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Stress Management in Multidisciplinary Tinnitus Care: Otolaryngology Perspective

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ABSTRACT

Introduction: *Tinnitus is a common otologic complaint whose disability is shaped by stress, sleep disturbance, maladaptive attention, and negative appraisal.* ***Purpose:*** *This review synthesizes stress management from an otolaryngology perspective and introduces a phenotype-informed stepped-care algorithm and referral matrix.* ***Methods:*** *A targeted narrative review searched PubMed, ScienceDirect, and Google Scholar up to 2025, prioritizing guidelines, systematic reviews, meta-analyses, randomized trials, and adult studies of persistent bothersome tinnitus. Of 96 records, 32 were included.* ***Results:*** *Care should be matched to hearing loss, psychological distress, insomnia, somatosensory factors, or combined mechanisms. Cognitive behavioral therapy (CBT) is a structured psychotherapy addressing relationships among thoughts, emotions, and behaviors; in tinnitus, it reduces distress by modifying negative appraisal, attentional fixation, avoidance, and emotional responses rather than eliminating the sound. Mindfulness, acceptance and commitment therapy, CBT for insomnia, guided internet interventions, hearing rehabilitation, and orofacial or cervical treatment may benefit selected phenotypes. Otolaryngologists identify red flags, exclude secondary causes, provide counseling, assess hearing, and coordinate care.* ***Conclusions:*** *Stress management integrated across auditory, psychological, sleep, and somatosensory pathways can reduce disability even when tinnitus persists.*

1. INTRODUCTION

Tinnitus is one of the most common otologic complaints encountered in routine practice, yet it remains one of the most heterogeneous. Recent expert synthesis suggests that approximately 15% of adults experience tinnitus, while a smaller but clinically important subset, around 2.4%, report significant distress and functional burden.[1] Prevalence data from Asian and lower-middle-income settings, though less systematically reported, suggest patterns broadly consistent with global estimates, underscoring that the burden of tinnitus-related distress is not limited to high-income healthcare systems. This distinction is crucial. Many patients perceive tinnitus without major impairment, whereas others develop severe sleep disturbance, concentration problems, emotional exhaustion, occupational dysfunction, and persistent health-related anxiety. The degree of suffering often correlates more closely with distress mechanisms than with the acoustic characteristics of tinnitus itself [1,2] as elaborated in the cognitive-behavioral model of tinnitus distress.

Stress occupies a central place in this clinical heterogeneity. A scoping review found a substantial body of literature linking tinnitus with stress in adults, although study methods and outcome measures were variable.[3] More recent synthesis has reinforced the view that

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psychosocial stress can function as both a precipitating and perpetuating factor, and that the interaction may be bidirectional.[4] Patients frequently report tinnitus worsening during periods of emotional overload, poor sleep, illness, work strain, or interpersonal conflict. Conversely, chronic intrusive tinnitus may become a sustained source of stress that drives autonomic activation, hypervigilance, and maladaptive coping .[3,4]

For this reason, modern tinnitus care has gradually moved away from a purely sound-centered or lesion-centered framework. European, American, United Kingdom, and VA/DoD guidance now supports a multidimensional approach that combines otologic evaluation, audiologic rehabilitation, structured counseling, psychological intervention, and targeted referral when indicated. Across guidelines, counseling and CBT are the most consistently recommended interventions for chronic bothersome tinnitus.[5–10] From the perspective of an otolaryngologist, this has practical implications: the specialist must not only exclude dangerous or treatable causes of tinnitus, but also recognize when the main driver of disability is stress-related symptom amplification rather than progressive ear disease.

This review examines stress management as part of multidisciplinary tinnitus care. The aim is not to redefine tinnitus as a psychiatric disorder, nor to minimize its auditory substrate, but to clarify how stress-focused strategies can reduce tinnitus-related disability. Particular attention is given to the role of the otolaryngologist in triage, communication, early counseling, and referral coordination.

