



Tinnitus and hyperacusis: what works?

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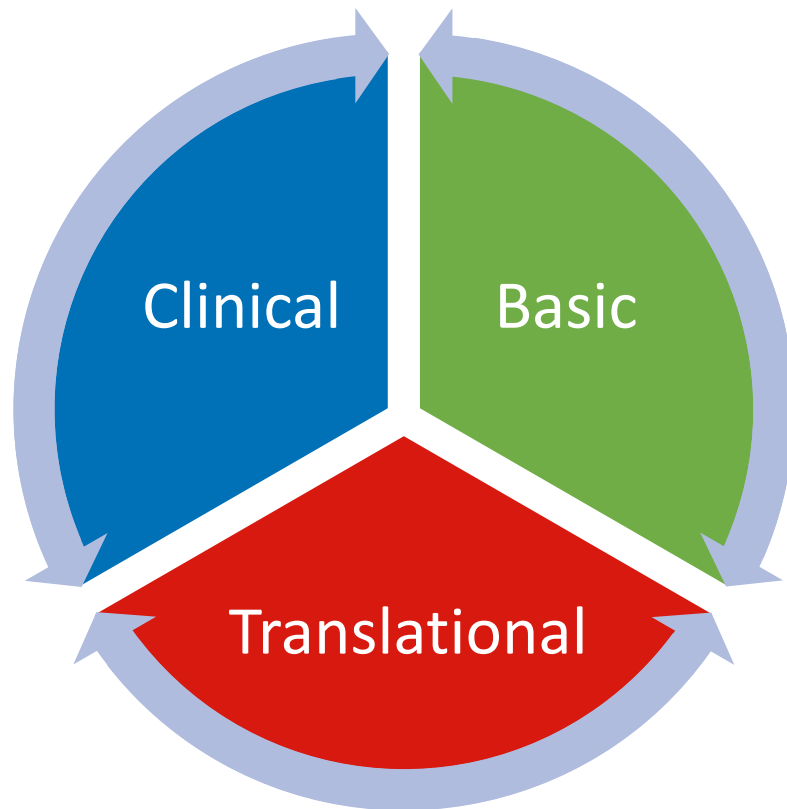


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Potential conflicts of interest

Consultancy

- Oticon
- Otonomy

Book royalties

Past-President, British Tinnitus Association

Past Trustee, Ear Foundation

Tinnitus and Hyperacusis care:

- Private practice, Tinnitus and Hyperacusis Network
- NHS Practice: Nottingham University Hospital

Overview

Why is there no cure for tinnitus?

The tinnitus problem

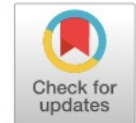
Evidence and guidelines

Hyperacusis

Why is there no cure for tinnitus?

CONCEPTUAL ANALYSIS ARTICLE

Front. Neurosci., 06 August 2019 | <https://doi.org/10.3389/fnins.2019.00802>



Why Is There No Cure for Tinnitus?



Don J. McFerran^{1,2*},



David Stockdale²,



Ralph Holme³,



Charles H. Large⁴ and



David M Baguley^{2,5,6,7}

Why is there
no cure for
tinnitus?

