

Kelly Lee, BS¹; Richard Adamovich-Zeitlin¹; Maja Svrakic, MD²

¹Donald and Barbara Zucker School of Medicine at Hofstra/Northwell,

²Department of Otolaryngology, Northwell Health

Abstract

- Evaluate the relationship between temporomandibular joint disorder (TMJD) and tinnitus and determine which patients with these symptoms may benefit from myofascial release therapy (MFRT).

Introduction

- Despite the high prevalence of concurrent tinnitus and temporomandibular joint disorder (TMJD), few studies analyze the relationship of these symptoms and the treatment options for these patients.
- Patients with somatosensory tinnitus may benefit from specific therapies that are ineffective for those driven solely by sensorineural hearing loss.
- It is crucial to identify the criteria of a patient presenting with somatosensory tinnitus who should be referred to myofascial release therapy (MFRT), and to determine the effectiveness and pitfalls of MFRT for these patients.

Methods and Materials

- Retrospective chart review from 10/1/14 – 4/30/22 of patients :
 - Aged ≥ 18 at first encounter
 - Diagnoses codes of:
 - TMJ dysfunction
 - Tinnitus
 - Exclusion criteria:
 - External ear pathologies including excess cerumen, otitis externa, eczema, ear neoplasia, or referred throat pain
 - Middle ear pathologies including conductive hearing loss, chronic otitis media, tympanic membrane perforation, patulous Eustachian tube, abnormal tympanogram, chronic rhinosinusitis confirmed with CT/endoscopy, prior sinus surgery, or abnormal imaging
 - Inner ear pathologies including asymmetrical sensorineural hearing loss, Meniere disease, semicircular canal dehiscence, abnormal VEMP/VNG, or abnormal imaging
 - Age, gender, laterality and duration of symptoms were also collected
 - Patients were recommended for a trial of MFRT, which consisted of 3 sessions per week for 6 weeks

Included Patients	56
Men	18
Women	38
Age	52.3 \pm 14.6

Results

- Of the 56 patients, 64.3% reported TMJ dysfunction and tinnitus on the same side. Of the patients with symptoms on the same side, 63.4% reported bilateral pathology

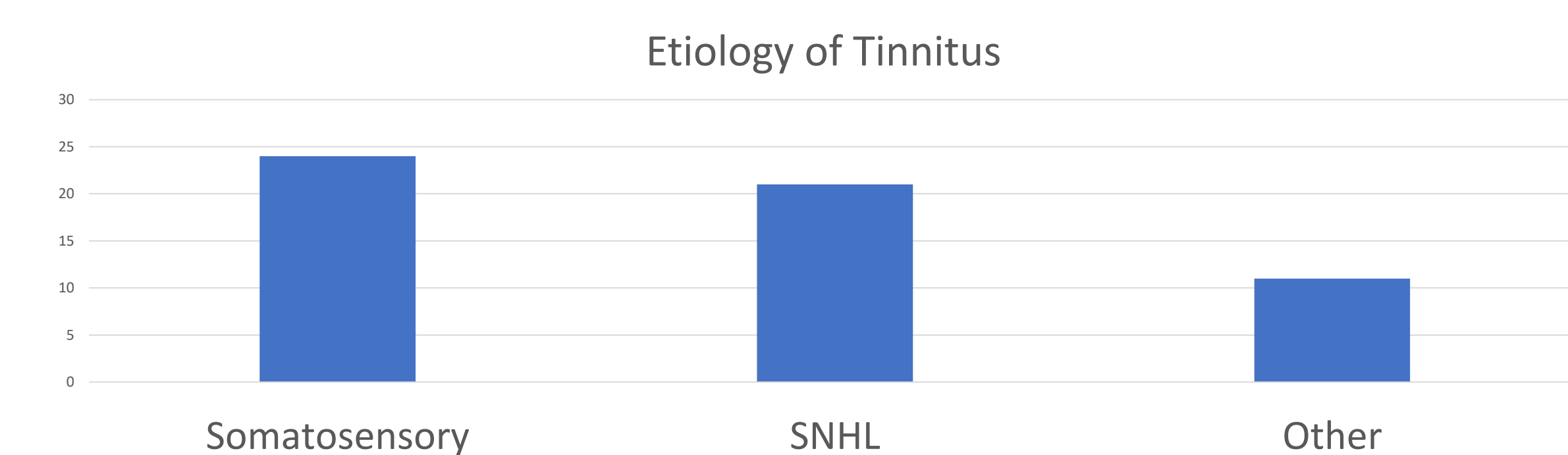


Figure 1: Various etiologies of tinnitus found in patients. Other refers to physiologic or unknown etiology