Existing reviews and guidelines synthesize tinnitus treatments, but they do not consistently translate the heterogeneity of tinnitus-related distress into a practical, otolaryngology-led pathway. The novelty of this narrative review is its phenotype-informed stepped-care algorithm and evidence-based referral matrix, which integrate auditory, psychological, sleep, and somatosensory drivers and clarify when the otolaryngologist should initiate care, combine pathways, or coordinate referral.[1,5,7,9,10]

2. METHODS

This manuscript is a targeted narrative review informed by a literature search of PubMed, ScienceDirect, and Google Scholar from database inception to 2025. Search terms combined “tinnitus” with “psychological stress,” “cognitive behavioral therapy,” “multidisciplinary care,” “insomnia,” “hearing rehabilitation,” and “somatosensory tinnitus.” Priority was given to contemporary clinical practice guidelines, systematic reviews, meta-analyses, randomized controlled trials, and adult studies that provided clinically relevant information on persistent subjective bothersome tinnitus. Eligibility focused on tinnitus-related distress (THI/TFI), perceived stress, sleep, quality of life, auditory rehabilitation, somatosensory treatment, and otolaryngology-specific implementation. Studies limited to pulsatile tinnitus, secondary structural causes, or pediatric populations were not prioritized unless they informed diagnostic triage. Records were screened in two stages (title/abstract followed by full-text review), and eligible evidence was organized narratively by dominant clinical phenotype and intervention type. Because the purpose was interpretive clinical synthesis rather than comparative effect estimation, no formal risk-of-bias assessment or quantitative meta-analysis was performed. A total of 96 records were identified, 78 remained after duplicate removal, 40 full-text articles were assessed, 8 were excluded, and 32 articles were included in the final narrative synthesis.

3. RESULTS AND DISCUSSIONS

Why Stress Matters in Tinnitus

The relationship between tinnitus and stress is biologically plausible and clinically visible. The contemporary cognitive-behavioral model of tinnitus proposes that distress emerges not simply from sound perception, but from negative appraisal, selective attention, safety behaviors, and persistent physiological arousal. In this framework, tinnitus becomes threatening when it is interpreted as a sign of damage, loss of control, or permanent deterioration. The patient then monitors the sound more closely, reacts emotionally, and attempts to suppress or avoid it, all of which can paradoxically maintain awareness of the symptom.[2]

Autonomic dysregulation appears to play a role in this process. Neurophysiological work linking tinnitus-related distress to altered heart rate variability supports the concept that bothersome tinnitus is associated with sympathetic predominance and impaired stress regulation.[11] Although such biomarkers are not ready for routine clinical stratification, they reinforce an important therapeutic principle: what requires treatment in many patients is not only the auditory percept, but also the body's stress response to that percept.

Sleep disturbance further amplifies this cycle. Poor sleep lowers emotional resilience, increases sensory irritability, reduces coping capacity, and makes nocturnal tinnitus especially intrusive. Several studies have shown strong associations between tinnitus severity, insomnia, and daytime dysfunction.[12,13] In practical terms, the clinician should expect stress, autonomic arousal, and sleep fragmentation to interact as a feedback loop rather than isolated variables.

This conceptualization is useful because it changes the clinical question from "How do we eliminate the sound?" to "Which mechanisms are making the sound disabling in this patient?" In some individuals, hearing loss and listening effort dominate. In others, the main problem is catastrophic thinking, panic, insomnia, depression, or temporomandibular dysfunction. A stress-informed multidisciplinary model helps disentangle these pathways.[1–3,9]

The Otolaryngologist’s Role in Multidisciplinary Tinnitus Care

In the multidisciplinary management of tinnitus, the otolaryngologist serves as the clinical entry point and plays a pivotal role in shaping subsequent care. Because tinnitus may arise from benign auditory dysfunction as well as structural, vascular, inflammatory, neurologic, or neoplastic conditions, early otolaryngologic assessment is essential to identify warning signs and exclude secondary causes. Once serious pathology has been ruled out, the otolaryngologist must determine the dominant contributors to tinnitus-related burden, provide clear and reassuring information, initiate first-line management, and coordinate referral to relevant disciplines. Therefore, the otolaryngologist’s role in multidisciplinary tinnitus care can be understood through four interrelated responsibilities. [5,7,10]

The first responsibility is diagnostic. Pulsatile tinnitus, unilateral tinnitus with asymmetric hearing loss, vestibular symptoms, focal neurologic deficits, otalgia, otorrhea, and sudden hearing change require targeted evaluation because they may indicate a structural, vascular, inflammatory, or neoplastic process.[5,10] Only after serious secondary causes are excluded should tinnitus be framed as primary or idiopathic bothersome tinnitus.

