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Psychological Therapy for People with Tinnitus: A Scoping Review of Treatment Components

Dean M. Thompson,^{1,2} Deborah A. Hall,^{1,2} Dawn-Marie Walker,³ and Derek J. Hoare^{1,2}

Background: Tinnitus is associated with depression and anxiety disorders, severely and adversely affecting the quality of life and functional health status for some people. With the dearth of clinical psychologists embedded in audiology services and the cessation of training for hearing therapists in the UK, it is left to audiologists to meet the psychological needs of many patients with tinnitus. However, there is no universally standardized training or manualized intervention specifically for audiologists across the whole UK public healthcare system and similar systems elsewhere across the world.

Objectives: The primary aim of this scoping review was to catalog the components of psychological therapies for people with tinnitus, which have been used or tested by psychologists, so that they might inform the development of a standardized audiologist-delivered psychological intervention. Secondary aims of this article were to identify the types of psychological therapy for people with tinnitus, who were reported but not tested in any clinical trial, as well as the job roles of clinicians who delivered psychological therapy for people with tinnitus in the literature.

Design: The authors searched the Cochrane Ear, Nose and Throat Disorders Group Trials Register; Cochrane Central Register of Controlled Trials; PubMed; EMBASE; CINAHL; LILACS; KoreaMed; IndMed; PakMediNet; CAB Abstracts; Web of Science; BIOSIS Previews; ISRCTN; ClinicalTrials.gov; IC-TRP; and Google Scholar. In addition, the authors searched the gray literature including conference abstracts, dissertations, and editorials. No records were excluded on the basis of controls used, outcomes reached, timing, setting, or study design (except for reviews—of the search results. Records were included in which a psychological therapy intervention was reported to address adults (≤ 18 years) tinnitus-related distress. No restrictive criteria were placed upon the term tinnitus. Records were excluded in which the intervention included biofeedback, habituation, hypnosis, or relaxation as necessary parts of the treatment.

Results: A total of 5043 records were retrieved of which 64 were retained. Twenty-five themes of components that have been included within a psychological therapy were identified, including tinnitus education, psychoeducation, evaluation treatment rationale, treatment planning, problem-solving behavioral intervention, thought identification, thought challenging, worry time, emotions, social comparison, interpersonal skills, self-concept, lifestyle advice, acceptance and defusion, mindfulness, attention, relaxation, sleep, sound enrichment, comorbidity, treatment reflection, relapse prevention, and common therapeutic skills. The most frequently reported psychological therapies were cogni-

tive behavioral therapy, tinnitus education, and internet-delivered cognitive behavioral therapy. No records reported that an audiologist delivered any of these psychological therapies in the context of an empirical trial in which their role was clearly delineated from that of other clinicians.

Conclusions: Scoping review methodology does not attempt to appraise the quality of evidence or synthesize the included records. Further research should therefore determine the relative importance of these different components of psychological therapies from the perspective of the patient and the clinician.

Key words: Audiology, Cognitive behavioral therapy, Psychotherapy, Review, Scoping review, Tinnitus.

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INTRODUCTION

Tinnitus is the perception of noise in the absence of external sound and is estimated to affect as many as 10.1% of people in the UK. Five percent of people describe their tinnitus as annoying and 1% maintain that their tinnitus has a severe impact upon their lives (Davis & El Rafaie 2000). One recent model of tinnitus posits that cognitions and behaviors cause and maintain tinnitus-related distress (McKenna et al. 2014). This follows the seminal habituation model, in which Hallam et al. (1984) likened tinnitus as a failure to habituate, where high autonomic arousal inhibits the ability to filter out the phantom tinnitus percept. This association with anxiety has subsequently been investigated, replicated, and the evidence collated in a systematic review demonstrating a relation between tinnitus and anxiety or depression (Pinto et al. 2014).

This emergence of the habituation model influenced interventions in tinnitus toward addressing the reaction to tinnitus, rather than the tinnitus percept, particularly through the use of cognitive behavioral therapy (CBT; Sweetow 1986). To address tinnitus-related distress, the clinician delivering CBT works collaboratively with the patient to help build the capacity to identify and challenge negative automatic thoughts, restructuring those that are considered to be disruptive to good mental health. The therapist also attends to maladaptive behaviors such as a reduction in previously pleasurable activities and avoidance of exposure to feared stimuli. Research evidence consistently demonstrates a superiority of clinical psychologist-delivered CBT over other treatments and waiting list control conditions for improving tinnitus-related distress, depression, and quality of life (Martinez-Devesa et al. 2010; Hesser et al. 2011; Hoare et al. 2011).

The American Academy of Otolaryngology evidence-based guidelines for tinnitus management recommend the use of CBT (Tunkel et al. 2014). In the UK, a relatively small proportion of audiology departments offer CBT (37%) (Hoare et al. 2015). However, with the cessation in training of hearing therapists and the dearth of clinical psychologists in the UK, the Department of Health (2009) suggests the audiologist role should extend where needed to provide psychological therapies. Presently,

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many audiology departments in the UK (52%) do not employ any staff trained in CBT, though a majority of audiologists (74%) would like to undertake further training in such psychological therapies (Hoare et al. 2012, 2015). Indeed, the value of a training program to develop audiologist's counseling skills for working with patients with hearing loss has recently been demonstrated (English & Archbold 2014).

Some audiologists admit concerns that a gap in the literature persists and that the evidence-base is lacking to support incorporating psychological therapies for tinnitus into their clinical practice (Hoare et al. 2012). Indeed, whether CBT delivered by audiology professionals is effective for people with tinnitus was a priority research question identified in the James Lind Alliance Tinnitus Priority Setting Partnership (Hall et al. 2013). Whereas there is a convincing level of evidence to suggest that CBT delivered by a clinical psychologist is of benefit to people with tinnitus, in terms of audiologist-delivered psychological therapy, current evidence represents proof-of-concept only. Audiologist-delivered psychological therapy has yet to be formally evaluated in any way. For those audiologists who do offer psychological therapies, training is not standardized (Hoare et al. 2015). This situation risks wide variation in the quality of care that patients receive.

There are a wide range of different types of psychological therapies other than traditional CBT such as acceptance and commitment therapy (ACT) and mindfulness that are producing promising results, including for tinnitus (Westin et al. 2011; Gans et al. 2014). Unlike CBT, these therapies focus on the process of thought rather than attempting to directly change its content (Hayes et al. 2004). It would be naive to subscribe to the dogmatic position of "one size fits all" in psychological therapies. It is therefore important to establish which different types of psychological therapy for people with tinnitus have been reported but not robustly tested in a clinical trial. Determining this would be useful in directing researchers to untapped areas of investigation to build an evidence base around current practice.

