Auditory Function in Scleroderma: A Scoping Review

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Background

Scleroderma (systemic sclerosis or SSc) is an autoimmune disease affecting the arteries, microvessels, and connective tissue, including the hearing and speech systems (Pattanaik et al., 2015). It often co-occurs with systemic lupus erythematosus (SLE). Although scleroderma is a chronic condition, the impact of scleroderma on auditory function is relatively unexplored.

Aims

To examine the trends in assessment for individuals with scleroderma and auditory dysfunction via a scoping review.

Methods

We conducted a scoping review following the Arksey & O'Malley (2005) framework. Six databases (PubMed, Embase, Cochrane, Web of Science, ProQuest, and Google Scholar) were searched using MeSH terms and Boolean combinations such as:

("scleroderma" OR "systemic sclerosis" OR "systemic lupus erythematosus") AND ("hearing loss" OR "auditory function")

Inclusion Criteria:

- Peer-reviewed and grey literature assessing auditory function in individuals with scleroderma or SLE
- English language
- Human participants
- Studies with audiological outcomes

Data were charted for hearing loss characteristics, and audiological assessments.

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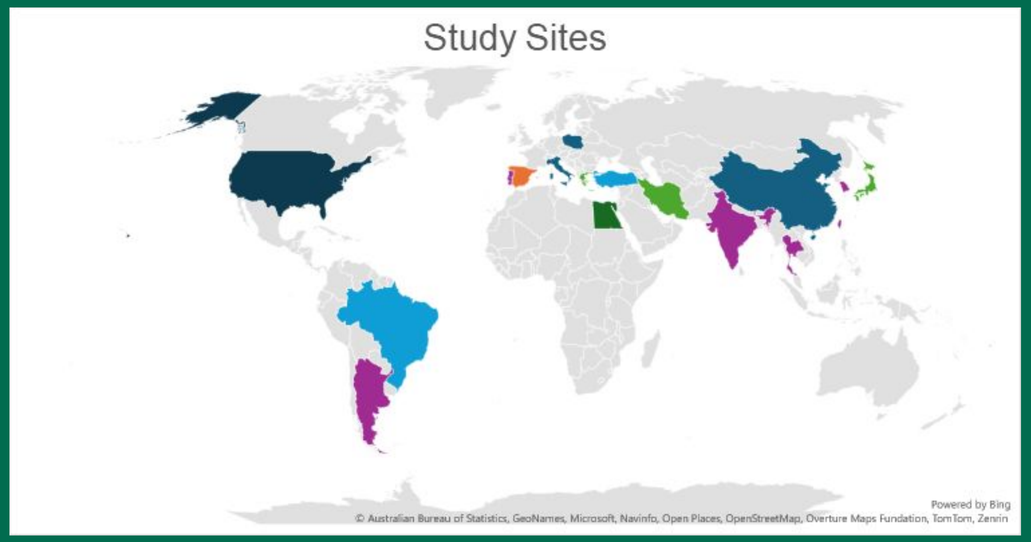
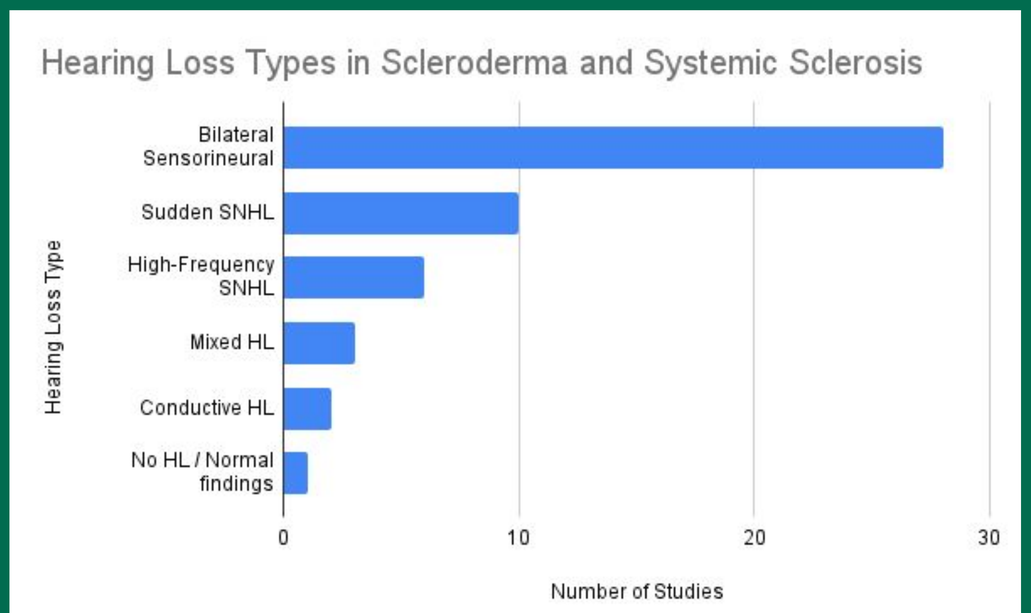
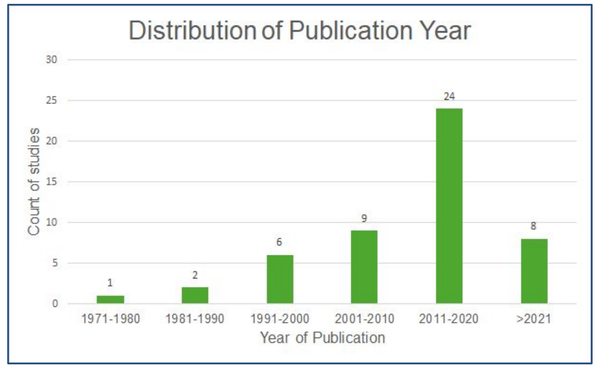
Results





Summary of Key Findings From Included Studies (N = 50)

Category	Findings
Hearing loss type	Most common was bilateral sensorineural hearing loss (SNHL), often high-frequency. Sudden SNHL and mixed types also reported. Find details in figure below.
Conditions studied	Scleroderma/Systemic Sclerosis (n = 35); Systemic Lupus Erythematosus (n = 15)
Audiological tools	Pure-tone audiometry (PTA; n = 37), otoacoustic emissions (OAE; n = 5), auditory brainstem response (ABR; n = 6), impedance audiometry (n = 6)



Discussion

This review highlights an underrecognized association between autoimmune disorders and hearing loss. Despite sparse attention in clinical guidelines, consistent audiological findings across decades suggest a need for:

- Interdisciplinary collaboration between audiologists, rheumatologists, and SLPs
- Routine hearing screening in rheumatologic care

Our findings reinforce the importance of early identification and audiological management in patients with systemic autoimmune diseases.

Conclusion

Our data supports the hypothesis that SNHL is a common audiovestibular manifestation in patients with SSc.
Evidence suggests systemic autoimmune dysfunction may contribute to progressive or sudden auditory dysfunction thereby warranting a need for periodic monitoring of auditory skills in these individuals.

References

Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology, 8*(1), 19-32.

Pattanaik, D., Brown, M., Postlethwaite, B. C., & Postlethwaite, A. E. (2015). Pathogenesis of systemic sclerosis. *Frontiers in Immunology, 6*, 272.

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