The second responsibility is phenotyping. The otolaryngologist is often the first clinician in a position to determine whether the patient's burden is driven predominantly by hearing loss, hyperacusis, sleep disturbance, psychological distress, somatosensory factors, or a mixture of these elements. Simple use of validated questionnaires such as the Tinnitus Handicap Inventory (THI) or Tinnitus Functional Index (TFI), together with brief screening for anxiety, depression,

insomnia, and somatosensory modulation (including jaw pain, clenching, and cervical symptoms), can rapidly improve referral decisions and follow-up planning.[1,5]

The third responsibility is communication. The initial consultation is not merely a diagnostic encounter; it is often the first therapeutic intervention. The way tinnitus is explained may either reduce fear or intensify it. Guidance from major organizations emphasizes the value of structured information, reassurance without dismissal, and early discussion of aggravating factors including stress and sleep loss.[6,8] In other words, the otolaryngologist should not wait for psychology referral before beginning stress-oriented management. Early counseling, expectation setting, and explanation of the tinnitus-stress cycle are already part of treatment.

Finally, the otolaryngologist acts as coordinator. Multidisciplinary tinnitus care may involve audiologists, psychologists, psychiatrists, sleep specialists, physiotherapists, dentists, pain specialists, and primary care physicians. The role of the ENT specialist is to determine which pathway is most appropriate and to sequence referrals in a way that matches the dominant clinical phenotype. [5,7,10]

Stress Management Strategies within Multidisciplinary Tinnitus Care

After defining the core roles of the otolaryngologist, the next step is to select stress management strategies that align with the patient's clinical needs. Stress management should be integrated from the beginning of tinnitus care, not introduced only after other interventions have failed. In many patients, distress is not caused by the tinnitus percept alone, but also by fear, sleep disturbance, persistent symptom monitoring, hearing-related difficulties, or physical tension that increases tinnitus intrusiveness. Therefore, clinicians should identify the dominant source of burden and choose the most appropriate intervention, including therapeutic counseling, cognitive behavioral therapy, mindfulness-based intervention, acceptance-based therapy, sleep-focused treatment, relaxation techniques, digital intervention, hearing rehabilitation, or somatosensory management.[5,8] Sleep disturbance requires particular attention because insomnia can increase tinnitus intrusiveness and emotional distress.[12,13]

1. Therapeutic counseling and education

Counseling is a cornerstone of tinnitus management and should begin at first contact. High-quality counseling does more than provide information; it reframes tinnitus from an incomprehensible threat into a symptom that can be evaluated and managed. Educational counseling can reduce uncertainty, normalize fluctuating symptom intensity, improve coping, and reduce catastrophic interpretations. A meta-analysis of randomized trials suggested that educational counseling alone can provide measurable benefit for some patients with tinnitus [14]. Guideline bodies also emphasize self-help advice, explanation of aggravating factors, and discussion of relaxation strategies as part of standard care.[6]

From an otolaryngology perspective, the most useful counseling messages are concrete: tinnitus severity does not always reflect ear damage; stress and insomnia can increase intrusiveness; improvement is often gradual rather than immediate; and treatment aims to reduce burden even when the percept does not fully disappear. Reassurance should be evidence-based rather than dismissive. Patients who are told that "nothing can be done" are more likely to seek fragmented care and less likely to engage with effective behavioral treatment.[5,6,14]

Table 1.
Phenotype-informed stress-management pathways in bothersome tinnitus.

