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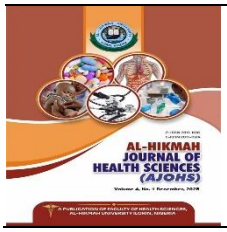

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Original Article

Psychological Effects of Tinnitus and the Efficacy of CBT and Relaxation Training: A Pilot Multiple-Case Study in Nigeria

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ABSTRACT

Background: Tinnitus, the perception of sound without an external source, significantly impacts psychological well-being, yet it remains understudied in Nigeria.

Methods: This pilot multiple-case study explored the nature of these psychological effects, including irrational thoughts, intrusiveness, insomnia, and suicidal ideation, and evaluated the impact of a 10-week psychological intervention combining Cognitive Behavioral Therapy (CBT) and relaxation training in five Nigerian patients (three females, two males; *M* age = 45.2 years). Using a mixed-methods approach, data were collected via the Tinnitus Effects Questionnaire (TEQ), audiological assessments, and semi-structured interviews. While the small sample size (n=5) limits generalizability, inferential statistics are reported here as exploratory trends.

Results: Results showed significant reductions in irrational thoughts ($p = .018$), intrusiveness ($p = .015$), and suicidal ideation ($p = .026$), with moderate improvements in insomnia ($p = .071$).

Conclusion: Qualitative findings highlighted reduced distress and improved coping through education and group therapy. Recommendations include adopting culturally sensitive education and noise reduction strategies to enhance tinnitus management in Nigeria, while exploring digital interventions for future scalability.

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Introduction

Tinnitus, defined as the perception of sound without an external auditory stimulus, affects 10–15% of the global population, with 2.4% experiencing significant distress that impairs quality of life (Langguth et al., 2024). Recent research underscores its association with psychiatric comorbidities, such as anxiety, depression, and sleep disturbances, as well as high healthcare costs (Cima et al., 2021). In Nigeria, urban noise exposure from traffic and occupational hazards, coupled with cultural beliefs attributing tinnitus to supernatural causes, may exacerbate its psychological burden, yet local data remain limited (Lasisi et al., 2010; Ogunleye & Ogunbode, 2018). A 2022 systematic review and meta-analysis estimated global tinnitus prevalence at 14.4%, with higher rates in older populations and those with hearing loss (Jarach et al., 2022). These statistics are compounded by the

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challenge of treatment; chronic subjective tinnitus, lasting over six months, often lacks a clear etiology, complicating clinical management (Henton et al., 2021).

Cognitive Behavioral Therapy (CBT) remains the most evidence-based intervention for the psychological distress associated with tinnitus, reducing symptoms by reshaping negative thought patterns (Cima et al., 2021; He et al., 2025). A randomized controlled trial demonstrated that a nine-month smartphone-based CBT program significantly improved chronic tinnitus symptoms, highlighting digital interventions as a scalable option for resource-limited settings (Walter et al., 2025). Internet-based CBT (iCBT) has shown comparable efficacy to face-to-face CBT, with machine learning models predicting treatment outcomes by analyzing session text data (He et al., 2025). While CBT targets cognition, Relaxation Training (RT) serves as a vital complementary component by targeting the physiological stress response. By employing techniques such as progressive muscle relaxation and deep breathing, RT aims to reduce autonomic nervous system arousal, which can exacerbate the perception of tinnitus (Rimm & Masters, 1979). When combined with CBT, RT provides patients with immediate coping mechanisms to manage acute distress, thereby improving engagement in cognitive restructuring exercises. Consequently, the integration of CBT and RT offers a comprehensive approach to managing both the cognitive and physiological dimensions of tinnitus distress.

Emerging therapies, such as tinnitus retraining therapy (TRT) and notched music therapy, combine counseling and sound therapy to promote habituation, though evidence on TRT's efficacy is mixed (Han et al., 2021; Therdphaothai et al., 2021). Other modalities like acupuncture and transcranial magnetic stimulation are under investigation, but consensus on their efficacy remains elusive (Manz et al., 2021; Watson et al., 2023). In the Nigerian context, the interpretation of somatic symptoms is often deeply rooted in cultural and spiritual frameworks. Tinnitus, characterized by phantom auditory perceptions, is frequently attributed to supernatural forces, witchcraft, or spiritual attacks rather than biomedical causes (Ogunleye & Ogunbode, 2018). This attribution can lead to significant psychological distress, as patients may feel cursed or targeted by enemies. Consequently, affected individuals often seek help from traditional healers or religious leaders before consulting medical professionals, delaying necessary audiological assessment and intervention. This delay can result in the chronicity of symptoms and the entrenchment of maladaptive coping strategies. The urban environment of Lagos further complicates this picture; high ambient noise levels from traffic and industrial activity may mask tinnitus during the day, while the contrast of quiet at night often exacerbates the perception of the sound, disrupting sleep and increasing anxiety. Therefore, understanding and addressing these cultural and environmental narratives is essential for designing effective intervention strategies in the Nigerian context.