It remains to be seen whether the minutiae of psychological therapies would be acceptable to patients receiving treatment from audiologists and whether it would be acceptable to audiologists to add each component of these therapies into their repertoire. Before we can determine the acceptability of different components of an audiologist-delivered psychological intervention for people with tinnitus, it is necessary to scope the literature and develop a list of the potential components of such a treatment, and confirm the claim made by the James Lind Alliance Tinnitus Priority Setting Partnership (Hall et al. 2013), namely that there is limited evidence of audiologist-delivered psychological interventions in the literature.

The scoping review is a method designed, "to map rapidly the key concepts underpinning a research area and the main resources and types of evidence available" (Mays et al. 2001, pp. 194). The primary aim of this scoping review was to catalog the components of psychological therapy for people with tinnitus, which have been used or tested in any circumstance. Secondary aims of this review were to

- Identify what types of psychological therapy for people with tinnitus have been reported (but not tested in any clinical trial)
- Identify what were the job roles of clinicians who have delivered psychological therapy for people with tinnitus in the literature

This scoping review is an important first step in cataloging what components of psychological therapies for people with tinnitus have been tested or described in the literature, before establishing the acceptability to patient and clinician of said components.

MATERIALS AND METHODS

Eligibility Criteria

Records were included in which a psychological therapy was tested or described, as in a formal protocol or expert opinion piece, to address tinnitus-related distress. Records were eligible regardless of the type of tinnitus presented; for instance, records were eligible whether subjective or objective tinnitus was presented. No records were excluded on the basis of controls used, outcomes reached, timing, setting, or study design. Records were excluded in which the intervention included bio-feedback, habituation or hypnosis as necessary parts of the psychological treatment, or relaxation when delivered in isolation (without other components of psychological therapy). Review articles were excluded. Eligible records also included articles that were published in the English language, sampling adults only and originating from the year 1980 onward, that is, because psychological therapies first began to emerge in the 1980s with the introduction of CBT for tinnitus (Jun & Park 2013). Where multiple eligible unique records pertaining to a single trial were identified, the record that was published first was included and any secondary analyses of the data were excluded. Records were excluded when reporting on a psychological therapy potentially eligible for inclusion, but did not describe it in detail sufficient to extract data on what the intervention involved.

Search Strategy

Electronic databases of peer-reviewed journals were searched in November 2014. These included the Cochrane Ear, Nose and Throat Disorders Group Trials Register; the Cochrane Central Register of Controlled Trials; PubMed; EMBASE; Cumulative Index to Nursing and Allied Health Literature; Literatura Latino Americana em Ciências da Saúde; KoreaMed; IndMed; PakMediNet; Centre for Agriculture and Biosciences Abstracts; Web of Science; BIOSIS Previews; the International Standard Randomised Controlled Trial (RCT) Number registry; ClinicalTrials.gov; the International Clinical Trials Registry Platform; and Google Scholar. In addition, a search of the gray literature was conducted including Open Grey, Healthcare Management Information Consortium, National Technical Information Service, and PsycEXTRA. Theses were targeted through Index to Theses, DART Europe, and ProQuest Dissertations and Theses. Conferences were targeted through Cos Conference Papers, Google Scholar, Scopus, and Zetoc. Patient organization websites were searched including Patient UK, Patient Information Forum, Expert Patients Programme, HealthWatch, INVOLVE, Health Talk Online, Patient Voices, and the national tinnitus associations of the UK and USA, the British Tinnitus Association and the American Tinnitus Association, respectively; and an internet search was performed using metasearch engine Ixquick. Both Ixquick and Google Scholar were searched until a saturation point was reached when one page of consecutive search results contained no entries relevant to the central research question based on a visual screening of the information presented on the search result screen.

The search strategy was modeled on a systematic review concerning CBT for tinnitus (Martinez-Devesa et al. 2010), but expanded to explicitly target contemporary types of CBT (such as ACT and mindfulness) and other or generic therapies. Common terms used across different databases included tinnitus (including descriptive variants of tinnitus such as buzz*), cognit*, behav*, broader terms such as psychotherap* and narrower terms such as mindful*. An example of the search strategy used for Web of Science is reported in Table 1.

From the culmination of these database searches, the reference lists of identified review articles were scanned for additional records and the most frequently appearing journals (determined using the interquartile rule for outliers) from the selected studies were handsearched including issues published within 1 year preceding the electronic database search in November 2014. A simple outlier calculation (using the interquartile rule for outliers) was also performed in relation to the most frequently appearing authors, whose ongoing publication record was monitored until data extraction was completed on all other included records.

Study Selection

Returned search records were examined independently by two researchers, first screening by title and abstract, second, by full text. When disagreements regarding the inclusion or exclusion of any given record arose, the two researchers discussed their rationale until agreement was reached or a third researcher was consulted to adjudicate.

Charting the Data

The data charting form was piloted using five articles and the process and data fields discussed before commencing the full data extraction procedure. Two researchers collected the data independently from each included record. One researcher collected the data across all records. Data items included the type of intervention, components of psychological therapy, participant inclusion and exclusion criteria (not reported here), profession of the delivering clinician, research methodology used, primary and secondary outcome instruments used to measure the outcome of the psychological therapy (not reported here), and the result concerning the primary hypothesis where one was given (not reported here). The two datasets were compared and differences were discussed until the two researchers reached agreement on a single completed form. Where irreconcilable differences persisted, a third researcher was consulted to adjudicate.

Components of psychological therapy were defined as observable, replicable themes that were irreducible. It was prospectively determined that components extracted from the literature would be grouped into overarching themes because the nomenclature of these components are not consistent across a literature spanning four decades. The use of themes essentially standardizes the terminology used for the same or similar components. Components were iteratively grouped using inductive thematic analysis using the phases of Braun and Clarke (2006). Inductive thematic analysis is a “bottom up” approach to analysis involving the development of themes that are directed by the data as opposed to themes being directed by a priori knowledge as in “top down” deductive analysis. Analysis was performed by two researchers, resulting in emerging themes and subthemes of psychological therapy components for people with tinnitus-related distress.

RESULTS

Figure 1 displays the flow of records identified, screened, included, and the reasons for exclusion. Sixty-four records were eligible for data extraction. Details of the included studies are presented in data extraction forms that can be found in Table 1 (Supplemental Digital Content 1, <http://links.lww.com/EANDH/A299>).