Pathway	Typical findings	Suggested management	Otolaryngologist's role	Refs.
Core management for all patients	Persistent bothersome tinnitus after urgent secondary causes are excluded	Education, reassurance, hearing review, noise and medication advice, simple sound enrichment, and shared planning	Identify red flags; perform otoscopy, audiometry, and THI/TFI; screen mood, sleep, and somatosensory features; arrange follow-up	5–10,14
Psychological distress	Catastrophic appraisal, anxiety/depression, hypervigilance, avoidance, high THI/TFI, or functional restriction	Tinnitus-focused CBT; consider ACT, mindfulness-based therapy, or psychiatric care according to need	Explain that treatment targets distress rather than loudness; assess safety and function; coordinate a qualified psychological referral	15–22,25
Insomnia	Prolonged sleep latency, nocturnal intrusiveness, repeated awakenings, non-restorative sleep, or daytime dysfunction	Sleep-focused counseling, CBT-I, and sleep-specialist referral when clinically indicated	Ask about sleep and hypnotic use; identify coexisting risk; monitor sleep and daytime function	12,13,23
Hearing loss or communication strain	Audiometric hearing loss, listening effort, communication difficulty, social fatigue, or reduced participation	Hearing aids, auditory rehabilitation, communication strategies, and sound support	Complete audiologic assessment; discuss amplification; coordinate audiology or cochlear-implant evaluation when appropriate	29,30,32
Somatosensory features	Jaw/neck pain, bruxism, TMD, cervical dysfunction, or tinnitus modulation with head or jaw movement	Orofacial treatment, physiotherapy, dental/TMD care, and stress-reduction support	Screen jaw and cervical features; exclude competing pathology; coordinate targeted musculoskeletal care	31
Limited-access setting	Geographic barriers, scarce trained therapists, mobility limitations, or preference for remote care	Guided internet CBT, telerehabilitation, or hybrid care with adherence support	Assess digital literacy, language, severity, safety, and engagement; retain clinical follow-up and escalation pathways	25–28

Abbreviations: ACT, acceptance and commitment therapy; CBT, cognitive behavioral therapy; CBT-I, cognitive

behavioral therapy for insomnia; THI, Tinnitus Handicap Inventory; TFI, Tinnitus Functional Index; TMD, temporomandibular disorder. Source: Authors' synthesis from references 5–10 and 12–32.

2. Cognitive behavioral therapy

Cognitive behavioral therapy is a structured psychotherapy that focuses on the reciprocal relationships among thoughts, emotions, and behaviors. In tinnitus, CBT does not aim to remove the auditory percept; instead, it modifies catastrophic or negative appraisal, attentional fixation, avoidance and safety behaviors, and maladaptive emotional responses. By changing how patients interpret and respond to persistent tinnitus, CBT can reduce stress, anxiety, insomnia, and functional interference even when the perceived sound remains.[16,17]

CBT remains the intervention with the strongest and most consistent evidence for chronic bothersome tinnitus.[5,8,15] A Cochrane review concluded that CBT may reduce the negative impact of tinnitus on quality of life at the end of treatment, although long-term evidence beyond follow-up remains less certain.[16] A network meta-analysis found that guided self-administered CBT ranked especially well for tinnitus-related quality of life, anxiety, and depression outcomes, while face-to-face CBT also showed meaningful benefit.[17] Importantly, CBT is not primarily a loudness-reduction treatment. Its main targets are distress, maladaptive appraisal, attentional fixation, avoidance, and impaired functioning.

This distinction is highly relevant in ENT clinics, where patients often ask for a treatment that "stops the noise." When tinnitus loudness remains stable but distress declines, treatment should still be considered successful. The otolaryngologist can facilitate acceptance of this model by explaining that bothersome tinnitus behaves partly like a chronic symptom-modulation disorder, in which central interpretation and coping strongly influence day-to-day severity.[17] Ideal candidates for CBT include patients with chronic bothersome tinnitus, significant preoccupation, anxiety, reduced concentration, activity restriction, or persistent frustration despite reassurance. CBT may be delivered individually, in groups, or through structured digital platforms when access is limited.[16,17,25]

3. Mindfulness-based interventions

Mindfulness-based approaches, particularly mindfulness-based cognitive therapy (MBCT), are increasingly used in tinnitus management. Their rationale is straightforward: many patients become trapped in repetitive monitoring of tinnitus, emotional reactivity, and a prolonged struggle to suppress the sound. Mindfulness training aims to reduce this reactive loop by cultivating nonjudgmental attention and decreased fusion with distressing internal experiences. Randomized trials suggest benefit. MBCT has been associated with reductions in tinnitus-related distress, and in one trial mindfulness meditation outperformed relaxation therapy on several outcomes.[18,19] A systematic review found that most available studies reported significant post-treatment reduction in tinnitus distress, although the evidence base remains limited by sample size and methodological heterogeneity.[20] In clinical practice, mindfulness may be particularly useful for patients whose distress is characterized by rumination, hypervigilance, and emotional exhaustion rather than overt panic or severe depressive symptoms.