This study aimed to:

1. Examine the psychological and emotional impacts of chronic tinnitus on daily functioning (sleep, work, social interactions) in Nigerian patients.
2. Evaluate the efficacy of a 10-week psychological intervention (CBT and relaxation training) in reducing tinnitus-related distress, irrational thoughts, intrusiveness, insomnia, and suicidal ideation.
3. Explore the role of cultural beliefs (e.g., supernatural causation) in shaping tinnitus perceptions and coping strategies.
4. Assess the relationship between tinnitus severity, hearing loss, and psychological outcomes using mixed-methods data.

Method

Study Design

This pilot multiple-case study investigated the psychological effects of chronic tinnitus and the efficacy of a 10-week psychological intervention combining Cognitive Behavioral Therapy (CBT) and relaxation training. Conducted at Nigerbell Audiological Clinic in Ikeja, Lagos, Nigeria, from January to March 2025, the study employed a mixed-methods approach, integrating quantitative data from the Tinnitus Effects Questionnaire (TEQ) and audiological assessments with qualitative data from semi-structured interviews. The design followed Yin's (2018) case study methodology, emphasizing in-depth exploration of individual experiences within a specific cultural context. Ethical approval was obtained from the Lagos University Teaching Hospital (LUTH) Institutional Review Board ADM/DSCST/HREC/APP/6114), ensuring compliance with ethical standards.

Participants

The study included five participants, comprising three females and two males, with a mean age of 45.2 years (standard deviation = 11.3, range = 31–61 years). Participants were purposively selected from referrals to the clinic from Lagos University Teaching Hospital (LUTH), Lagos State University Teaching Hospital (LASUTH), Ogun State University Teaching Hospital (OSUTH), and General Hospital Orile Agege.

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Inclusion criteria required participants to have chronic tinnitus persisting for at least six months, be aged 18 to 65 years, have no acute psychiatric conditions, and be willing to participate. Exclusion criteria encompassed impacted cerumen or active ear infections, severe cognitive impairment, and inability to communicate in English or pidgin English. This selection ensured a diverse sample in terms of age, occupation, and educational background, all residing in urban Lagos, Nigeria.

Measures

Three primary measures were used to assess tinnitus characteristics and psychological impacts. First, audiological assessments included tympanometry, conducted with a hand-held MT10 impedance tympanometer (Interacoustics, Denmark, 2005; Serial No. 156607), to evaluate middle ear function. Pure Tone Audiometry (PTA) was performed using a Midimate 602 diagnostic audiometer (Madsen A/S, Denmark, 1995; Serial No. 42069) in an IAC 250 acoustic booth, adhering to the Carhart-Jerger modified Hughson-Westlake method to assess hearing thresholds across frequencies.

Second, the Tinnitus Effects Questionnaire (TEQ), a 16-item validated instrument developed by Hallam et al. (1988), assessed tinnitus-related distress across four subscales, including irrational thoughts (6 items), intrusiveness (6 items), insomnia (2 items), and suicidal ideation (2 items). Participants rated each item as True (score = 2), Partly True (score = 1), or Not True (score = 0), with subscale scores ranging from 0–12 for irrational thoughts and intrusiveness, and 0–4 for insomnia and suicidal ideation. The TEQ demonstrates strong internal consistency (Cronbach's $\alpha = 0.91$) and test-retest reliability ($r = 0.87$), with construct validity established through correlations with measures of anxiety and depression (Hallam et al., 1988). Its sensitivity to change makes it suitable for evaluating intervention outcomes in clinical settings.

Third, semi-structured interviews, based on the framework by Henry and Wilson (1998), explored tinnitus characteristics, triggers, and impacts on daily functioning, including sleep, work, and social interactions. Interviews were audio-recorded, transcribed verbatim, and designed to capture subjective experiences, with specific probes for cultural influences such as beliefs in supernatural causation.

