

## Research Article

# The Use of Mindfulness Therapy as a Therapeutic Option for Zumbido: A Systematic Review

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## Abstract

**Introduction:** Tinnitus is a clinical condition that affects thousands of individuals around the world. Although there is no standardization in the treatment recommended in the literature, there is an arsenal of drug and non-drug options available and it is precisely from this perspective of new therapeutic tendencies that the discussion about mindfulness arises.

**Objective:** To evaluate the full attention therapy in the management of tinnitus.

**Methodology:** A systematic review of the literature was carried out using the following descriptors: tinnitus, full-care therapy and their related correlates in English, as well as the use of Medical Subject Headings (MeSH). The research was carried out in the databases MEDLINE / PUBMED, Lilacs, Scielo. We included studies in which tinnitus was diagnosed through specialist assessment or the application of validated scales and criteria for the symptom and that evaluated the use of full-care therapy as a therapeutic option for tinnitus, and the group had a placebo stimulus.

**Results:** Through this systematic review, a total of 111 (one hundred and eleven) patients were submitted to full-care therapy, with an average of 7.5 sessions. From the questionnaires and evaluative criteria used by each study, including the secondary assessment scale VAS (used by 2 studies), the TPIQ and TQ, a positive response was found in 100% of the cases - all with a statistically significant result ( $p < 0.005$ ). Conclusion: From the present study it was possible to define a positive effect of full attention therapy on tinnitus therapy. Due to the small number of studies using similar methodologies it was not possible to perform a meta-analysis.

## Introduction

Tinnitus is a clinical condition that affects thousands of individuals around the world. Only in São Paulo, data obtained from an epidemiological study conducted in 2015 showed a prevalence of 22% of this symptom in the population [1]. Although there is no standardization in the treatment recommended in the literature, there is an arsenal of drug and non-drug options available and it is precisely about this perspective of new therapeutic tendencies that the discussion about mindfulness arises.

Mindfulness therapy is a method of applying a state of constant attention and alertness to sensations and experiences of moments lived in the immediate and without a judgmental posture [2,3]. In other words, it means focusing on present-day activities to make them fully aware - without automatisms. In this way, each stage of a process is faced with sufficient mental effort not to go unnoticed, improving not only mental health but also physical health [4].

This therapy has traditionally been based on Buddhist contemplative practices aimed at promoting stress reduction [5] but has now been applied in other spheres of health. The impact on the perception of stress by the individual influences indirectly in other perceptions and sensations, such that this therapy has gained wide field of study. Tinnitus, for example, presents a distorted sound of reality that constantly acts as an effective emotional stress or [6]. In addition, there are already studies that suggest considering the search and treatment of depression and anxiety as comorbidities associated with tinnitus [7].

Furthermore, in tinnitus therapy, there are studies that show an improvement not only in the severity of the suffering promoted by these events, but also a reported improvement in the sensation of stress

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itself and its association with anxious or depressive symptoms [8]. Therefore, evaluating full-care therapy in tinnitus management through a systematic review is of fundamental importance to reinforce already established knowledge and open the way to new questions.

## Methodology

**Type of study:** Systematic review.

**Approval of ethics committee:** Because it was a systematic review, there was no need.

**Inclusion criteria:** Randomized controlled trials (RCTs), quasi-randomized clinical trials, and open-label studies of patients over 18 years of age were included. We considered ECR those who performed randomization using coins, data or randomization performed by computer. Studies using other forms of randomization were classified as quasi-randomized. We included studies in which tinnitus was diagnosed through specialist assessment or the application of validated scales and criteria for the symptom and that evaluated the use of full-care therapy as a therapeutic option for tinnitus, and the group had a placebo stimulus.

**Exclusion criteria:** Other types of study were excluded (case control, cohort, case report), studies with populations younger than 18 years and without the presence of a placebo control group. In addition, studies with patients with comorbidities associated with tinnitus symptoms (previous head trauma, use of ototoxic substances, Meniere's disease, epilepsy, intracranial tumor) were also excluded.

**Electronic search:** The search of the articles was carried out in the databases: MEDLINE / PUBMED, Lilacs, Scielo, without year restriction or publication language. The following key words were used to capture relevant articles in electronic databases: tinnitus, full - attention therapy and their related English correlates, in addition to the use of the Medical Subject Headings (MeSH).

**Selection of studies:** The research and analysis of the articles occurred from 06-06-2018 to 06-10-2018. Initially, duplicate articles were verified using database management, Microsoft Office Access

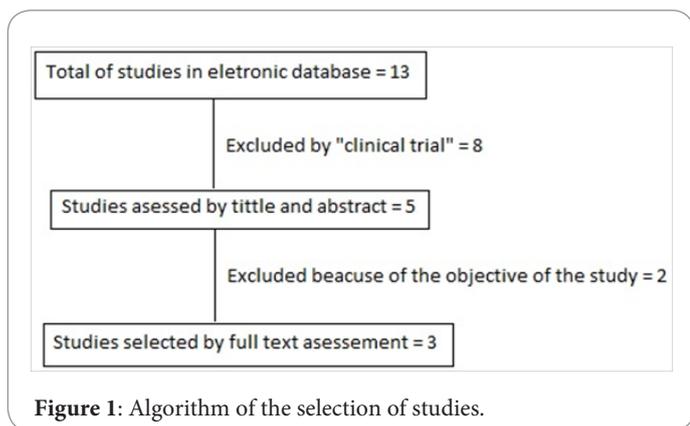


Figure 1: Algorithm of the selection of studies.

