



# 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,  $\chi^2$ -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  $\geq 18$  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](http://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)

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