficacy. Whether particular training features (e.g., the treatment platform or the inclusion of therapist feedback) play a crucial role in patients' motivation to participate in and continue with ICBT needs to be examined in future research. Treatment success seems to be an important factor in maintaining motivation; however, this needs to be confirmed in quantitative analyses. Future research is warranted to determine both the relevance and helpfulness of certain factors for treatment commencement and performance. This information could aid in the adjustment of ICBT programs to better address participants' conditions, and to appropriately prepare participants for the treatment. Therefore, further research on this topic has the ability to contribute to an increased acceptability and consideration of ICBT for tinnitus treatment.

Disclosure

All authors report no conflicts of interest.

References

- Andersson, G., 2015. Clinician-supported internet-delivered psychological treatment of tinnitus. *Am. J. Audiol.* 24 (3), 299–301. http://dx.doi.org/10.1044/2015_AJA-14-0080.
- Andersson, G., Strömberg, T., Ström, L., Lyttkens, L., 2002. Randomized controlled trial of internet-based cognitive behavior therapy for distress associated with tinnitus. *Psychosom. Med.* 64 (5), 810–816. <http://dx.doi.org/10.1097/01.PSY.0000031577.42041.F8>.
- Andersson, G., Kaldö, V., Strömberg, T., Ström, L., 2004. Are coping strategies really useful for the tinnitus patient? An investigation conducted via the Internet. *Audiol. Med.* 2 (1), 54–59. <http://dx.doi.org/10.1080/16513860410027358>.
- Andersson, G., Cuijpers, P., Carlbring, P., Riper, H., Hedman, E., 2014. Guided Internet-based vs. face-to-face cognitive behavior therapy for psychiatric and somatic disorders: a systematic review and meta-analysis. *World Psychiatry* 13 (3), 288–295. <http://dx.doi.org/10.1002/wps.20151>.
- Axelsson, A., Ringdahl, A., 1989. Tinnitus – a study of its prevalence and characteristics. *Br. J. Audiol.* 23 (1), 53–62. <http://dx.doi.org/10.3109/03005368909077819>.
- Baguley, D.M., Andersson, G., McKenna, L., McFerran, D.J., 2013a. Tinnitus: a multidisciplinary approach. 2 ed. Wiley, Chichester.
- Baguley, D., McFerran, D., Hall, D., 2013b. Tinnitus. *Lancet* 382 (9904), 1600–1607. [http://dx.doi.org/10.1016/S0140-6736\(13\)60142-7](http://dx.doi.org/10.1016/S0140-6736(13)60142-7).
- Bengtsson, J., Nordin, S., Carlbring, P., 2015. Therapists' experiences of conducting cognitive behavioural therapy online vis-à-vis face-to-face. *Cogn. Behav. Ther.* 44, 470–479. <http://dx.doi.org/10.1080/16506073.2015.1053408>.
- Billings, A.G., Moos, R.H., 1981. The role of coping responses and social resources in attenuating the stress of life events. *J. Behav. Med.* 4 (2), 139–157. <http://dx.doi.org/10.1007/BF00844267>.
- Dobie, R.A., 2004. Overview: suffering from tinnitus. In: Snow Jr., J.B. (Ed.), *Tinnitus: Theory and Management*. BC Decker, Lewiston, NY, pp. 1–7.
- Donkin, L., Glozier, N., 2012. Motivators and motivations to persist with online psychological interventions: a qualitative study of treatment completers. *J. Med. Internet Res.* 14 (3), e91. <http://dx.doi.org/10.2196/jmir.2100>.
- Donovan, J., Mills, N., Smith, M., Brindle, L., Jacoby, A., Peters, T., ... Hamdy, F., 2002. Quality improvement report: improving design and conduct of randomised trials by embedding them in qualitative research: ProtecT (prostate testing for cancer and treatment) study. Commentary: presenting unbiased information to patients can be difficult. *Br. Med. J.* 325 (7367), 766–770. <http://dx.doi.org/10.1136/bmj.325.7367.766>.
- Erlandsson, S.I., Hallberg, L.R., 2000. Prediction of quality of life in patients with tinnitus. *Br. J. Audiol.* 34 (1), 11–20. <http://dx.doi.org/10.3109/03005364000000114>.