Components of Psychological Therapies

Twenty-five themes of components that have been included within a psychological therapy were derived through inductive thematic analysis of the scoped literature. Table 2 describes these themes and presents quotes from reviewed records from which these were derived. The themes were tinnitus education, psychoeducation, evaluation, treatment rationale, treatment planning, problem-solving behavioral intervention, thought identification, thought challenging, worry time, emotions, social comparison, interpersonal skills, self-concept, lifestyle advice, acceptance and defusion, mindfulness, attention, relaxation, sleep, sound enrichment, comorbidity, treatment reflection, relapse prevention, and common therapeutic skills. These 25 themes were comprised of 138 subthemes, with each theme consisting of between 1 and 13 subthemes, presented in full in Table 2 (Supplemental Digital Content 2, <http://links.lww.com/EANDH/A300>). For example, two of the eight subthemes of thought challenging were thought stopping and cognitive restructuring.

TABLE 1. An example of database search strategy terms

Web of Science
#1 TS = tinnit*
#2 TS = (EAR* and (BUZZ* or RING* or ROAR* or CLICK* or PULS*))
#3 #2 OR #1
#4 TS = (cognit* AND behav*)
#5 TS = ((DESENSITI* and PSYCHOLOG*) or (IMPLOSIVE* and THERAP*) or (ACCEPT* and COMMIT*) or (FUNCTION* and ANALY*) or (COMPASSION* and MIND*) or (MINDFUL*) or (DIALECTIC*) or (METACOGNIT*) or (COUNSEL*) or (PSYCHOEDUCAT*))
#6 TS = ((COGNIT* or BEHAV* or CONDITIONING or RELAXATION or DESENSITI* or ACCEPT* or COMMIT*) and (THERAPY or THERAPIES or THERAPEUTIC* or PSYCHOTHERAP* or TRAIN* or RETRAIN* or TREATMENT* or MODIFICATION* or ACTIVAT*))
#7 #6 OR #5 OR #4
#8 #7 AND #3

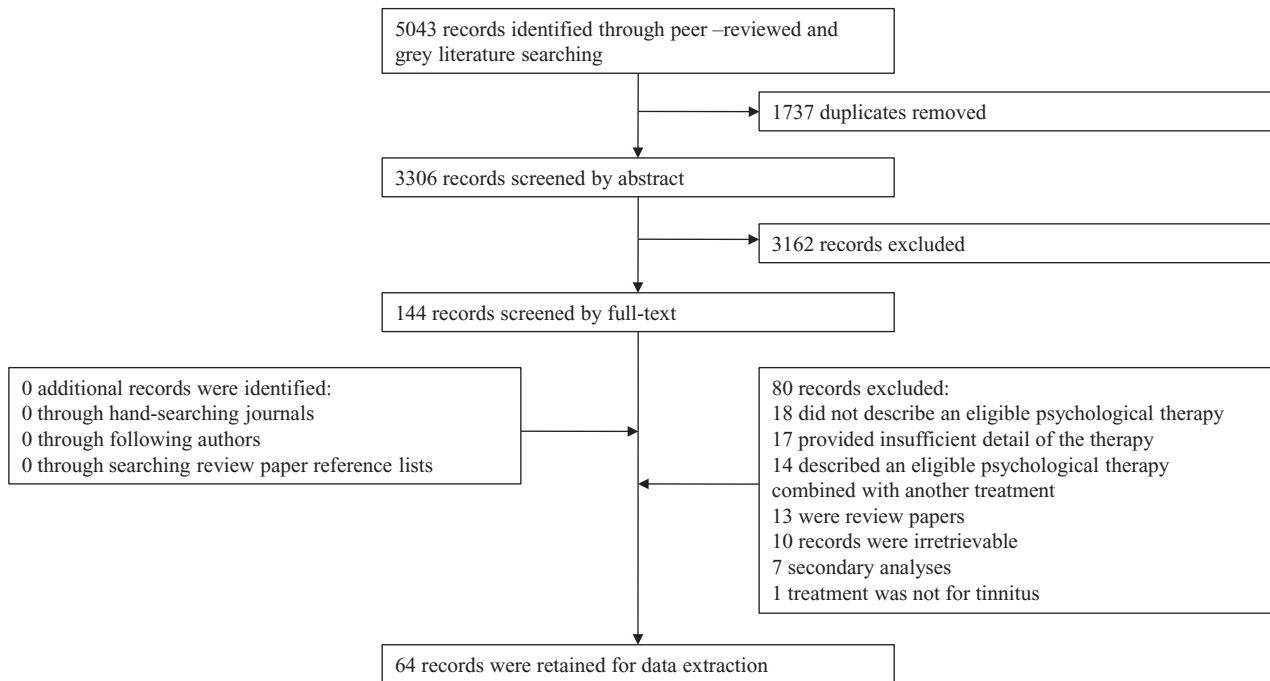


Fig. 1. PRISMA flow diagram. PRISMA indicates preferred reporting items of systematic reviews and meta-analyses.

Types of Psychological Therapies Reported and Their Components

Twenty-four different types of intervention were identified (Fig. 2). The most frequently reported types of therapy were (face-to-face) CBT ($n = 21$), tinnitus education ($n = 13$), and internet-delivered CBT ($n = 8$).

Within the 64 scoped records, 73 treatment arms were identified. Fourteen types of psychological therapy have been tested in an RCT. These 14 were comprised of more traditional second-wave CBT including face-to-face CBT (Kröner-Herwig et al. 1995, 2003; Zachriat & Kröner-Herwig 2004; Andersson et al. 2005; Robinson et al. 2008; Tucker 2013), internet-delivered CBT (Andersson et al. 2002; Kaldo et al. 2008; Abbott et al. 2009; Hesser et al. 2012; Nyenhuis et al. 2013; Jasper et al. 2014), group CBT (Kaldo et al. 2008; Nyenhuis et al. 2013; Jasper et al. 2014), bibliotherapy CBT (Kaldo et al. 2007; Nyenhuis et al. 2013), stepped care CBT (Cima et al. 2012), group cognitive therapy (Jakes et al. 1992), behavior therapy (Lindberg 1988; Lindberg et al. 1988); ACT (Westin et al. 2011); internet-delivered ACT (Hesser et al. 2012); mindfulness (Kreuzer et al. 2012); tinnitus education (Mason et al. 1996; Kröner-Herwig et al. 2003; Henry et al. 2007; Tucker 2013; Argstatter et al. 2015), tinnitus education with cognitive therapy (Henry & Wilson 1996), attention control, imagery training, and cognitive restructuring (Henry & Wilson 1998), and relaxation and distraction (Kröner-Herwig et al. 2003).

Two further types of psychological therapy were tested in trials where either a historical control group was used as a comparator or where multiple experimental interventions were tested without a control comparator including tinnitus education with relaxation (Dineen et al. 1997) and group eclectic therapy (Zoger et al. 2008).