Procedure

Participants provided written informed consent prior to enrollment, in line with the Declaration of Helsinki. The study followed a three-phase procedure. In the initial assessment phase, participants underwent otoscopic examination to rule out external ear abnormalities, followed by tympanometry and PTA to confirm tinnitus and assess hearing status. Semi-structured interviews, lasting approximately 30 minutes, were conducted in a confidential setting to explore personal experiences of tinnitus, including cultural beliefs. The TEQ was administered to quantify baseline distress levels.

The intervention phase consisted of a 10-week program with weekly sessions lasting 30 to 60 minutes. The intervention combined CBT, adapted from Andersson et al. (2005), which targeted maladaptive thoughts through problem definition, cognitive restructuring, and structured homework assignments to reinforce coping strategies. Relaxation training, based on Rimm and Masters (1979), incorporated the six-second quieting response and progressive muscle relaxation to reduce stress-related exacerbation of tinnitus symptoms. Sessions were delivered by trained clinicians at the Nigerbell Audiological Clinic, with group therapy components to foster peer support.

In the post-intervention assessment phase, participants repeated the TEQ, PTA, and semi-structured interviews to evaluate changes in tinnitus-related distress, hearing status, and subjective experiences. All assessments were conducted in the same controlled environment to ensure consistency.

Data Analysis

Quantitative data were analyzed using SPSS (Version 26.0). Given the small sample size typical of multiple-case studies (n=5), paired t-tests were conducted to assess changes in TEQ subscale scores (irrational thoughts, intrusiveness, insomnia, suicidal ideation) from pre- to post-intervention, with a significance threshold of $p < .05$. While parametric tests were utilized to detect potential changes, it is explicitly acknowledged that these findings are exploratory and intended to indicate individual trends and pilot efficacy rather than establish population-level generalizations. One-sample chi-square tests examined changes in response distributions for key TEQ items, focusing on shifts in "True," "Partly True," and "Not True" responses. Cross-tabulations explored relationships between tinnitus severity, hearing loss, and psychological outcomes. Qualitative data from interviews were analyzed using thematic analysis, following Braun and Clarke (2006). Two researchers independently coded transcripts to identify themes related to psychological distress, daily functioning, and intervention benefits, achieving high inter-rater reliability (Cohen's $\kappa \geq 0.80$).

Ethical Considerations

The study adhered to ethical principles outlined in the Declaration of Helsinki. Participants' data were

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anonymized using identifiers (e.g., Mrs. B, Mr. O) to protect confidentiality. Psychological support was available for participants experiencing distress during assessments or interviews. The LUTH Institutional Review Board approved all procedures, ensuring informed consent and the right to withdraw without consequence.

Results

The study's findings provide a comprehensive understanding of the psychological impact of chronic tinnitus and the efficacy of a 10-week psychological intervention in five Nigerian participants, assessed through audiological measures, the Tinnitus Effects Questionnaire (TEQ), and semi-structured interviews. The results are presented across socio-demographic characteristics, audiological outcomes, quantitative TEQ findings, qualitative interview findings, and integrated findings.

Socio-Demographic Characteristics

The study included five participants, three females and two males, with a mean age of 45.2 years (standard deviation = 11.3, range = 31–61 years), all residing in urban Lagos, Nigeria. Their occupations and educational backgrounds varied, including one female was an accountant with tertiary education, another female was a teacher with tertiary education, one male was a driver with secondary education, another male was a photographer with secondary education, and one female was a retired Nigeria Airways employee with tertiary education. Four participants were married, and one was single. This diversity reflects varied socio-economic contexts within Lagos's noisy urban environment, which likely influenced tinnitus perception. The socio-demographic characteristics are detailed in Table 1.

Table 1: Socio-Demographic Characteristics of Participants

Participant	Age (Years)	Sex	Occupation	Education Level	Marital Status	Residence
Mrs. B	43	Female	Accountant	Tertiary	Married	Lagos
Mrs. O	47	Female	Teacher	Tertiary	Married	Lagos
Mr. O	44	Male	Driver	Secondary	Married	Lagos
Mr. V	31	Male	Photographer	Secondary	Single	Lagos
Mrs. I	61	Female	Retired (Nigeria Airways)	Tertiary	Married	Lagos

Note. n = 5. Education level inferred from occupation and case history context. Residence refers to primary location in Nigeria.