- Featherston, K., Donovan, J.L., 1998. Random allocation or allocation at random? Patients' perspectives of participation in a randomised controlled trial. *Br. Med. J.* 317 (7167), 1177–1180. <http://dx.doi.org/10.1136/bmj.317.7167.1177>.
- Gega, L., Smith, J., Reynolds, S., 2013. Cognitive behaviour therapy (CBT) for depression by computer vs. therapist: patient experiences and therapeutic processes. *J. Soc. Psychother. Res.* 23 (2), 218–231. <http://dx.doi.org/10.1080/10503307.2013.766941>.
- Gilbody, S., Richards, D., Brealey, S., Hewitt, C., 2007. Screening for depression in medical settings with the Patient Health Questionnaire (PHQ): a diagnostic meta-analysis. *J. Gen. Intern. Med.* 22 (11), 1596–1602. <http://dx.doi.org/10.1007/s11606-007-0333-y>.
- Goebel, G., Hiller, W., 1992. Psychische Beschwerden bei chronischem Tinnitus: Erprobung und Evaluation des Tinnitus-Fragebogens (TF) (Psychological complaints in chronic tinnitus: characteristics and evaluation of the Tinnitus Questionnaire (TQ)). *Verhaltenstherapie* 2 (1), 13–22. <http://dx.doi.org/10.1159/000258202>.
- Greenberg, R.P., Constantino, M.J., Bruce, N., 2006. Are patient expectations still relevant for psychotherapy process and outcome? *Clin. Psychol. Rev.* 26 (6), 657–678. <http://dx.doi.org/10.1016/j.cpr.2005.03.002>.
- Hallberg, L.R., Johnsson, T., Axelsson, A., 1993. Structure of perceived handicap in middle-aged males with noise-induced hearing loss, with and without tinnitus. *Int. J. Audiol.* 32 (2), 137–152. <http://dx.doi.org/10.3109/00206099309071863>.
- Härter, M., Maurischat, C., Weske, G., Laszig, R., Berger, M., 2004. Psychische Belastungen und Einschränkungen der Lebensqualität bei Patienten mit Tinnitus. *HNO* 52 (2), 125–131. <http://dx.doi.org/10.1007/s00106-003-0889-8>.
- Härter, M., Battlehner, J., Münscher, A., Graul, J., Maurischat, C., 2005. Erfassung der Veränderungsmotivation bei Tinnituspatienten. Eine Studie zum transtheoretischen Modell. *HNO* 53 (8), 707–715. <http://dx.doi.org/10.1007/s00106-004-1181-2>.
- Henry, J.A., Dennis, K.C., Schechter, M.A., 2005. General review of tinnitus: prevalence, mechanisms, effects, and management. *J. Speech Lang. Hear. Res.* 48 (5), 1204–1235. [http://dx.doi.org/10.1044/1092-4388\(2005\)084](http://dx.doi.org/10.1044/1092-4388(2005)084).
- Hesser, H., Weise, C., Rief, W., Andersson, G., 2011. The effect of waiting: a meta-analysis of wait-list control groups in trials for tinnitus distress. *J. Psychosom. Res.* 70 (4), 378–384. <http://dx.doi.org/10.1016/j.jpsychores.2010.12.006>.
- Hesser, H., Gustafsson, T., Lundén, C., Henriksson, O., Fattahi, K., Johnsson, E., ... Andersson, G., 2012. A randomized controlled trial of internet-delivered cognitive behavior therapy and acceptance and commitment therapy in the treatment of tinnitus. *J. Consult. Clin. Psychol.* 80 (4), 649–661. <http://dx.doi.org/10.1037/a0027021>.
- Hiller, W., Goebel, G., 2004. Rapid assessment of tinnitus-related psychological distress using the Mini-TQ. *Int. J. Audiol.* 43 (10), 600–604 (Retrieved from [http://www.isa-audiology.org/periodicals/2002-2004_International_Journal_of_Audiology/IJA_2004_Vol_43/No_10_\(555-607\)/Hiller_Goebel_IJA_2004.pdf](http://www.isa-audiology.org/periodicals/2002-2004_International_Journal_of_Audiology/IJA_2004_Vol_43/No_10_(555-607)/Hiller_Goebel_IJA_2004.pdf)).
- Holgers, K.M., Zöger, S., Svedlund, K., 2005. Predictive factors for development of severe tinnitus suffering-further characterisation. *Int. J. Audiol.* 44 (10), 584–592. <http://dx.doi.org/10.1080/14992020500190235>.