A number of these psychological therapies were also detailed in case series, case reports, and in the descriptions of interventions; namely CBT (Andersson & Larsen 1997; Wilson

& Henry 2000; Andersson et al. 2001; Lain 2006; Graul et al. 2008; Greimel & Kröner-Herwig 2011; Zenner et al. 2013; Hubbard 2014), internet-delivered CBT (Andersson & Kaldo 2004), behavior therapy (Lindberg et al. 1989), mindfulness (Sadlier et al. 2008), and tinnitus education (Greimel & Kröner-Herwig 2011).

Eight different types of psychological therapy were reported but not tested in any trials, case series, or reports; namely, attention control with relaxation (Jakes et al. 1986), tinnitus education with CBT (Henry et al. 2009, 2012), tinnitus activities treatment (Tyler et al. 2006), common factors (Tyler et al. 2001), joint medico-psychological consultation (Degive & Kos 2006), psychological counseling (Lain 2008), Gestalt therapy (Amendt-Lyon 2004), and existential patient-centered therapy (PCT; Mohr & Hedelund 2006; Mohr 2008). Data on the research design were minimal in this piece of gray literature (Girard 1992). Table 3 shows the frequency of type of research method used per type of psychological therapy for people with tinnitus.

Job Roles of Clinicians Who Have Delivered Psychological Therapy

No records reported on audiologist-delivered psychological therapy in the context of an empirical trial in which their role was clearly delineated from that of other clinicians. However, six records did report on audiologist-delivered tinnitus education protocols or trials (Dineen et al. 1997; Henry et al. 2005, 2007, 2009; Aazh et al. 2008; Searchfield et al. 2010) and five records of expert opinions, protocols, or gray literature did propose the potential for audiologists to use their protocols of CBT (Andersson 2001; Olsson 2001) and tinnitus education (Tyler et al. 1989; Tyler 2006; Searchfield et al. 2011) although this remains untested. Three records included an audiologist or clinical physicist in audiology in stepped-care including CBT

TABLE 2. Themes of psychological therapy for people with tinnitus

Theme (Frequency of Use in the Literature)	Description of Theme	Example of Extracted Data
Tinnitus education (137)	Concerns the provision of information about tinnitus	“Extensive explanation of neurophysiological model” (Cima et al. 2012, pp. 1953)
Psychoeducation (70)	Concerns the provision of education on psychological well being	“A general cognitive-behavioral model (A–B–C model) is introduced and illustrated with examples given by the patients” (Hiller & Haerkötter 2005, pp. 601)
Evaluation (59)	Concerns the clinician enquiring into the patient’s tinnitus and other problems, advising the patient on the use of tinnitus monitoring tools, and providing feedback of audiological assessment	“Are other important things going on in the patient’s life in addition to tinnitus?” (Tyler et al. 2006, pp. 119)
Treatment rationale (64)	Concerns informing the patient about the psychological therapy they would undertake with the clinician, their respective roles in therapy, setting ground rules, and informing them of other treatment options for their tinnitus	“The therapist ... elucidated their own role, that is, why both took part in each session and how they as group leaders preferred to sometimes stay in the background” (Zoger et al. 2008, pp. 66)
Treatment planning (56)	Concerns planning the psychological therapy with the patient, discussing the patient’s expectations, and setting goals and engaging in systematic problem solving with the patient	“Step eight becomes creating specific, identifiable objectives that can be realistically achieved and measured” (Olsson 2001, pp. 134)
Problem solving (8)	Concerns engaging the patient in collaborative systematic problem solving, breaking complex tasks into smaller more achievable ones	“engage in collaborative problem solving” (Henry et al. 2009, pp. 36)
Behavioral intervention (64)	Concerns the use of behavioral techniques that require change on the part of the patient, including systematically increasing the patient’s general level of activity using “behavioral activation” and “graded exposure” to tinnitus through silence or to noise as appropriate	“Exposure to tinnitus [...] Lessen negative emotions and avoidance of tinnitus through exposure to the sound” (Kaldo-Sandström et al. 2004, pp. 188)
Thought identification (34)	Concerns the provision of education on negative automatic thoughts, teaching the patient how to identify their cognitive distortions	“It was explained that this was an example of the cognitive distortion of “fortune telling.” How did she “know” that the remainder of the day would be miserable?” (Sweetow 1986, pp. 393)
Thought challenging (72)	Concerns cognitive techniques that require change on the part of the patient, including the clinician instructing the patient on “thought stopping” exercises; “cognitive restructuring” exercises that is, teaching the patient to identify and modify or replace negative automatic thoughts; and having the patient role-play other perspectives using “Gestalt techniques”	“Cognitive restructuring of thoughts and beliefs associated with tinnitus is a necessary feature. The patient is helped to identify the content of his thoughts and is taught ways to challenge or control those thoughts usually described as unhelpful or even inaccurate” (Andersson 2001, pp. 71)
Worry time (2)	Concerns engaging with the patient in the paradoxical psychotherapeutic technique “worry time,” involving the clinician recommending that the patient actively consider anxious thoughts for a specified regular short period of time to systematically problem-solve issues that can be resolved and returning to those that cannot in the next “worry time”	“assign a certain time each day as worry time, with the aim of controlling the intrusive thoughts” (Andersson 1997, pp. 89)
Emotions (9)	Concerns identifying and discussing the effect of the patient’s tinnitus on their emotions and how to change them	“The eight sessions included the following themes: ... [session] 3. ... self-confidence ... The theme of the session was introduced rather briefly, after which the patients were encouraged to speak freely and interact with each other” (Zoger et al. 2008, pp. 66)
Social comparison (21)	Concerns the clinician normalizing tinnitus-related distress and giving the patient reasonable reassurance that psychological therapy can be successful by sharing other’s experiences	“Hope can be increased by assuring the patient that ... others have benefited from similar treatments” (Tyler et al. 2001, pp. 19)
Interpersonal skills (23)	Concerns the clinician exploring the patient’s quality of social interaction and developing their social communication skills	“Often, the partner presents a much different appraisal of the situation than does the patient, and it is important for all lines of communication to be opened as early in the therapeutic process as possible” (Sweetow 1986, pp. 392)
Self-concept (3)	Concerns addressing the patient’s self-concept with respect to confidence, esteem, and image	“Information typically provided ... [includes] how our self-image influences our beliefs and reactions” (Tyler 2006, pp. 7)
Lifestyle advice (21)	Concerns the provision of education on the effect of lifestyle on tinnitus, hearing and general health, and how to maintain good general health	“information on ... pharmacological and dietary influences on tinnitus” (Dineen et al. 1997, pp. 334)

(Continued)