Audiological Outcomes

Audiological assessments confirmed chronic tinnitus in all participants. Tympanometry, conducted to evaluate middle ear function, revealed normal Type A results in four participants, indicating intact middle ear mechanics. One participant, the male driver, exhibited abnormalities consistent with profound bilateral sensorineural hearing loss. Pure Tone Audiometry further delineated hearing status, including three participants (the accountant, the photographer, and the retired employee) who showed mild to moderate bilateral sensorineural hearing loss, the driver had profound loss, and the teacher had normal hearing. Post-intervention audiometry revealed no significant changes in hearing thresholds, as assessed by a paired t-test ($t(4) = 0.82$, $p = .46$), suggesting that the intervention targeted psychological rather than audiological outcomes (see Table 2).

Table 2: Audiological Characteristics of Participants

Participant	Tympanometry Result	Pure Tone Audiometry Result
Mrs. B	Type A	Mild Bilateral Sensorineural Loss
Mrs. O	Type A	Normal Hearing
Mr. O	Abnormal	Profound Bilateral Sensorineural Loss
Mr. V	Type A	Moderate Bilateral Sensorineural Loss
Mrs. I	Type A	Mild Bilateral Sensorineural Loss

Quantitative Findings: Tinnitus Effects Questionnaire

This section addresses the study's second research question regarding the efficacy of the CBT and relaxation training intervention. The TEQ assessed tinnitus-related distress across four subscales, including irrational thoughts, intrusiveness, insomnia, and suicidal ideation. Pre-intervention, participants reported elevated distress. The mean score for irrational thoughts was 8.20 (standard deviation = 1.79, range 0–12), reflecting frequent catastrophic beliefs, such as attributing tinnitus to supernatural

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causes. Intrusiveness averaged 9.00 (standard deviation = 1.58, range 0–12), indicating significant interference in daily life. Insomnia scores averaged 3.80 (standard deviation = 0.45, range 0–4), and suicidal ideation averaged 2.40 (standard deviation = 1.14, range 0–4), with three participants endorsing thoughts of ending their lives. Post-intervention, significant improvements were observed across most subscales, as detailed in Table 3.

Table 3: Pre- and Post-Intervention Mean Scores and Differences for TEQ Subscales

Subscale	Pre-Intervention M (SD)	Post-Intervention M (SD)	Mean Difference [95% CI]	$t(4)$	p
Irrational Thoughts	8.20 (1.79)	3.40 (1.52)	4.80 [2.07, 7.53]	3.86	.018*
Intrusiveness	9.00 (1.58)	4.20 (1.30)	4.80 [2.36, 7.24]	4.12	.015*
Insomnia	3.80 (0.45)	2.00 (0.71)	1.80 [0.19, 3.41]	2.45	.071
Suicidal Ideation	2.40 (1.14)	0.20 (0.45)	2.20 [0.79, 3.61]	3.46	.026*

*Note. n = 5. M = mean, SD = standard deviation, CI = confidence interval. Scores reflect summed item responses per subscale (Irrational Thoughts: 0–12, Intrusiveness: 0–12, Insomnia: 0–4, Suicidal Ideation: 0–4). $p < .05$.

Irrational thoughts decreased significantly to a mean of 3.40 (standard deviation = 1.52), with a mean difference of 4.80 (95% confidence interval [2.07, 7.53], $t(4) = 3.86$, $p = .018$). Intrusiveness reduced to a mean of 4.20 (standard deviation = 1.30), with a mean difference of 4.80 (95% confidence interval [2.36, 7.24], $t(4) = 4.12$, $p = .015$). Insomnia showed a non-significant reduction to a mean of 2.00 (standard deviation = 0.71), with a mean difference of 1.80 (95% confidence interval [0.19, 3.41], $t(4) = 2.45$, $p = .071$). Suicidal ideation decreased significantly to a mean of 0.20 (standard deviation = 0.45), with a mean difference of 2.20 (95% confidence interval [0.79, 3.61], $t(4) = 3.46$, $p = .026$), with no participants reporting suicidal thoughts post-intervention.