Insufficient research

No clear definition

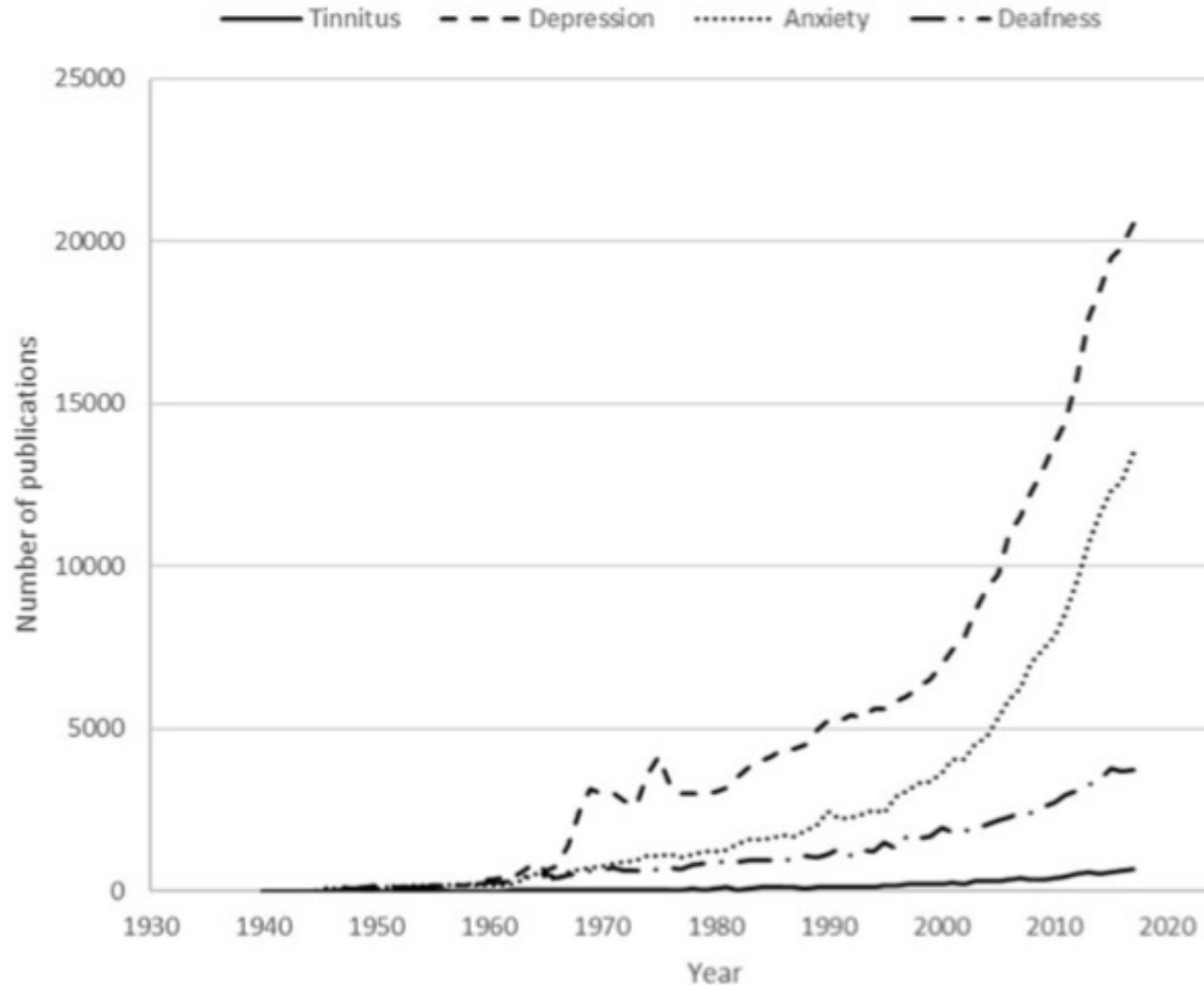
Unclear epidemiology

Unclear mechanisms

Multiple subtypes

No objective measure

Insufficient research



Why is there
no cure for
tinnitus?