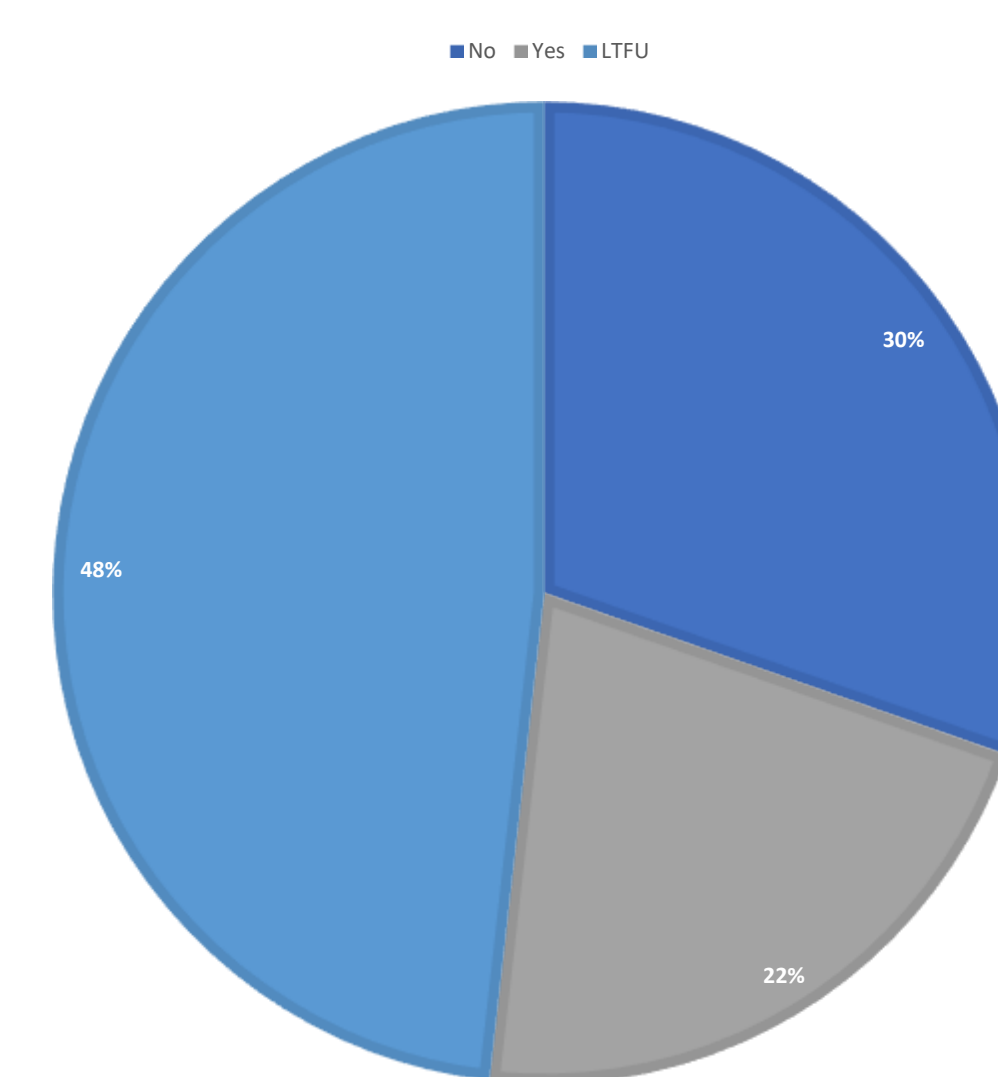


Figure 1: Of the patients recommended for MFRT, 22% reported receiving the therapy, 30% denied receiving the therapy, and 48% were lost to follow-up, so their responses were unable to be recorded

