Decreased sound tolerance in autism spectrum disorder: a scoping review

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1. Introduction

- Decreased sound tolerance (DST) is a common yet poorly understood feature of autism spectrum disorder (ASD)
- Currently there are no clinical guidelines recommending appropriate assessment and management options for DST[1]
- Numerous terms are used in clinical and research contexts to describe DST, creating challenges in accessing the current evidence and identifying where further research is required[1]

2. Methods

- A scoping review – JBI methodology[2]
- Patient and public involvement sessions
- Aimed to identify (within an ASD context):
  1. Terminologies used to describe DST
  2. Definitions of each DST-term
  3. DST assessment and management options

PubMed, Web of Science, CINAHL (Available via EBSCOhost), embase (Biomedical Answers), Scopus

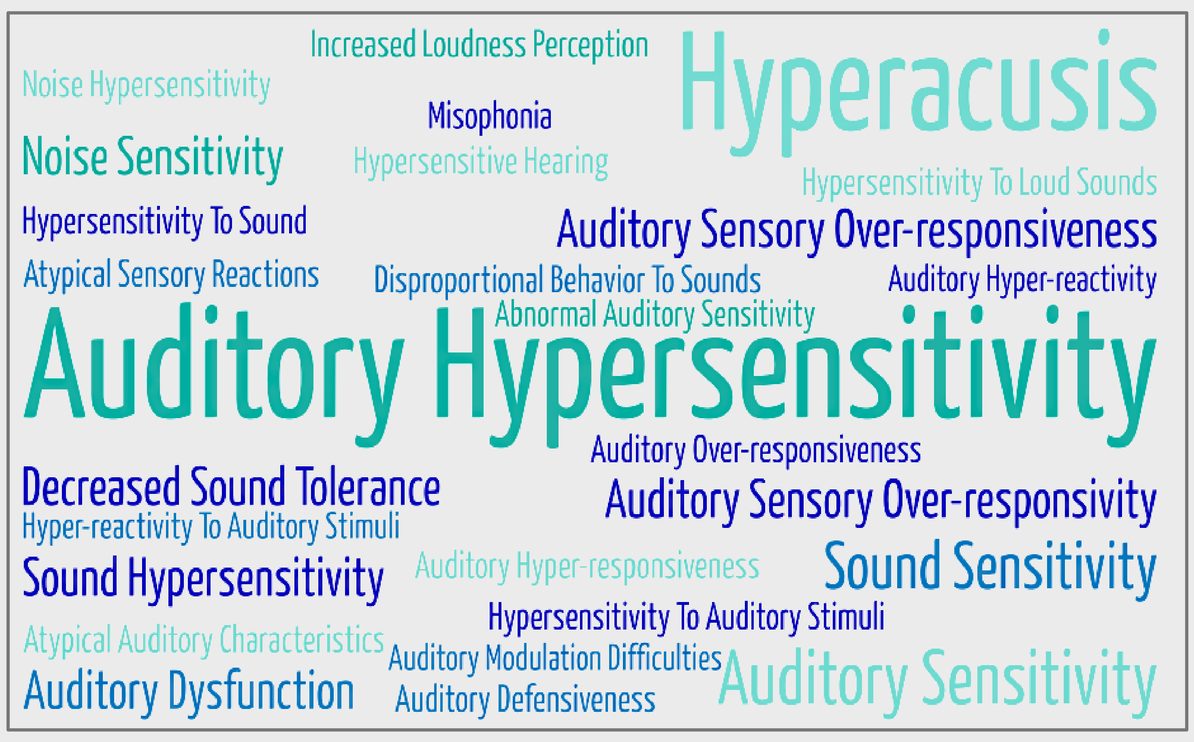
3. Results

2369 studies identified → **1006** screened by abstract → **104** screened by full-text → **65** studies included

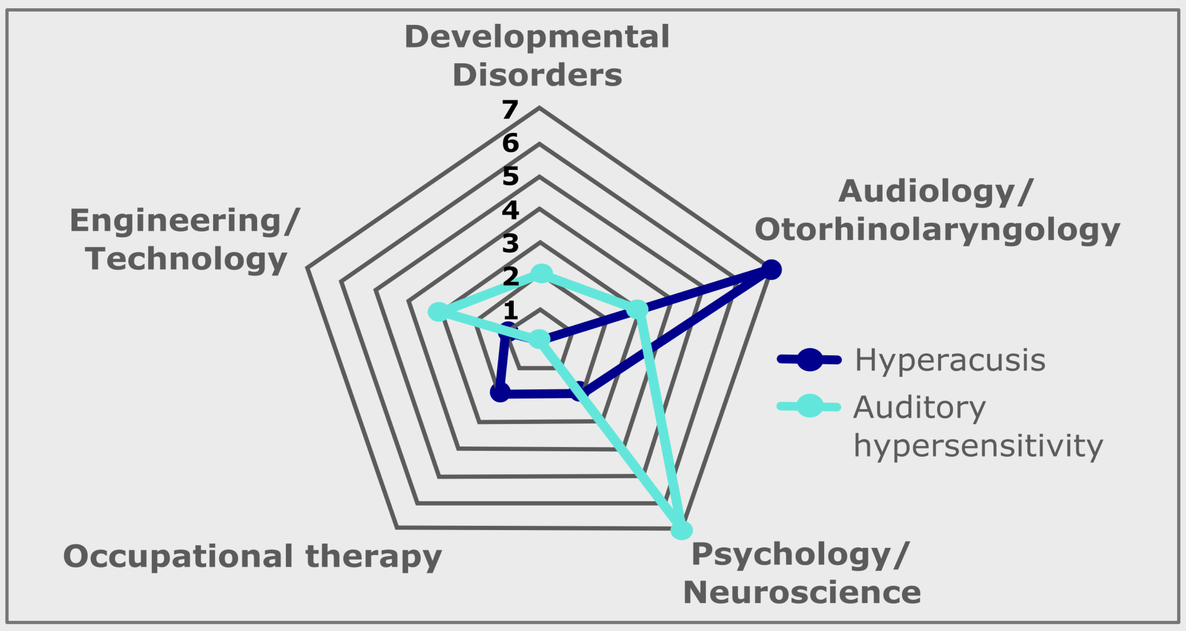
1363 duplicates removed; 902 irrelevant; 39 excluded