TABLE 2. Continued

Theme (Frequency of Use in the Literature)	Description of Theme	Example of Extracted Data
Acceptance and defusion (5)	Concerns engaging in acceptance and cognitive defusion techniques, that is, to teach the patient to accept private experiences and to distance themselves from private events by attending more mindfully to the processes involved in thinking and feeling	“Specific ACT interventions included exercises that focused on ... distancing of internal experiences (i.e., defusion)” (Hesser et al. 2012, pp. 654)
Mindfulness (24)	Concerns the application of mindfulness meditation techniques	“Mindfulness exercises involved approaching the tinnitus sound and related reactions in a non-judgmental way” (Westin et al. 2011, pp. 739)
Attention (95)	Concerns the clinician guiding the patient in positive visual imagery exercises, attention-shifting exercises, and advising on managing difficulties with concentration	“Concentration management [:] Advice regarding concentration (i.e., taking breaks, dividing tasks into smaller steps, problem solving)” (Kaldo-Sandström et al. 2004, pp. 188)
Relaxation (111)	Concerns physical techniques designed to reduce autonomic arousal including progressive muscle relaxation and breathing exercises, typically entailing the tensing and relaxing of each muscle group in turn and diaphragmatic breathing or inhalation/exhalation-timed breathing, respectively	“Tuition on abdominal breathing exercises involved informing participants about bodily reactions and muscles involved in breathing. Differences between relaxed and stressed breathing were illustrated and discussed.” (Tucker 2013, pp. 71)
Sleep (35)	Concerns the provision of education on sleep and practicing sleep restriction and “sleep hygiene,” that is, making behavioral, dietary, and environmental changes to facilitate sleep	“education about sleep and sleep hygiene” (Gans et al. 2014, pp. 325)
Sound enrichment (51)	Concerns the provision of education on hyperacusis and noise sensitivity, advising the patient to avoid both silence and noise abuse, and use sound enrichment while discussing its effect on the patient’s thoughts	“the cognitive aspects of masking are covered, e.g., how masking of tinnitus and attention may interact)” (Andersson & Kaldo 2006, pp. 100)
Comorbidity (33)	Concerns the provision of education for the patient on hearing loss and its management through hearing tactics; unspecified comorbidities and their management through psychoeducation	“strategies to make the most of existing hearing abilities” (Abbott et al. 2009, pp. 165)
Treatment reflection (39)	Concerns the clinician asking the patient to reflect on their experience of and success with psychological therapy	“rating their success in achieving their program goals” (Abbott et al. 2009, pp. 165)
Relapse prevention (28)	Concerns relapse prevention and how to cope with relapse when it does occur, involving summarizing treatment, advising on early warning signs of relapse, and maintaining learned techniques	“relapse prevention includes a proper discussion of risk factors for developing more severe tinnitus and hearing loss, and devising a plan for what to do should the tinnitus worsen” (Andersson 2001, pp. 71)
Common therapeutic skills (21)	Concerns the clinicians use of common factors of psychological therapies, that is, developing a good rapport demonstrating to the patient that positive regard is held for the patient by the clinician	“Any attempt at change, even if unsuccessful, should be praised” (Sweetow 1984, pp. 52)

(Cima et al. 2012), tinnitus education (Henry et al. 2012), and behavior therapy (Scott et al. 1985) trials although in a limited or unspecified capacity (e.g., involved in posttherapy interviews only). One record detailed a psychological therapy for audiologists to deliver with one relevant case study (Sweetow 1986).

Five records tested psychological therapies that were delivered by a psychology student or trainee including CBT (Kröner-Herwig et al. 1995; Robinson et al. 2008), internet cognitive behavioral therapy (iCBT) (Abbott et al. 2009; Hesser et al. 2012), ACT (Westin et al. 2011), and internet acceptance and commitment therapy (iACT) (Hesser 2012).

DISCUSSION

This scoping review has identified a large number of components of psychological therapy for people with tinnitus either used in clinical practice or tested in experimental conditions.

Despite efforts to tailor the search strategy to encompass a broad spectrum of types of psychological therapies, predominant were tinnitus education, CBT, ACT, and mindfulness. Furthermore, it is these types of psychological therapies that tended to be tested in RCTs. The other types of therapy identified in this review were typically described in case reports or editorials, calling into question the use of Gestalt therapy and existential PCT for people with tinnitus if indeed these are still practiced because the publication of the papers reviewed here. These and other types of theoretically relevant types of therapy are open to pioneering research in helping people with tinnitus.

In attempting to comprehensively list components of psychological therapies across a wide range of different types of therapies, a tacit assumption was made that all forms of psychological therapy would be equally amenable to cataloging. This was not so in the case of existential PCT; Mohr and Hedelund (2006) noted that this type of therapy does not lend itself to



Fig. 2. The number of different types of treatment reported across included records.

manualization because the existential patient centered therapist should be prepared to work with whatever the patient brings to sessions. This presents an epistemological conundrum concerning how much we can know about existential PCT. Or more to the point, it is unclear what functional value an apparently unquantifiable approach to psychological therapy holds in this context. This caveat was not noted for any other type of psychological therapy reviewed here, and in no way is meant to minimize the potential positive impact of such approaches.

This present scoping review simply sets out a catalog of components of psychological therapies for people with tinnitus. Therefore, we would caution any attempt to bring different approaches of psychological therapy together at face value without further input and analysis, as it could risk disjointed therapy of incompatible components to be delivered together in an intervention for people with tinnitus. Indeed, some of the most commonly reported psychological therapies, ACT and mindfulness, are distinguishable from traditional CBT by their focus on helping patients become mindful of their internal experiences and accept them rather than encouraging systematic change of these negative thoughts and sensations as in traditional CBT. One review comparing the characteristics of CBT versus its modern variants (such as ACT and mindfulness) found a divergence in the techniques used as part of these two broad types of therapy. However there were no major differences in the clinician's background or attitude whether delivering traditional CBT and its contemporaries (Brown et al. 2011).

Moreover, therapies such as ACT and mindfulness often emphasize clarification of the patient's values and a more contextual approach to behavior change not unlike in existential therapy and interpersonal approaches, respectively, both of which were captured here. This suggests that it is theoretically permissible to take the diverse components of therapy identified in this review to develop a therapeutically eclectic treatment manual. Indeed, a survey of psychotherapists' therapeutic orientation indicated that eclectic approaches are predominant (Cook et al. 2010). The implication is that the types of therapy accounted for in this review may be incorporated into standardized audiology practice in some way to help people with tinnitus. This may be best achieved by prioritizing therapeutic components from the shared perspective of tinnitus patients and audiologists.