- Jasper, K., Weise, C., Conrad, I., Andersson, G., Hiller, W., Kleinstäuber, M., 2014. Internet-based guided self-help versus group cognitive behavioral therapy for chronic tinnitus: a randomized controlled trial. *Psychother. Psychosom.* 83 (4), 234–246. <http://dx.doi.org/10.1159/000360705>.
- Jensen, M.P., Turner, J.A., Romano, J.M., Karoly, P., 1991. Coping with chronic pain: a critical review of the literature. *Pain* 47 (3), 249–283. [http://dx.doi.org/10.1016/0304-3959\(91\)90216-K](http://dx.doi.org/10.1016/0304-3959(91)90216-K).
- Johnson, R.B., Onwuegbuzie, A.J., 2004. Mixed methods research: a research paradigm whose time has come. *Educ. Res.* 33 (7), 14–26.
- Kaldö, V., Andersson, G., 2004. Kognitiv beteendeterapi vid tinnitus (Cognitive-behavioral treatment of tinnitus). Studentlitteratur, Lund.
- Kaldö, V., Richards, J.C., Andersson, G., 2006. Tinnitus stages of change questionnaire: psychometric development and validation. *Psychol. Health Med.* 11 (4), 483–497. <http://dx.doi.org/10.1080/13548500600726674>.
- Kaldö, V., Levin, S., Widarsson, J., Buhman, M., Larsen, H.C., Andersson, G., 2008. Internet versus group cognitive-behavioral treatment of distress associated with tinnitus: a randomized controlled trial. *Behav. Ther.* 39 (4), 348–359. <http://dx.doi.org/10.1016/j.beth.2007.10.003>.

- Kennedy, V., Wilson, C., Stephens, D., 2004. Quality of life and tinnitus. *Audiol. Med.* 2 (1), 29–40. <http://dx.doi.org/10.1080/16513860410027349>.
- Kleinjung, T., Fischer, B., Langguth, B., Sand, P., Hajak, G., Dvorakova, J., Eichhammer, P., 2007. Validierung einer deutschsprachigen Version des "Tinnitus Handicap Inventory" (Validation of the German-version Tinnitus Handicap Inventory (THI)). *Psychiatr. Prax.* 34 (1), 140–142. <http://dx.doi.org/10.1055/s>.
- Kleinstäuber, M., Frank, I., Weise, C., 2015. A confirmatory factor analytic validation of the Tinnitus Handicap Inventory. *J. Psychosom. Res.* 78 (3), 277–284. <http://dx.doi.org/10.1016/j.jpsychores.2014.12.001>.
- Krippendorff, K., 2013. *Content Analysis: An Introduction to Its Methodology*. third ed. Sage Publications, London.
- Lazarus, R.S., 1966. *Psychological Stress and the Coping Process*. McGrawHill, New York.
- Löwe, B., Spitzer, R.L., Zipfel, S., Herzog, W., 2002. *Gesundheitsfragebogen für Patienten (PHQ-D). Manual mit Testunterlagen*. Pfizer, Karlsruhe.
- Martinez-Devesa, P., Perera, R., Theodoulou, M., Waddell, A., 2010. Cognitive behavioural therapy for tinnitus. *Cochrane Database Syst. Rev.* 9, CD005233. <http://dx.doi.org/10.1002/14651858.CD005233.pub3>.
- Mohr, D.C., Siddique, J., Ho, J., Duffecy, J., Jin, L., Fokuo, J.K., 2010. Interest in behavioral and psychological treatments delivered face-to-face, by telephone, and by internet. *Ann. Behav. Med.* 40, 89–98. <http://dx.doi.org/10.1007/s12160-010-9203-7>.
- Moreland, J.E.N., 2007. *Illness Representations, Acceptance, Coping and Psychological Distress in Chronic Tinnitus* Doctoral dissertation University of Leicester.
- Newman, C.W., Jacobson, G.P., Spitzer, J.B., 1996. Development of the Tinnitus Handicap Inventory. *Arch. Otolaryngol. Head Neck Surg.* 122 (2), 143–148. <http://dx.doi.org/10.1001/archotol.1996.01890140029007>.
- Rheker, J., Andersson, G., Weise, C., 2015. The role of "on demand" therapist guidance vs. no support in the treatment of tinnitus via the internet: a randomized controlled trial. *Internet Interventions* 2 (2), 189–199. <http://dx.doi.org/10.1016/j.invent.2015.03.007>.