4. Acceptance and commitment therapy

ACT can be understood as a functionally oriented extension of the behavioral model. Instead of trying to eliminate tinnitus-related thoughts or sensations, ACT targets experiential avoidance, cognitive fusion, and loss of engagement with valued life activities. This makes it attractive for chronic tinnitus, where total symptom elimination is often unrealistic. A pilot randomized clinical

trial comparing brief group interventions found that an ACT-based program reduced tinnitus distress compared with usual care.[21] A recent meta-analysis reported a clinically meaningful pooled improvement in THI scores among patients receiving ACT-based interventions.[22] From the otolaryngologist's perspective, ACT is especially relevant for patients who say that life is "on hold" until the tinnitus disappears. In such cases, the core therapeutic task may be restoration of function and values-based activity despite the ongoing percept.

5. Sleep-focused treatment and CBT for insomnia

The tinnitus-stress relationship cannot be adequately addressed without sleep assessment. Poor sleep is common in chronic tinnitus and is strongly associated with worse symptom burden.[12,13] This has important clinical implications because sleep disturbance is both a marker of distress severity and a modifiable treatment target. A randomized trial of CBT for insomnia (CBT-I) in tinnitus-related insomnia found substantial improvements in sleep, functioning, and mental health, with more than 80% of treated participants achieving clinically meaningful improvement.[23] For the otolaryngologist, this means that the standard tinnitus history should include sleep latency, awakenings, non-restorative sleep, hypnotic use, and the degree to which tinnitus dominates the pre-sleep period. Patients with prominent insomnia may derive major benefit from referral to CBT-I even if they are not ready for a broader psychological intervention. In some patients, improving sleep meaningfully reduces daytime tinnitus distress.

6. Relaxation, breathing techniques, and biofeedback

Relaxation-based methods are widely used by patients and clinicians because they are low cost, low risk, and intuitively aligned with the stress response. These include diaphragmatic breathing, progressive muscle relaxation, applied relaxation, guided imagery, and biofeedback-based interventions. The evidence is more limited than for CBT, but not absent. A recent systematic review and network meta-analysis of noninvasive interventions suggests that relaxation/biofeedback approaches may provide benefit for chronic tinnitus, although effects vary and the certainty of evidence is generally lower than for CBT.[24] At the same time, guideline-level evidence for relaxation alone is weaker and less consistent than for CBT-based care.[8,17] In practice, relaxation should be framed as an adjunct rather than a stand-alone definitive treatment for chronic bothersome tinnitus. It can be especially helpful in patients with clear somatic tension, panic symptoms, or bedtime worsening. Brief relaxation exercises are also clinically useful during the interval before formal multidisciplinary therapy becomes available.

7. Digital and hybrid stress-management interventions

Access to trained tinnitus psychologists remains limited in many settings. This has accelerated development of internet-based and hybrid interventions. Audiologist-guided internet CBT has shown meaningful reductions in tinnitus distress and insomnia in randomized study.[25] A systematic review of telerehabilitation concluded that remote self-management interventions can be effective, although dropout is a recurring challenge and the quality of evidence remains variable.[26] More recent meta-analyses have reported significant improvements in THI, TFI, and distress outcomes with internet-based psychological interventions, including evidence that benefits may remain stable over longer follow-up.[27,28] This is especially relevant for contemporary otolaryngology practice. Digital care can expand access for patients living far from tertiary centers, those with mobility limitations, or regions where trained psychologists are scarce. However, adherence, digital literacy, symptom severity, and language adaptation should be

considered when recommending remote programs. Digital delivery is not synonymous with low-intensity care; in some cases, guided online CBT may be an evidence-based first-line option.