Job Roles of Clinicians Who Have Delivered Psychological Therapy

The range of job roles of the clinicians delivering the psychological therapies reviewed here is narrow, with researchers ubiquitously employing psychologists to deliver therapy. This confirms the conclusion drawn by the James Lind Alliance Tinnitus Priority Setting Partnership that there is limited evidence of audiologist-delivered psychological interventions in the literature (Hall et al. 2013). It is promising then that this review captured trials of CBT and ACT in which students or trainee psychologists delivered the intervention. The implication is

TABLE 3. The number of records using particular research methodology per type of psychological therapy

	RCT	Nonrandomized Experimental Trial	Historical Control Study, Two or More Single Arm Study	Case Series	Case Report	Ideas, Opinions, Editorials, Background Information, Expert Opinion	Not Reported
Relaxation and distraction	1	0	0	0	0	0	0
Acceptance and commitment therapy	1	0	0	0	0	0	0
Attention control and relaxation	0	0	0	1	0	0	0
Attention control and imagery training and cognitive restructuring	1	0	0	0	0	0	0
Behavior therapy	2	0	0	1	1	0	0
Bibliotherapy cognitive behavioral therapy	2	0	0	0	0	0	0
Cognitive behavioral therapy	6	1	0	2	4	7	1
Common factors	0	0	0	0	0	1	0
Existential patient-centered therapy	0	0	0	0	0	2	0
Gestalt therapy	0	0	0	0	1	0	0
Group cognitive behavioral therapy	3	0	0	0	0	0	0
Group cognitive therapy	1	0	0	0	0	0	0
Group eclectic therapy	0	0	1	0	0	0	0
Internet acceptance and commitment therapy	1	0	0	0	0	0	0
Internet cognitive behavioral therapy	6	0	0	1	1	0	0
Joint medico-psychological consultation	0	0	0	1	0	0	0
Mindfulness	1	1	0	1	0	0	0
Psychological counseling	0	0	0	0	0	1	0
Relaxation and distraction	1	0	0	0	0	0	0
Stepped care cognitive behavioral therapy	1	0	0	0	0	0	0
Tinnitus activities training	0	0	0	0	0	1	0
Tinnitus education	5	2	0	1	0	5	0
Tinnitus education and cognitive behavioral therapy	0	0	0	1	0	1	0
Tinnitus education and cognitive therapy	1	0	0	0	0	0	0
Tinnitus education and relaxation	0	0	1	0	0	0	0

RCT, randomized controlled trial.

that it is possible for those without full qualification in clinical psychology to deliver a psychological therapy effectively. Indeed, English and Archbold's (2014) program of audiological counseling, trained audiologists to apply key concepts of professional boundaries, relationship-centered care, and effective responses to what the patient says during treatment. Their 6-month follow-up survey of audiologist's posttraining clinical practice, found a sustained change in clinical practice, for example this was noted in their use of silences, and by responding to distress with empathy. This resonates with some components of psychological therapy cataloged in this scoping review, presented in Table 2 (Supplemental Digital Content 2, <http://links.lww.com/EANDH/A300>). However, English and Archbold's survey followed a program for treating people with psychological distress associated with hearing loss rather than tinnitus. Furthermore, although enduring change in clinical practice was found with respect to skills that are common to a number of different therapies, such as empathy, the survey made no reference to the capacity of audiologists to deliver psychological techniques that are specific to particular therapies, such as helping the patient build the capacity to identify and challenge negative automatic thoughts, restructuring those that are considered to be disruptive to good mental health, as in CBT. Thus, it remains to be seen whether audiologists can effectively implement the components cataloged here.

CONCLUSIONS

Scoping review methodology does not attempt to appraise the quality of evidence or synthesize the included records according to efficacy of the different types of intervention. However, this scoping review confirms a lack of literature for audiologist-delivered psychological interventions for tinnitus and offers a list of potential components for such an intervention.