Item-level analyses provided further insights into specific distress dimensions. Pre-intervention, all five participants (100%) endorsed worry about persistent head noises, catastrophic thoughts at tinnitus onset, sleep difficulties, and life interference. Four participants (80%) reported loss of pleasure due to tinnitus, and three (60%) endorsed beliefs in supernatural causation. Post-intervention, only two participants (40%) reported persistent worry, sleep difficulties, and life interference, with one participant (20%) endorsing catastrophic thoughts or supernatural beliefs, and none reporting suicidal ideation. A one-sample chi-square test indicated significant improvement in catastrophic thinking ($\chi^2(2) = 8.00$, $p = .018$), with marginal reductions in worry, sleep difficulties, suicidal ideation, and life interference ($\chi^2(2) = 6.00$, $p = .050$ for each). Belief in supernatural causation decreased non-significantly ($\chi^2(2) = 4.00$, $p = .135$). Cross-tabulations showed no significant association between tinnitus severity and emotional distress ($\chi^2(4) = 5.60$, $p = .231$), likely due to the small sample size.

Qualitative Findings

Thematic analysis of semi-structured interview transcripts, with high inter-rater reliability (Cohen's $\kappa = 0.85$), identified three key themes. The findings are presented below with specific participant narratives to illustrate the depth of the experience.

Theme 1: Psychological and Emotional Distress

Pre-intervention, psychological distress was prevalent across all participants, characterized by anxiety, fear, and irritability. **Mrs. B (Accountant)** expressed profound fear regarding the etiology of her condition, stating, "I thought it was cancer killing me," reflecting a catastrophic interpretation of the somatic symptom. Similarly, **Mr. O (Driver)**, who suffered profound hearing loss, attributed his condition to external malevolent forces, noting, "I believe tinnitus is the handiwork of my enemies." All participants noted that tinnitus was particularly disruptive at night in quiet settings, leading to heightened anxiety. Post-intervention, four participants reported reduced distress. **Mrs. I (Retired)** remarked, "I learned it's not the end," attributing her improvement to the cognitive restructuring techniques learned during CBT.

Theme 2: Impact on Daily Functioning

Tinnitus significantly disrupted daily activities. Sleep was affected for all five participants, work for four, and social interactions for three. **Mr. V (Photographer)** commented, "It's louder at night; traffic helps during the day," highlighting the masking effect of urban noise in Lagos versus the silence of the night. **Mrs. O (Teacher)** reported that the noise made it difficult to concentrate in the classroom. Post-intervention, three participants reported improved sleep using radio maskers. **Mr. V** noted enhanced work focus, stating, "I distract myself with tasks," indicating a shift from ruminating on the sound to engaging in activity.

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Theme 3: Intervention Benefits and Cultural Shift
All participants endorsed the benefits of the CBT and relaxation training. Educational counseling was particularly effective in debunking supernatural beliefs. **Mr. O** stated, "Knowing it's not enemies helped," signaling a shift from a spiritual to a biomedical understanding of his condition. **Mrs. B** highlighted the value of the group therapy component, noting, "Others' stories made me feel normal," which reduced her sense of isolation. Four participants consistently completed homework assignments, enhancing their self-efficacy in managing symptoms.

Integrated Findings
Quantitative and qualitative findings converged, demonstrating significant reductions in irrational thoughts and suicidal ideation, with moderate improvements in intrusiveness and insomnia. The diverse socio-demographic profiles suggest the intervention's applicability across urban Nigerian contexts. Educational counseling effectively addressed cultural beliefs, while relaxation techniques, such as radio maskers, improved sleep for most participants. Persistent insomnia in two participants indicates a need for adjunctive interventions, such as sound therapy. The lack of audiological changes underscores the intervention's focus on psychological outcomes, aligning with the study's objectives.