8. Hearing rehabilitation and indirect stress reduction

Although hearing aids and cochlear implantation are not usually categorized as stress-management treatments, they may reduce stress indirectly by lowering listening effort, improving communication, reducing social fatigue, and decreasing tinnitus salience. A scoping review found that many studies reported tinnitus benefit with hearing aid use, although the overall evidence base remains heterogeneous [29]. In a randomized controlled design, hearing therapy improved tinnitus-related distress and was accompanied by improvement in perceived stress over follow-up. In selected patients with severe hearing loss, cochlear implantation may also reduce tinnitus distress, although existing data are limited by small samples and risk of bias.[30]

The practical message is that stress management in tinnitus should not be confined to psychological referral. When a patient is struggling because every conversation is effortful and exhausting, amplification itself may be part of stress reduction. The otolaryngologist should therefore regard hearing rehabilitation as a parallel rather than competing strategy. [29,32]

9. Somatosensory contributors and musculoskeletal treatment

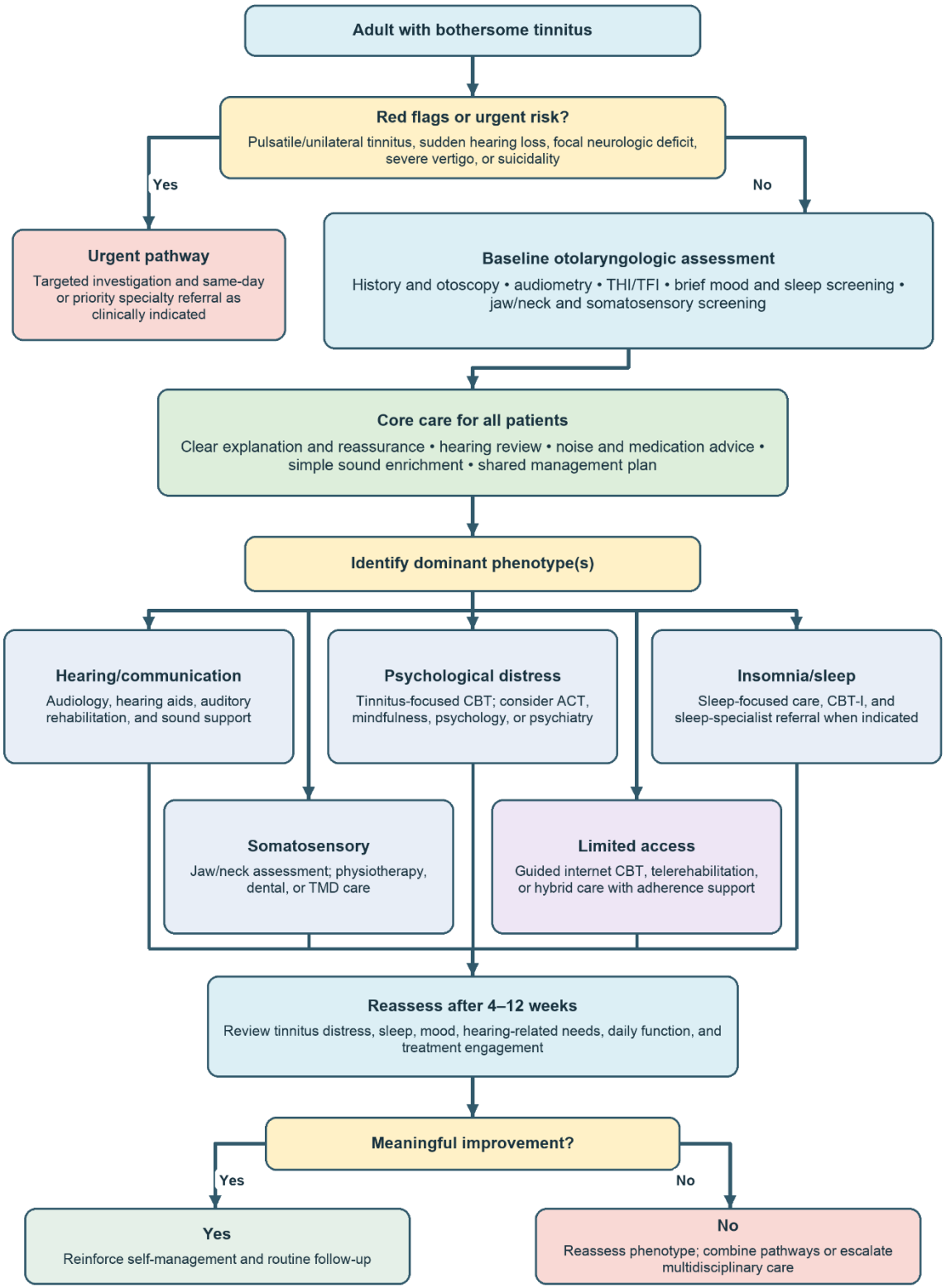
A subgroup of patients present with somatosensory tinnitus associated with temporomandibular disorders, cervical dysfunction, bruxism, or jaw-neck modulation of tinnitus. These patients often experience a cycle in which pain, muscle tension, and stress mutually reinforce each other. A randomized trial showed benefit of structured orofacial treatment within a multidisciplinary program for somatosensory tinnitus.[31] Screening for jaw pain, clenching, limited mouth opening, cervical pain, and modulation of tinnitus with head or jaw movement can therefore improve pathway selection. In the appropriate phenotype, physiotherapy or orofacial treatment may reduce both symptom burden and stress amplification.