Insufficient research

No clear definition

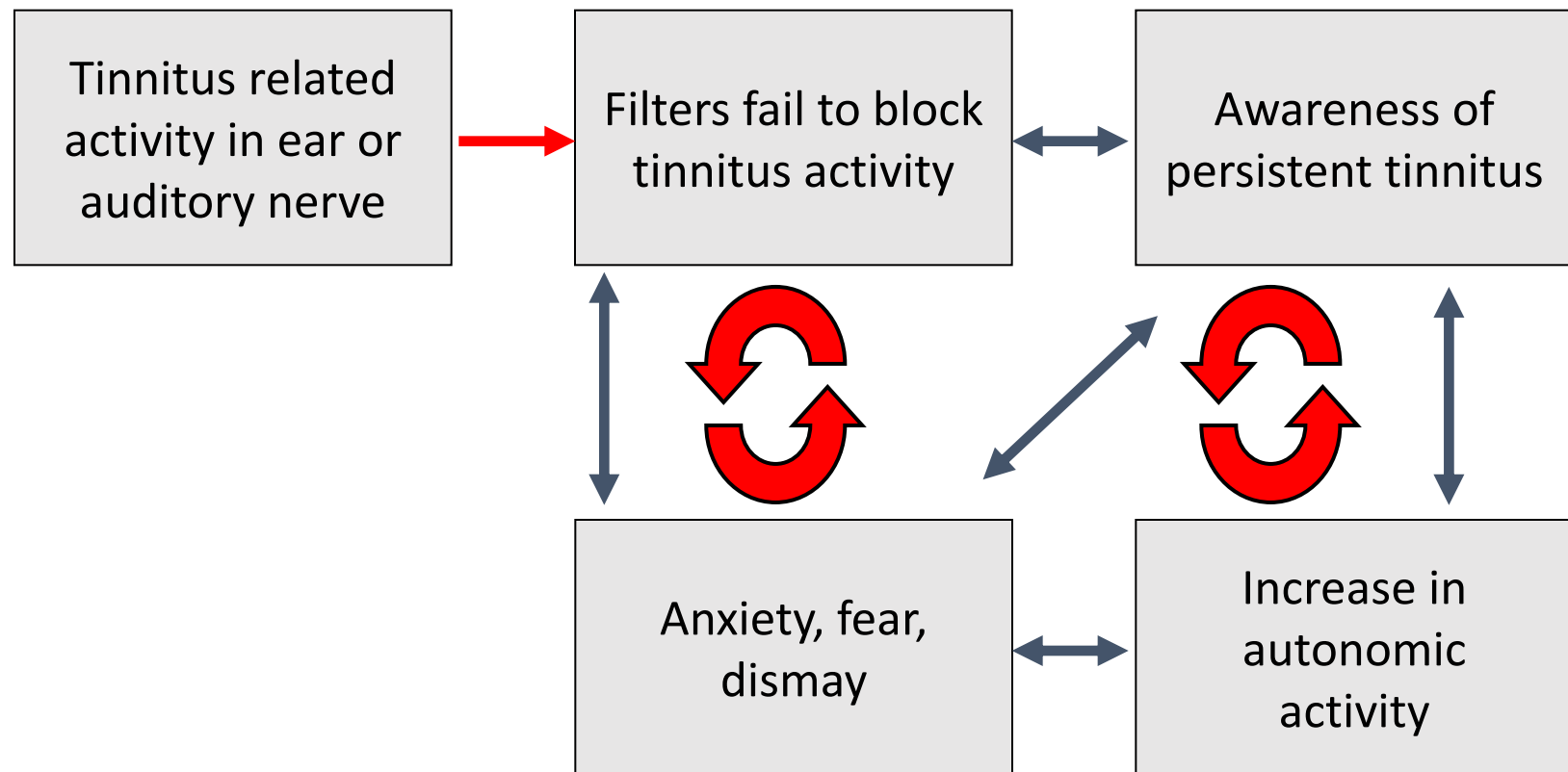
Unclear epidemiology

Unclear mechanisms

Multiple subtypes

No objective measure

Vicious circles of severe tinnitus



Clinical implications

Combination therapies

Reduce salience/meaning

Reduce arousal

Reduce intrusiveness

Evidence: psychology

Fuller et al. (2020)

Cochrane review on CBT for tinnitus

28 studies, n=2733

Limited evidence of benefit

- CBT may be effective in reducing the negative impact that tinnitus can have on quality of life. There is, however, an absence of evidence at 6 or 12 months follow-up.

Better studies needed urgently

Acceptance and commitment therapy

- Westin et al (2011)

Internet delivered CBT

Beukes et al. (2018)

Audiologist guided iCBT is

- feasible
- acceptable
- Effective
- Sustained benefit

> [JAMA Otolaryngol Head Neck Surg.](#) 2018 Dec 1;144(12):1126-1133.
doi: 10.1001/jamaoto.2018.2238.

Effectiveness of Guided Internet-Based Cognitive Behavioral Therapy vs Face-to-Face Clinical Care for Treatment of Tinnitus: A Randomized Clinical Trial

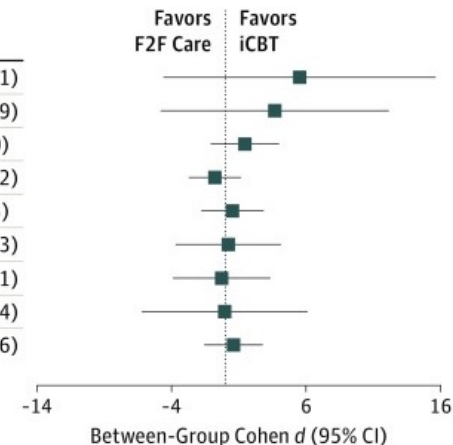
Eldré W Beukes^{1 2}, Gerhard Andersson^{3 4}, Peter M Allen^{1 5}, Vinaya Manchaiah^{2 6 7},
David M Baguley^{8 9 10}

Internet delivered CBT

Beukes et al. (2018)