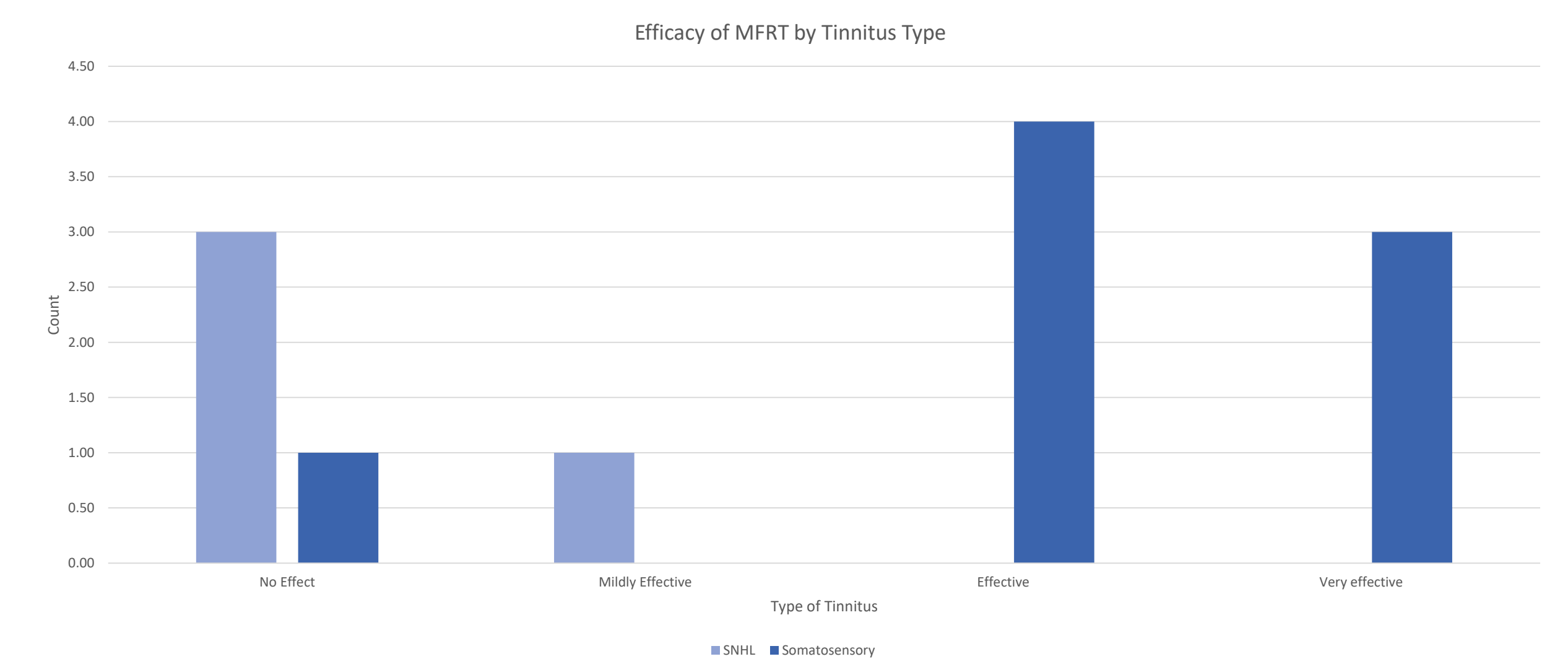


Figure 3: Based on the results of Table 1, patients were further divided into the type of tinnitus they had to analyze the efficacy of MFRT in treating their tinnitus

	Tinnitus	TMJ Dysfunction
No Effect	4	3
Mildly Effective	1	1
Effective	4	7
Very Effective	3	1

Table 1: Patients who received MFRT were asked to judge how effective they found MFRT to be in alleviating their symptoms of tinnitus and TMJ dysfunction

Discussion

- Women were more likely than men to report tinnitus and/or TMJ dysfunction
- 83% of patients with co-existing TMJ dysfunction and tinnitus were recommended for MFRT
- Of the patients who were recommended for MFRT, 22% reported actually receiving the treatment, ranging from 4-24 total treatments
- A key characteristic of somatosensory tinnitus is that it is influenced by physical contact¹, and MFRT showed sustained decrease in tinnitus symptoms in patients with somatosensory tinnitus². However, it did not have much effect on patients with tinnitus due to sensorineural hearing loss
- 48% of patients who were recommended for MFRT were lost to follow-up, which may under-report the efficacy of MFRT in treating symptoms of tinnitus, especially because nearly half of the patients in our study had somatosensory tinnitus

Conclusions

- Further data should be collected in order to gauge the efficacy of MFRT in treating different types of tinnitus in patients with TMJ dysfunction
- Barriers to treatment should be analyzed in patients who chose not to receive the treatment so that treatment plans can be better tailored to make MFRT more accessible to patients who may benefit from treatment

Contact

[Kelly Lee]
[Donald and Barbara Zucker School of Medicine at Hofstra/Northwell]
[500 Hofstra Blvd, Uniondale, NY 11549]
[KLee42@pride.hofstra.edu]

References

- Haider HF, Hoare DJ, Costa RFP, Potgieter I, Kikidis D, Lapira A, Nikitas C, Caria H, Cunha NT, Paço JC. Pathophysiology, Diagnosis and Treatment of Somatosensory Tinnitus: A Scoping Review. *Front Neurosci.* 2017 Apr 28;11:207. doi: 10.3389/fnins.2017.00207. PMID: 28503129; PMCID: PMC5408030.
- Rocha CB, Sanchez TG. Efficacy of myofascial trigger point deactivation for tinnitus control. *Braz J Otorhinolaryngol.* 2012 Dec;78(6):21-6. doi: 10.5935/1808-8694.20120028. PMID: 23306563; PMCID: PMC9446353.