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REFERENCES

- Aazh, H., Moore, B. C., Glasberg, B. R. (2008). Simplified form of tinnitus retraining therapy in adults: A retrospective study. *BMC Ear Nose Throat Disord*, 8, 7.
- Abbott, J. A., Kaldo, V., Klein, B., et al. (2009). A cluster randomised trial of an internet-based intervention program for tinnitus distress in an industrial setting. *Cogn Behav Ther*, 38, 162–173.
- Amendt-Lyon, N. (2004). Dealing with tinnitus. *Gestalt Rev*, 8, 308–322.
- Andersson, G. (1997). Cognitive-behavioural treatment for tinnitus: A difficult case. *Scand J Behav Ther*, 26, 86–92.
- Andersson, G. (2001). The role of psychology in managing tinnitus: A cognitive behavioral approach. *Semin Hear*, 22, 65–76.
- Andersson, G., & Kaldo, V. (2004). Internet-based cognitive behavioral therapy for tinnitus. *J Clin Psychol*, 60, 171–178.
- Andersson, G. & Kaldo, V. (2006). Cognitive-behavioral therapy with applied relaxation. In R. S. Tyler (Ed.), *Tinnitus Treatment: Clinical Protocols* (pp. 97–115). New York, NY: Thieme.
- Andersson, G., & Larsen, H. C. (1997). Cognitive-behavioural treatment of tinnitus in otosclerosis: A case report. *Behav Cogn Psychother*, 25, 79–82.
- Andersson, G., Vretblad, P., Larsen, H. C., et al. (2001). Longitudinal follow-up of tinnitus complaints. *Arch Otolaryngol Head Neck Surg*, 127, 175–179.
- Andersson, G., Strömgren, T., Ström, L., et al. (2002). Randomized controlled trial of internet-based cognitive behavior therapy for distress associated with tinnitus. *Psychosom Med*, 64, 810–816.
- Andersson, G., Porsaeus, D., Wiklund, M., et al. (2005). Treatment of tinnitus in the elderly: A controlled trial of cognitive behavior therapy. *Int J Audiol*, 44, 671–675.
- Argstatter, H., Grapp, M., Hutter, E., et al. (2015). The effectiveness of neuro-music therapy according to the Heidelberg model compared to a single session of educational counseling as treatment for tinnitus: A controlled trial. *J Psychosom Res*, 78, 285–292.
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qual Res Psychol*, 3, 77–101.
- Brown, L. A., Gaudio, B. A., Miller, I. W. (2011). Investigating the similarities and differences between practitioners of second- and third-wave cognitive-behavioral therapies. *Behav Modif*, 35, 187–200.
- Cima, R. F., Maes, I. H., Joore, M. A., et al. (2012). Specialised treatment based on cognitive behaviour therapy versus usual care for tinnitus: A randomised controlled trial. *Lancet*, 379, 1951–1959.
- Cook, J. M., Biyanova, T., Elhai, J., et al. (2010). What do psychotherapists really do in practice? An internet study of over 2,000 practitioners. *Psychotherapy (Chic)*, 47, 260–267.
- Davis, A. & El Rafea, A. (2000). Epidemiology of tinnitus. In R. S. Tyler (Ed.), *Tinnitus Handbook* (pp. 1–23). San Diego, CA: Singular Publishing Group.
- DeGue, C., & Kos, M. I. (2006). Joint medico-psychological consultation for patients suffering from tinnitus. *ORL J Otorhinolaryngol Relat Spec*, 68, 38–41; discussion 41.
- Dineen, R., Doyle, J., Bench, J. (1997). Managing tinnitus: A comparison of different approaches to tinnitus management training. *Br J Audiol*, 31, 331–344.
- Department of Health. (2009). *Provision of Services for Adults with Tinnitus. A Good Practice Guide*. London, United Kingdom: Central Office of Information.
- English, K., & Archbold, S. (2014). Measuring the effectiveness of an audiological counseling program. *Int J Audiol*, 53, 115–120.
- Gans, J. J., O’Sullivan, P., Bircheff, V. (2014). Mindfulness based tinnitus stress reduction pilot study: A symptom perception-shift program. *Mindfulness*, 5, 322–333.
- Girard, L. (1992). Cognitive and behavioral audiological intervention in adults with tinnitus and deafness. In J. M. Aran & R. Dauman (Eds.), *Proceedings of the Fourth International Tinnitus Seminar* (pp. 493–495). Amsterdam, The Netherlands: Kugler Publications.
- Graul, J., Klinger, R., Greimel, K. V., et al. (2008). Differential outcome of a multimodal cognitive-behavioral inpatient treatment for patients with chronic decompensated tinnitus. *Int Tinnitus J*, 14, 73–81.
- Greimel, K. V. & Kröner-Herwig, B. (2011). Tinnitus from the perspective of the psychologist. In A. R. Möller, B. Langguth, D. DeRidder et al. (Eds.), *Textbook of Tinnitus* (pp. 223–228). New York, NY: Springer.
- Hall, D. A., Mohamad, N., Firkins, L. et al. (2013). Identifying and prioritising unmet research questions for people with tinnitus: The James Lind Alliance Tinnitus Priority Setting Partnership. *Clin Invest*, 3, 21–28.
- Hallam, R. S., Rachman, S., Hinchcliffe, R. et al. (1984). Psychological aspects of tinnitus. In S. Rachman (Ed.), *Contributions to Medical Psychology* (pp. 31–53). Oxford, United Kingdom: Pergamon.
- Hayes, S. C., Masuda, A., Bissett, R. et al. (2004). DBT, FAP, and ACT: How empirically oriented are the new behavior therapy technologies? *Behav Ther*, 35, 3–54.
- Henry, J. L., & Wilson, P. H. (1996). The psychological management of tinnitus: Comparison of a combined cognitive educational program, education alone and a waiting-list control. *Int Tinnitus J*, 2, 9–20.
- Henry, J. L., & Wilson, P. H. (1998). An evaluation of two types of cognitive intervention in the management of chronic tinnitus. *Scand J Behav Ther*, 27, 156–166.
- Henry, J. A., Schechter, M. A., Loovis, C. L., et al. (2005). Clinical management of tinnitus using a “progressive intervention” approach. *J Rehabil Res Dev*, 42(4 Suppl 2), 95–116.
- Henry, J. A., Loovis, C., Montero, M., et al. (2007). Randomized clinical trial: Group counseling based on tinnitus retraining therapy. *J Rehabil Res Dev*, 44, 21–32.
- Henry, J. A., Zaugg, T. L., Myers, P. J., et al. (2009). Principles and application of educational counseling used in progressive audiological tinnitus management. *Noise Health*, 11, 33–48.
- Henry, J. A., Zaugg, T. L., Myers, P. J., et al. (2012). Pilot study to develop telehealth tinnitus management for persons with and without traumatic brain injury. *J Rehabil Res Dev*, 49, 1025–1042.
- Hesser, H., Weise, C., Westin, V. Z., et al. (2011). A systematic review and meta-analysis of randomized controlled trials of cognitive-behavioral therapy for tinnitus distress. *Clin Psychol Rev*, 31, 545–553.
- Hesser, H., Gustafsson, T., Lundén, C., et al. (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, 649–661.
- Hoare, D. J., Kowalkowski, V. L., Kang, S., et al. (2011). Systematic review and meta-analyses of randomized controlled trials examining tinnitus management. *Laryngoscope*, 121, 1555–1564.
- Hoare, D. J., Gander, P. E., Collins, L., et al. (2012). Management of tinnitus in English NHS audiology departments: An evaluation of current practice. *J Eval Clin Pract*, 18, 326–334.
- Hoare, D. J., Broomhead, E., Stockdale, D. et al. (2015). Equity and person-centeredness in the provision of tinnitus services in the UK National Health Service audiology departments. *Eur J Pers Cent Healthc*, 3, 318–326.
- Hubbard, B. (2014). Cognitive behavioural therapy for tinnitus. *Tinnitus Today*, 39, 12–14.
- Jakes, S. C., Hallam, R. S., Rachman, S., et al. (1986). The effects of reassurance, relaxation training and distraction on chronic tinnitus sufferers. *Behav Res Ther*, 24, 497–507.
- Jakes, S. C., Hallam, R. S., McKenna, L., et al. (1992). Group cognitive therapy for medical patients: An application to tinnitus. *Cognit Ther Res*, 16, 67–82.
- Jasper, K., Weise, C., Conrad, I., et al. (2014). Internet-based guided self-help versus group cognitive behavioral therapy for chronic tinnitus: A randomized controlled trial. *Psychother Psychosom*, 83, 234–246.
- Jun, H. J., & Park, M. K. (2013). Cognitive behavioral therapy for tinnitus: Evidence and efficacy. *Korean J Audiol*, 17, 101–104.
- Kaldo, V., Cars, S., Rahnert, M., et al. (2007). Use of a self-help book with weekly therapist contact to reduce tinnitus distress: A randomized controlled trial. *J Psychosom Res*, 63, 195–202.
- Kaldo, V., Levin, S., Widarsson, J., et al. (2008). Internet versus group cognitive-behavioral treatment of distress associated with tinnitus: A randomized controlled trial. *Behav Ther*, 39, 348–359.
- Kaldo-Sandström, V., Larsen, H. C., Andersson, G. (2004). Internet-based cognitive-behavioral self-help treatment of tinnitus: Clinical effectiveness and predictors of outcome. *Am J Audiol*, 13, 185–192.
- Kreuzer, P. M., Goetz, M., Holl, M., et al. (2012). Mindfulness-and body-psychotherapy-based group treatment of chronic tinnitus: A randomized controlled pilot study. *BMC Complement Altern Med*, 12, 235.