- Randomised non inferiority trial
- n=92, 88 completed

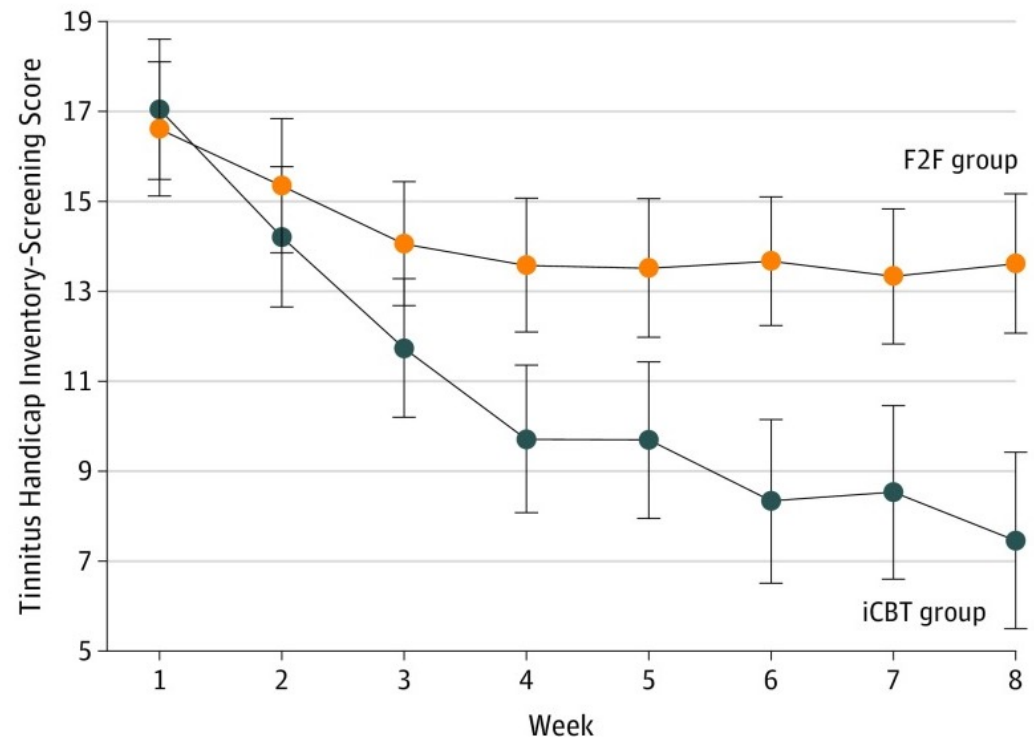
Assessment Measure	Between-Group Effect Size, Cohen <i>d</i> (95% CI)
Tinnitus Functional Index	0.45 (-0.01 to 0.91)
Tinnitus Handicap Inventory	0.33 (-0.13 to 0.79)
Insomnia Severity Index	0.74 (0.26 to 1.20)
Generalized Anxiety Disorder-7	-0.03 (-0.49 to 0.42)
Patient Health Questionnaire-9	0.57 (0.10 to 1.03)
Hearing Handicap Inventory for Adults-Screening	0.27 (-0.19 to 0.73)
Hyperacusis Questionnaire	-0.05 (-0.40 to 0.51)
Cognitive Failures Questionnaire	-0.18 (-0.28 to 0.64)
Satisfaction With Life Scales	0.10 (-0.36 to 0.56)



Internet delivered CBT

Beukes et al. (2018)

- Randomised non inferiority trial
- n=97 88 completed



Evidence: relaxation

Beukes et al. (2021)

Relaxation component of iCBT

- n=126, n=59 completed
- i-relaxation (10 sessions) vs iCBT
- Poor compliance (?COVID-19)
- Benefits in both groups, >iCBT

> [Internet Interv.](#) 2021 May 12;25:100402. doi: 10.1016/j.invent.2021.100402. eCollection 2021 Sep.

Dismantling internet-based cognitive behavioral therapy for tinnitus. The contribution of applied relaxation: A randomized controlled trial

Eldré W Beukes ^{1 2}, Gerhard Andersson ^{3 4}, Marc A Fagelson ^{5 6}, Vinaya Manchaiah ^{1 7}

Evidence: sound therapy

Sereda et al. (2018)

Cochrane review on sound therapy for tinnitus

8 studies, 7 RCT, n=590

Hearing aids, sound generators, combination

Minimal/no evidence of benefit

- There is no evidence to support the superiority of sound therapy for tinnitus over waiting list control, placebo or education/information with no device.