Tinnitus Stress Management Algorithm for phenotype-based Multidisciplinary Care

The authors developed this algorithm to support a more practical and patient-centered approach to tinnitus stress management. In clinical practice, patients rarely present with tinnitus alone. As illustrated in **Figure 1**, the proposed algorithm provides a structured pathway from early risk identification to baseline assessment, core otolaryngologic care, phenotype-based referral, and follow-up evaluation. Patients often bring fear, sleep problems, anxiety, hearing difficulties, or physical tension that shapes their overall burden. Consistent with contemporary multidisciplinary and guideline-based perspectives, tinnitus care should address both auditory and nonauditory contributors to distress.[1,5,7] This algorithm helps the otolaryngologist identify these contributors early, provide initial reassurance and counseling, and direct patients to the most appropriate care pathway.

In otolaryngology practice, clinicians can initiate stress management through an algorithm-guided stepped-care model. This model starts with adult patients who present with bothersome tinnitus and guides clinicians to identify clinical risk, perform baseline assessment, provide core care, select targeted treatment pathways, and reassess treatment response. This structure reflects the current view that tinnitus is a heterogeneous condition that requires individualized assessment and multidisciplinary coordination.[5,9,10]

Figure 1.
Tinnitus stress-management algorithm for phenotype-based multidisciplinary care.
Source: Developed by the authors based on the clinical pathways and evidence summarized in references 1, 5, 7, 9, 10, 12, 13, 16, 22, 23, 25–29, 31, and 32.



The otolaryngologist first identifies red flags or clinical features that suggest secondary tinnitus. Pulsatile tinnitus, unilateral tinnitus, sudden hearing loss, focal neurologic deficits, severe vertigo, and suicidality require an urgent pathway. [5,10] Patients with these features need targeted investigation and same-day or priority referral when clinically indicated. These findings may indicate vascular, retrocochlear, neurologic, inflammatory, or other serious disorders that require specific evaluation before clinicians classify tinnitus as primary or idiopathic.

Patients without red flags proceed to baseline otolaryngologic assessment. The otolaryngologist takes a detailed history, performs otoscopy, evaluates hearing with audiometry, administers a validated tinnitus questionnaire, and screens briefly for mood and sleep disturbance. The Tinnitus Handicap Inventory or Tinnitus Functional Index helps quantify tinnitus-related burden and guide management, as recommended in structured tinnitus assessment pathways.[5,7] Screening for anxiety, depression, insomnia, and stress reactivity also improves clinical decision-making because psychological distress and sleep problems often intensify tinnitus-related burden.[3,12,13]

After baseline assessment, all patients receive core care in the otolaryngology clinic. Core care includes clear explanation, reassurance, hearing review, noise advice, medication review, and simple sound enrichment. The first consultation functions as an early therapeutic intervention because educational counseling can reduce uncertainty, threat appraisal, and maladaptive symptom monitoring.[14] The clinician should explain that tinnitus distress often arises from interactions among auditory perception, stress arousal, attention, sleep disruption, and coping behavior, a concept supported by cognitive and stress-based models of tinnitus.[2,3]

The otolaryngologist then selects one or more targeted pathways based on the dominant clinical driver. Patients with hearing loss or communication strain need audiologic assessment, hearing aid evaluation, and sound therapy when appropriate.[29,32] Patients with stress, anxiety, catastrophic appraisal, or functional impairment need cognitive behavioral therapy, acceptance-based therapy, or referral to psychology or psychiatry when needed.[16,17,22] Patients with insomnia or poor sleep need sleep-focused management, including sleep hygiene advice, cognitive behavioral therapy for insomnia, or sleep specialist referral when clinically indicated.[23]

Patients with somatosensory features need specific jaw and neck assessment. Jaw pain, teeth clenching, temporomandibular symptoms, cervical discomfort, or tinnitus modulation by head and neck movement may indicate a somatosensory subtype. In these cases, the clinician should consider physiotherapy, dental evaluation, or temporomandibular disorder care as part of multidisciplinary management.[31] This pathway is important because somatosensory contributors may amplify tinnitus perception and maintain stress-related disability.