- Kröner-Herwig, B., Hebing, G., van Rijn-Kalkmann, U., et al. (1995). The management of chronic tinnitus—Comparison of a cognitive-behavioural group training with yoga. *J Psychosom Res*, *39*, 153–165.
- Kröner-Herwig, B., Frenzel, A., Fritsche, G., et al. (2003). The management of chronic tinnitus: Comparison of an outpatient cognitive-behavioral group training to minimal-contact interventions. *J Psychosom Res*, *54*, 381–389.
- Lain, D. R. (2006). A bridge of hope: Cognitive behavioural therapy—Learning how to live while having tinnitus. *Tinnitus Today*, *31*, 17–18, 22.
- Lain, D. R. (2008). The bridge to hope: The psychologist's role in treating tinnitus. *Tinnitus Today*, *33*, 14–15, 18.
- Lindberg, P. (1988). Effects of self-control training on tinnitus in a deaf patient: A case study. *Scand J Behav Ther*, *17*, 223–229.
- Lindberg, P., Scott, B., Melin, L., et al. (1988). Behavioural therapy in the clinical management of tinnitus. *Br J Audiol*, *22*, 265–272.
- Lindberg, P., Scott, B., Melin, L., et al. (1989). The psychological treatment of tinnitus: An experimental evaluation. *Behav Res Ther*, *27*, 593–603.
- Martinez-Devesa, P., Perera, R., Theodoulou, M. et al. (2010). Cognitive behavioural therapy for tinnitus. *Cochrane Database Syst Rev*, *9*.
- Mason, J. D., Rogerson, D. R., Butler, J. D. (1996). Client centred hypnotherapy in the management of tinnitus—Is it better than counselling? *J Laryngol Otol*, *110*, 117–120.
- Mays, N., Roberts, E. Popay, J. (2001). Synthesising research evidence. In N. Fulop, P. Allen, A. Clarke, & N. Black (Eds.), *Studying the Organisation and Delivery of Health Services: Research Methods* (pp. 188–220). London, UK: Routledge.
- McKenna, L., Handscomb, L., Hoare, D. J., et al. (2014). A scientific cognitive-behavioral model of tinnitus: Novel conceptualizations of tinnitus distress. *Front Neurol*, *5*, 196.
- Mohr, A. M. (2008). Reflections on tinnitus by an existential psychologist. *Audiol Med*, *6*, 73–77.
- Mohr, A. M. & Hedelund, U. (2006). Tinnitus person-centred therapy. In R. S. Tyler (Ed.), *Tinnitus Treatment: Clinical Protocols* (pp. 198–216). New York, NY: Thieme.
- Nyenhuis, N., Zastrutzki, S., Weise, C., et al. (2013). The efficacy of minimal contact interventions for acute tinnitus: A randomised controlled study. *Cogn Behav Ther*, *42*, 127–138.
- Olsson, R. J. (2001). A practical guide to managing the tinnitus patient. Unpublished doctoral dissertation, Central Michigan University, USA.
- Pinto, P. C., Marcelos, C. M., Mezzasalma, M. A., et al. (2014). Tinnitus and its association with psychiatric disorders: Systematic review. *J Laryngol Otol*, *128*, 660–664.
- Robinson, S. K., Viirre, E. S., Bailey, K. A., et al. (2008). A randomized controlled trial of cognitive-behavior therapy for tinnitus. *Int Tinnitus J*, *14*, 119–126.
- Sadlier, M., Stephens, S. D., Kennedy, V. (2008). Tinnitus rehabilitation: A mindfulness meditation cognitive behavioural therapy approach. *J Laryngol Otol*, *122*, 31–37.
- Scott, B., Lindberg, P., Lyttkens, L., et al. (1985). Psychological treatment of tinnitus. An experimental group study. *Scand Audiol*, *14*, 223–230.
- Searchfield, G. D., Kaur, M., Martin, W. H. (2010). Hearing aids as an adjunct to counseling: Tinnitus patients who choose amplification do better than those that don't. *Int J Audiol*, *49*, 574–579.
- Searchfield, G. D., Magnusson, J., Shakes, G., et al. (2011). Counseling and psycho-education for tinnitus management. In A. R. Møller, B. Langguth, D. DeRidder, et al. (Eds.), *Textbook of Tinnitus* (pp. 535–556). New York, NY: Springer.
- Sweetow, R. W. (1984). Cognitive-behavioral modification in tinnitus management. *Hear Instrum*, *35*, 14–18.
- Sweetow, R. W. (1986). Cognitive aspects of tinnitus patient management. *Ear Hear*, *7*, 390–396.
- Tucker, E. M. (2013) Tinnitus in cochlear implantees: Cognitive behavioural therapy for cochlear implant users. Unpublished doctoral dissertation, University of Southampton, UK.
- Tunkel, D. E., Bauer, C. A., Sun, G. H., et al. (2014). Clinical practice guideline: Tinnitus. *Otolaryngol Head Neck Surg*, *151*(2 Suppl), S1–S40.
- Tyler, R. S. (2006). Neurophysiological models, psychological models, and treatments for tinnitus. In R. S. Tyler (Ed.), *Tinnitus Treatment: Clinical Protocols* (pp. 1–22). New York, NY: Thieme.
- Tyler, R. S., Stouffer, J. L., Schum, R. (1989). Audiological rehabilitation of the tinnitus client. *J Acad Rehabil Audiol*, *22*, 30–42.
- Tyler, R., Haskell, G., Preece, J., et al. (2001). Nurturing patient expectations to enhance the treatment of tinnitus. *Semin Hear*, *22*, 15–21.
- Tyler, R. S., Gehringer, A.K., William, N., et al. (2006). Tinnitus activities treatment. In R. S. Tyler (Ed.) *Tinnitus Treatment: Clinical Protocols* (pp. 117–132). New York, NY: Thieme.
- Westin, V. Z., Schulin, M., Hesser, H., et al. (2011). Acceptance and commitment therapy versus tinnitus retraining therapy in the treatment of tinnitus: A randomised controlled trial. *Behav Res Ther*, *49*, 737–747.
- Wilson, P. H. & Henry, J. L. (2000). Psychological management of tinnitus. In R. Tyler (Ed.), *Tinnitus Handbook* (pp. 263–278). San Diego, CA: Singular Publishing Group.
- Zachriat, C., & Kröner-Herwig, B. (2004). Treating chronic tinnitus: Comparison of cognitive-behavioural and habituation-based treatments. *Cogn Behav Ther*, *33*, 187–198.
- Zenner, H. P., Vonthein, R., Zenner, B., et al. (2013). Standardized tinnitus-specific individual cognitive-behavioral therapy: A controlled outcome study with 286 tinnitus patients. *Hear Res*, *298*, 117–125.
- Zoger, S., Erlandsson, S., Svedlund, J., et al. (2008). Benefits from group psychotherapy in the treatment of severe refractory tinnitus. *Audiol Med*, *6*, 62–72.