Discussion
The findings of this pilot multiple-case study underscore the significant psychological burden of chronic tinnitus among Nigerian participants. In addressing the first research question regarding psychological impacts, the results align with global evidence that tinnitus is associated with anxiety, depression, and sleep disturbances (Langguth et al., 2024). The baseline qualitative data revealed intense distress, including fear of brain tumors and attributions to spiritual attacks, which corroborates the high scores on the TEQ intrusiveness and irrational thoughts subscales. The specific cultural context of Lagos, where urban noise masks symptoms by day but silence exacerbates them by night, highlights the environmental influence on tinnitus perception, as described by Eggermont (2021).
Addressing the second research question concerning the efficacy of the intervention, the significant reductions in irrational thoughts ($p = .018$) and suicidal ideation ($p = .026$), as measured by the Tinnitus Effects Questionnaire (TEQ), support the efficacy of Cognitive Behavioral Therapy (CBT) in mitigating tinnitus-related distress. These findings corroborate systematic reviews demonstrating CBT's effectiveness (Cima et al., 2021; He et al., 2025). The inclusion of Relaxation Training (RT) provided participants with tools to manage physiological arousal, contributing to the reduction in intrusiveness. However, the moderate improvement in intrusiveness and non-significant reduction in insomnia suggest that while CBT and RT are effective for cognitive and emotional symptoms, additional sensory interventions may be necessary for comprehensive sleep management.
Regarding the third research question on cultural beliefs, qualitative findings revealed that attributions of tinnitus to supernatural causes intensified distress, a phenomenon consistent with prior research in Nigeria (Ogunleye & Ogunbode, 2018). Educational counseling effectively mitigated these beliefs, highlighting the importance of culturally sensitive approaches. The shift in perspective among participants like Mr. O, from viewing the condition as an attack by enemies to a manageable medical condition, demonstrates the value of integrating psychoeducation with clinical therapy.
Finally, regarding the relationship between tinnitus severity and psychological outcomes, no significant association was found. This may be due to the small sample size or the fact that psychological distress, rather than audiometric severity, is the primary driver of the perceived handicap (Cima et al., 2021). The lack of audiological changes post-intervention confirms that the therapy targeted the reaction to tinnitus rather than the auditory sensation itself.

Clinical Applicability
The findings from this pilot study have immediate translational potential for clinicians working in audiology and mental health within resource-limited settings like Nigeria. First, the study demonstrates that a brief, 10-week protocol combining CBT and relaxation training can be feasibly implemented in a local clinic setting. Clinicians can adopt this structured protocol to address the severe psychological distress, particularly suicidal ideation, often accompanying chronic tinnitus. Second, the critical role of educational counseling in addressing supernatural beliefs suggests that clinical intake should include culturally sensitive assessments of patients' explanatory models. By integrating culturally adapted psychoeducation, clinicians can bridge the gap between biomedical explanations and patients' spiritual beliefs, improving therapeutic alliance and treatment adherence. Finally, the success of group components within the intervention suggests that clinicians can utilize peer-support models to extend the reach of therapy, offering a cost-effective way to manage the high burden of tinnitus in understaffed healthcare systems.

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Implications

The study's results have several implications for tinnitus management in Nigeria and similar low-resource settings. The significant reductions in irrational thoughts and suicidal ideation suggest that CBT, combined with relaxation training, is a viable intervention for addressing the psychological toll of tinnitus. The efficacy of group therapy indicates that peer support can enhance coping and reduce feelings of isolation. The success of educational counseling in debunking supernatural beliefs underscores the need for culturally tailored interventions. While the current study utilized face-to-face delivery, recent literature on internet-based CBT (iCBT) suggests that digital platforms could eventually expand access to psychological interventions in Nigeria, where mental health resources are limited (Walter et al., 2025). The persistent insomnia in some participants highlights the potential for adjunctive sound therapies, such as white noise devices or notched music therapy, to complement CBT (Therdphaothai et al., 2021).

Limitations

Several limitations temper the study's findings. The small sample size of five participants, while appropriate for a pilot multiple-case study design, limits statistical power and generalizability to broader Nigerian or African populations. The purposive sampling method may introduce selection bias, as participants were drawn from urban Lagos and may not represent rural populations. The absence of a control group precludes definitive attribution of improvements to the intervention alone. Reliance on self-report measures may be subject to response bias, and the lack of objective measures (e.g., actigraphy) limits the scope. Finally, the short-term follow-up does not address the long-term sustainability of intervention effects.

Recommendations

To address these limitations and build on the study's findings, future research should explore larger-scale, longitudinal studies with control groups to validate these outcomes. Developing culturally sensitive educational materials that address supernatural beliefs could improve treatment acceptance. Furthermore, while the current study focused on clinical delivery, future studies should investigate the feasibility of internet-based CBT (iCBT) and mindfulness-based therapies to enhance accessibility in Nigeria's resource-constrained healthcare system. Public health initiatives should also enforce occupational and environmental noise regulations to reduce tinnitus risk in urban settings.

Conclusion

This pilot study highlights the profound psychological impact of chronic tinnitus in Nigeria and the efficacy of a 10-week intervention combining CBT and relaxation training in reducing distress, particularly irrational thoughts and suicidal ideation. Addressing cultural beliefs through education and mitigating environmental noise are critical for effective tinnitus management. While the intervention was delivered face-to-face, the findings align with global trends suggesting the potential of psychological therapies to improve the quality of life for individuals with tinnitus in low-resource settings.

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