This phenotype-based approach recognizes that bothersome tinnitus rarely depends on a single mechanism. Hearing loss and communication difficulty may dominate in some patients, whereas catastrophic interpretation, hypervigilance, insomnia, anxiety, or jaw and cervical modulation may dominate in others. The heterogeneity of tinnitus supports flexible and individualized care rather than a rigid single-treatment pathway.[1,9] Therefore, the algorithm allows combined pathways when several factors contribute to tinnitus-related disability.

The otolaryngologist should reassess patients after a structured follow-up interval, preferably within 4–12 weeks after completion of initial counseling or skills-based education. Follow-up should evaluate tinnitus-related distress, sleep, mood, hearing-related needs, and daily functioning using clinical review and, when appropriate, validated outcome measures. Meaningful improvement supports reinforcement of self-management and routine follow-up, whereas persistent burden should prompt reassessment of the dominant clinical phenotype and escalation of multidisciplinary care. This follow-up structure is consistent with guideline-based tinnitus

management, which emphasizes ongoing support, patient education, outcome monitoring, and referral according to clinical need.[5,10]

Overall, this algorithm keeps the otolaryngologist central in tinnitus care. The otolaryngologist identifies red flags, performs baseline assessment, provides early counseling, initiates core care, determines the dominant clinical phenotype, and coordinates referral. In this model, multidisciplinary care does not diminish the otolaryngologist's role. Instead, it clarifies and refines that role within the continuum of tinnitus management.

Research Gaps and Future Directions

Several limitations continue to affect the field. First, there is substantial heterogeneity in tinnitus phenotyping, intervention content, comparator groups, and outcome measures. Studies often mix patients with very different drivers of distress, making it difficult to identify which stress-management approach works best for which subtype. Second, many trials report tinnitus distress but not perceived stress, autonomic markers, or sleep-specific outcomes in a standardized way. Third, long term comparative effectiveness data remain limited, especially for mindfulness-based care, ACT, and digital-first models.[1,9,17,20,26–28]

Future research should prioritize phenotype-informed trials, harmonized outcome sets, and longer follow-up. There is also a need for pragmatic implementation studies that examine how otolaryngology, audiology, psychology, and sleep medicine can be coordinated in real-world care pathways. Finally, digital tools should be evaluated not only for efficacy but also for adherence, equity, language accessibility, and integration with routine specialty care. [1,9,26–28]

4. CONCLUSION

Stress management is not a peripheral consideration in bothersome tinnitus. For many patients, it is one of the main mechanisms through which disability develops and one of the most realistic routes through which disability can be reduced. Current evidence supports CBT as the core evidence-based intervention for tinnitus-related distress, while mindfulness-based interventions, ACT, CBT-I, and selected digital therapies offer important complementary options. Relaxation, biofeedback, hearing rehabilitation, and somatosensory treatment may further reduce burden in appropriately selected patients.

From the otolaryngologist's perspective, the essential task is not to choose between auditory and psychological models of tinnitus, but to integrate them. Good tinnitus care begins with careful diagnosis, continues with phenotype-informed counseling and referral, and succeeds when the multidisciplinary plan matches the mechanisms that make tinnitus disabling in the individual patient. The phenotype-informed stepped-care algorithm and referral matrix presented in this review translate that principle into a practical clinical framework. Future research should pursue phenotype-informed intervention trials with harmonized outcome sets, pragmatic implementation studies across multidisciplinary care settings, and evaluation of digital therapies for equity and accessibility in diverse healthcare systems.

5. AUTHOR CONTRIBUTION

AP: conceptualization, methodology, literature search and selection, literature synthesis, writing original draft, writing review and editing. AS: conceptualization, validation, supervision, writing review and editing. FWNA: literature search and selection, methodology, visualization, writing original draft, writing review and editing. All authors have read and approved the final manuscript..

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