- Rief, W., Weise, C., Kley, N., Martin, A., 2005. Psychophysiologic treatment of chronic tinnitus: a randomized clinical trial. *Psychosom. Med.* 67 (5), 833–838. <http://dx.doi.org/10.1097/01.psy.0000174174.38908.c6>.
- Rief, W., Glombiewski, J.A., Gollwitzer, M., Schubo, A., Schwarting, R., Thorwart, A., 2015. Expectancies as core features of mental disorders. *Curr. Opin. Psychiatry* 28 (5), 378–385. <http://dx.doi.org/10.1097/YCO.0000000000000184>.
- Rosenbaum, R.L., Horowitz, M., 1983. Motivation for psychotherapy: a factorial and conceptual analysis. *Psychother. Theor. Res. Pract.* 20 (3), 346–354. <http://dx.doi.org/10.1037/h0090205>.
- Rozenal, A., Andersson, G., Boettcher, J., Ebert, D.D., Cuijpers, P., Knaevelsrud, C., ... Carlbring, P., 2014. Consensus statement on defining and measuring negative effects of Internet interventions. *Internet Interventions* 1 (1), 12–19. <http://dx.doi.org/10.1016/j.invent.2014.02.001>.
- Schneider, W., Klauer, T., 2001. Symptom level, treatment motivation, and the effects of inpatient psychotherapy. *Psychother. Res.* 11 (2), 153–167. <http://dx.doi.org/10.1080/713663888>.
- Svartvatten, N., Segerlund, M., Denhag, I., Andersson, G., Carlbring, P., 2015. A content analysis of client e-mails in guided internet-based cognitive behavior therapy for depression. *Internet Interventions* 2 (2), 121–127. <http://dx.doi.org/10.1016/j.invent.2015.02.004>.
- Titov, N., Dear, B.F., McMillan, D., Anderson, T., Zou, J., Sunderland, M., 2011. Psychometric comparison of the PHQ-9 and BDI-II for measuring response during treatment of depression. *Cogn. Behav. Ther.* 40 (2), 126–136. <http://dx.doi.org/10.1080/16506073.2010.550059>.
- Tyler, R.S., Baker, L.J., 1983. Difficulties experienced by tinnitus sufferers. *J. Speech Hear. Disord.* 48 (2), 150–154. <http://dx.doi.org/10.1044/jshd.4802.150>.
- Vlaescu, G., Carlbring, P., Lunner, T., Andersson, G., 2015. An e-platform for rehabilitation of persons with hearing problems. *Am. J. Audiol.* 24 (3), 271–275. http://dx.doi.org/10.1044/2015_AJA-14-0083.
- Weise, C., Heinecke, K., Rief, W., 2008. Biofeedback-based behavioral treatment for chronic tinnitus: results of a randomized controlled trial. *J. Consult. Clin. Psychol.* 76 (6), 1046–1057. <http://dx.doi.org/10.1037/a0013811>.
- Weise, C., Kleinstäuber, M., Andersson, G., 2016. Internet-delivered cognitive-behavior therapy for tinnitus: a randomized controlled trial. *Psychosom. Med.* 78 (4), 501–510. <http://dx.doi.org/10.1097/psy.0000000000000310>.
- Westra, H.A., Aviram, A., Barnes, M., Angus, L., 2010. Therapy was not what I expected: a preliminary qualitative analysis of concordance between client expectations and experience of cognitive-behavioural therapy. *J. Soc. Psychother. Res.* 20 (4), 436–446. <http://dx.doi.org/10.1080/10503301003657395>.
- White, M.D., Marsh, E.E., 2006. Content analysis: a flexible methodology. *Libr. Trends* 55 (1), 22–45. <http://dx.doi.org/10.1353/lib.2006.0053>.
- Wickramasekera, I., 1989. Enabling the somatizing patient to exit the somatic closet: A high-risk model. *Psychother. Theor. Res. Pract. Train.* 26 (4), 530–544. <http://dx.doi.org/10.1037/h0085474>.
- Zeman, F., Koller, M., Langguth, B., Landgrebe, M., 2014. Which tinnitus-related aspects are relevant for quality of life and depression: results from a large international multicentre sample. *Health Qual. Life Outcomes* 12 (1), 7. <http://dx.doi.org/10.1186/1477-7525-12-7>.