Better studies needed urgently

- Population to study?

Hearing aid data at odds with clinical experience

Apps for tinnitus

Sereda et al. (2019)

Survey n=643

75% never used apps, no awareness

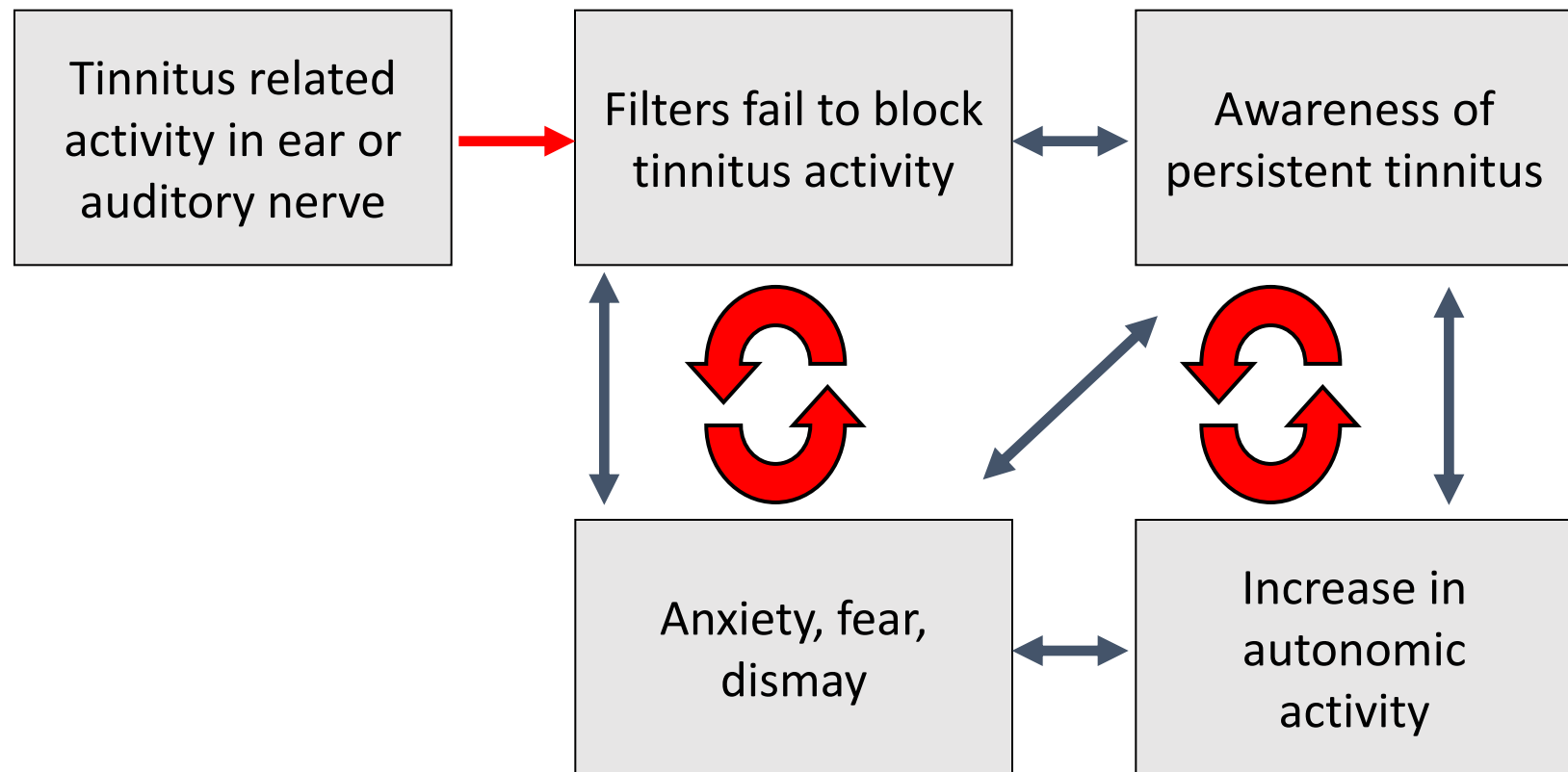
55 apps in use

- Many not tinnitus specific
- Sleep, relaxation, mindfulness

Very variable quality (MARS)

Role of apps as adjunct, not main therapy

Vicious circles of severe tinnitus



A multidisciplinary European guideline for tinnitus: diagnostics, assessment, and treatment