2013. After this step, articles selected only through title and summary were evaluated according to the eligibility criteria, excluding irrelevant articles. The selected articles have been read in full to decide on their inclusion. Then the researchers separately performed the data extraction, and, after the collection, a new consensus meeting was held to verify the degree of agreement between the authors. In order to evaluate the quality of the selected articles, the Consolidated Standards of Reporting Trials (CONSORT) was applied and, to evaluate the final quality of the systematic review, the checklist Preferred Report Items for Systematic Reviews and Meta-Analyses (PRISMA). In addition, an active search was conducted for other studies cited in the references of the articles selected to be added in the literature review.

Data extraction: The data of the selected articles were collected using a predefined form with the following information: title, author (s), year of publication, country of origin, language, keywords, objectives, method, period of research, sample size, diagnostic criteria for tinnitus, time of treatment with mindfulness therapy, characterization of the participants, mean age and sex.

Finally, we searched the database COCHRANE and PROSPERO for similar reviews so that there was no duplicate information.

**Results**

Selection of studies: In the first stage, a total of 13 studies were found in the electronic databases, according to the defined search strategy. Eight of these were excluded through the clinical trial filter. Of the remaining five, two were excluded after the titer and abstract analysis at the screening stage, as they did not match the study objective. Thus, 3 (23%) studies were selected at the eligibility stage. The steps followed for the selection of the studies are presented in (Figure 1), detailing the inclusion and exclusion criteria adopted. (Table 1) describes the general characteristics of the studies.

Scales used to evaluate the primary outcome: Two studies 9,11 (66%) used the Tinnitus Questionnaire (TQ) to assess the primary endpoint. The third study 10 used the Tinnitus Psychological Impact Questionnaire (TPIQ), a TQ junction and the Tinnitus Coping Style Questionnaire (TCSQ), as described in (Table 2). The study by Sadlier

Table 1: General data of studies included in the systematic review, ordered by year of publication.

| References                            | Design of the study | Size of the sample | Time of therapy (n° of sessions) | Associated therapy? |
|---------------------------------------|---------------------|--------------------|----------------------------------|---------------------|
| Sadlier et al <sup>9</sup> (2007)     | RCT                 | 25                 | 4                                | No                  |
| Philippot et. al <sup>10</sup> (2011) | RCT                 | 25                 | 6                                | Yes                 |
| Arif et al <sup>11</sup> (2017)       | RCT                 | 61                 | 5                                | Yes                 |

RCT: Randomised Clinical Trial

Table 2: Therapeutic response of tinnitus to full-care therapy, by year of publication.

| References                           | Scale used (primary/secondary outcome) | Therapeutic response based on the value of P |
|--------------------------------------|--|--|
| Sadlier et al <sup>9</sup> (2007)    | TQ/VAS, HADS                           | p< 0,007*                                    |
| Philippot et al <sup>10</sup> (2011) | TPIQ                                   | p< 0,001*                                    |
| Arif et al <sup>11</sup> (2017)      | TQ/ VAS, HADS                          | p=0,047*                                     |

\* Statistically significant p-value

et al. and Arif et al. Also used the “Hospital Anxiety and Depression Scale “(HADS) and the” Visual Analogue Scale (VAS) “for secondary assessment.

Therapeutic response of tinnitus to full-care therapy: The three selected studies (100%) demonstrated a statistically significant response to tinnitus improvement through full-care therapy. The study by Arif et al presented a p = 0.047 for TQ in the group that used full-care therapy and a p = 0.002 in VAS. The Philippot et al study demonstrated a p <0.001 at the follow-up of the group that used full-care therapy. On the other hand, the study by Sadlier et al. Demonstrated a statistically significant response only in VAS (p <0.007).

Comparison with other associated therapies: Regarding the studies with associated therapy (66.6%), full attention therapy was superior in all aspects of the applied questionnaires.

**Discussion**

Through this systematic review, a total of 111 (one hundred and eleven) patients undergoing full-care therapy were obtained, with an average of 7.5 sessions. From the questionnaires and evaluative criteria used by each study, including the secondary assessment scale VAS (used by 2 studies), the TPIQ and TQ, a positive response was found in 100% of the cases - all with a statistically significant result (p <0.005).

When compared to other types of therapy for tinnitus, using the same TQ questionnaire, studies such as that of Folmer et al. and Hoerkstra et al. failed to demonstrate a statistically significant response in reducing the intensity and irritability / stress caused by tinnitus with the use of transcranial stimulation (tDCS) [9,10]. Already the relaxation training, therapy used in comparison to mindfulness by McKenna et al. (2017), showed a statistically significant reduction in tinnitus intensity, but 6.3 times lower than the reduction potential promoted by full-care therapy [11]. As TQ is a questionnaire of objective responses, despite a small number of studies found in this attribute, this result points to new perspectives in the treatments available for tinnitus.

Regarding the VAS scale, both studies that used it presented a statistically significant positive result. However, since it is a more subjective analysis that has a greater influence on the psychological aspects of patients [12,13], it may be justified why other therapeutic models, such as tDCS itself, also show a good response in tinnitus therapy through VAS. Regardless, recent studies, such as that published by McKenna et al. (2018), suggest a capacity for greater acceptance of tinnitus after full-care therapy<sup>14</sup>, although it is considered a subjective analysis.

**Conclusion**

From the present study it was possible to define a positive effect of mindfulness therapy on tinnitus. Due to the small number of studies using similar methodologies it was not possible to perform a meta-analysis. Thus, the results found reinforce the need for more clinical

trials, mainly in Brazil, to verify the efficacy of full-care therapy in the treatment of these patients.

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