R F F Cima^{1 2}, B Mazurek³, H Haider⁴, D Kikidis⁵, A Lapira⁶, A Noreña⁷, D J Hoare^{8 9}

Table 4 Summary of recommendations from a systematic review of clinical practice guidelines for tinnitus

Summary of recommendations regarding the assessment of subjective tinnitus

- Conduct a physical examination to exclude possible (physical) causes of tinnitus
- Conduct an audiological assessment
- Establish the degree to which a patient experiences subjective tinnitus as bothersome or distressing using a validated and reliable questionnaire such as the Tinnitus Questionnaire, Tinnitus Handicap Inventory, or Tinnitus Functional Index
- In situations where patients appear to be experiencing a degree of distress or difficulties related to living with tinnitus, consider making a referral for an assessment by a psychologist or psychiatrist
- Variations exist in recommendations regarding the use of imaging studies (e.g. magnetic resonance imaging)

Summary of therapeutic recommendations regarding the treatment of subjective tinnitus

- Provide information about tinnitus and treatment options
- Use hearing aids only when patients have a diagnosed hearing loss
- Specialised cognitive behavioural therapy for tinnitus should be offered to patients
- There is a lack of consensus on the use (or otherwise) of sound therapy for tinnitus
- Prescribed and herbal medicines and dietary supplements should not be used for the sole treatment of tinnitus
- Transcranial magnetic stimulation is not recommended as a treatment for tinnitus

NICE guideline (2020)

Hearing aids for
hearing loss

No recommendation
on sound therapy

Offer specialized CBT
when distress requires

[Home](#) > [NICE Guidance](#) > [Conditions and diseases](#) > [Ear, nose and throat conditions](#)

Tinnitus: assessment and management

NICE guideline [NG155] Published: 11 March 2020

Guidelines

Benefits

- Uniformity
- Commissioning
- Access to treatments
- 'There is nothing that can be done' - no

Challenges

- Feasibility
- Can potentially stifle progress and innovation
- Lack of evidence for benefit does not equal no benefit

Clinical implications

Explanation

- Getting the vocabulary right
- Mechanisms, impact, therapy

Network

- Access to Psychology

Emphasis

Order of interventions

- Stepped care

Hyperacusis Definition

Adams et al. (2021)

Clinician consensus Delphi study

- "A reduced tolerance to sound(s) that are perceived as normal to the majority of the population or were perceived as normal to the person before their onset of hyperacusis"

> [Int J Audiol.](#) 2021 Aug;60(8):607-613. doi: 10.1080/14992027.2020.1855370. Epub 2020 Dec 11.

A Delphi survey to determine a definition and description of hyperacusis by clinician consensus

Bethany Adams ^{1 2}, Magdalena Sereda ^{1 2}, Amanda Casey ³, Peter Byrom ⁴,
David Stockdale ⁵, Derek J Hoare ^{1 2}

Hyperacusis Impact

Fear of injury

Fear of exposure, exacerbation

Pain

Anxiety

Emotional exhaustion

Hyperacusis prevalence

Adults

- Paulin et al. (2016)
- N=3406
- Physician diagnosed: 1.9%
- Self report: 9.2%
- Women 70%

Children

- Hall et al. (2015)
- Aged 11 y, n=7093
- 3.7%

Hyperacusis and tinnitus

Baguley (2016)

Primary complaint of hyperacusis

- Tinnitus in 90%

Primary complaint of tinnitus

- Hyperacusis in 40%

Problems

- relative severity
- timing
- treatment responsiveness

Tinnitus and hyperacusis

Tinnitus

- Often unilateral/lateralized
- Often intermittent
- Formless sound
- High somatic modulation
- ? anger

Hyperacusis

- Bilateral
 - Sound is salient/vivid
 - Rarely intermittent
 - Low somatic modulation
 - ? Shame
-
- Baguley (2016)

Treatment

Cognitive
Behavioural Therapy
(Juris et al., 2014)

Sound therapy

- Night time
- Day time

Sound therapy

Children

- Night-time bedside device

Adults

- Ear level sound generators
- Night-time bedside device

Consistent, comfortable level

Recalibrate auditory gain

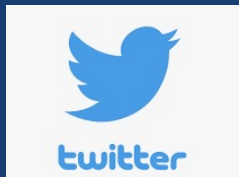
Summary

Evidence base is growing

Some major omissions

Recent guidelines exist

Must not stifle innovation



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