3.1 Terminology

- 26 terms were identified…

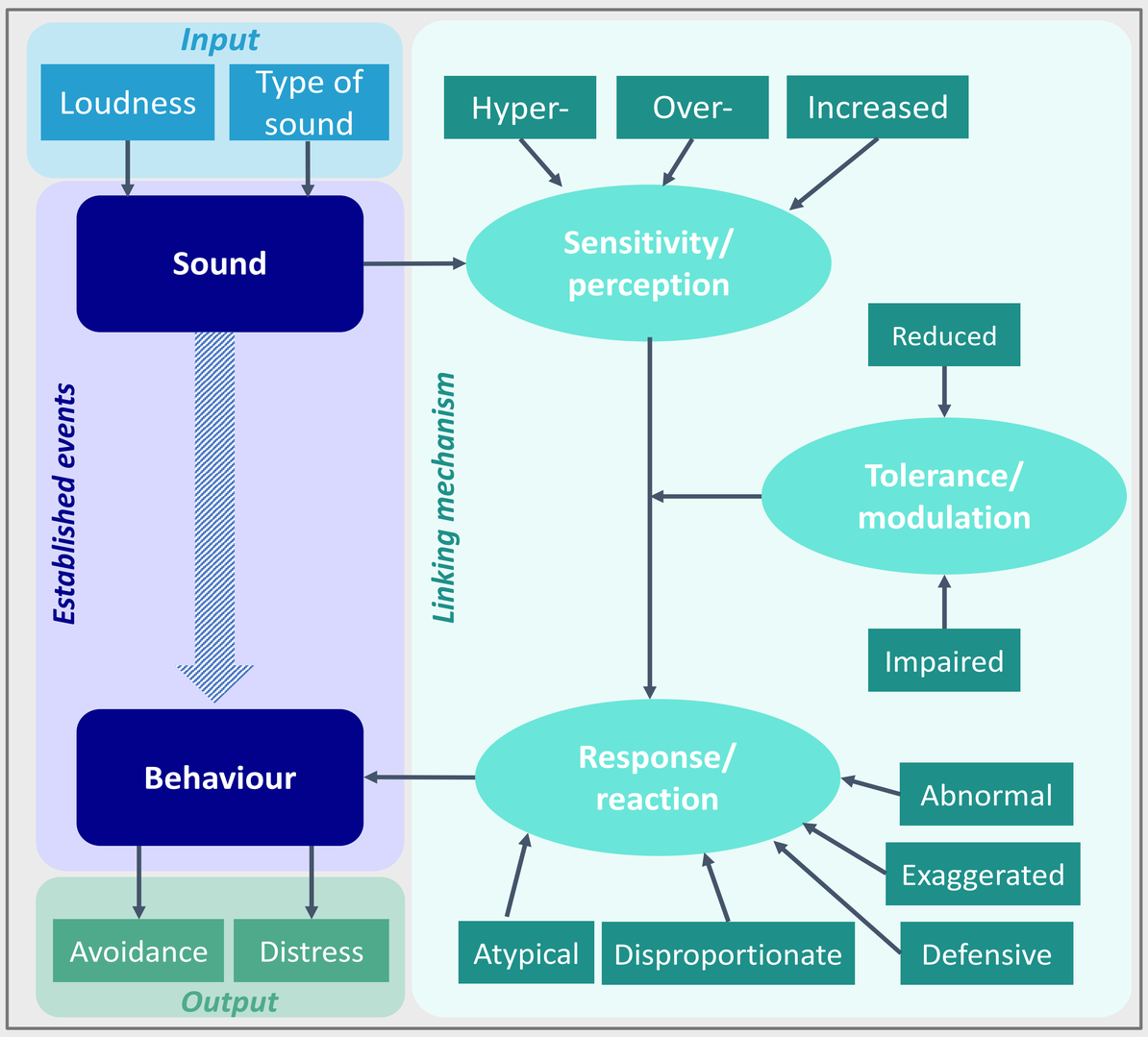


- … with varied use across disciplines



3.2 Definitions

- Distinct themes for inputs (i.e. features of sound), outputs (i.e. resultant behaviours) and linking mechanisms were identified:



3.3 Assessment and management

- **Assessment:** questionnaires, clinical interviews, observation, objective testing (e.g. loudness discomfort levels)
- **Management:** desensitisation (e.g. auditory integration therapy, behavioural reinforcement, 'Serious Games') or avoidance (e.g. noise-cancelling headphones, acoustic modification)

4. Conclusions

Scoping review findings:

- Widespread lack of consistency in terms and definitions used for DST in ASD, both within and across disciplines
- Varied assessment and management options with contrasting underlying principles – strongly influenced by the chosen DST definitions

Future research:

- Stakeholder and cross-disciplinary involvement to reach a consensus on a 'common language'
- Multi-disciplinary research to develop validated, clinically meaningful assessment and management tools, allowing for the creation of evidence based clinical practice guidelines

References

1. Williams, Z. J., Suzman, E., and Woynaroski, T. G. (2021). Prevalence of Decreased Sound Tolerance (Hyperacusis) in Individuals With Autism Spectrum Disorder: A Meta-Analysis. *Ear & Hearing, 42*(5), 1137-1150.
2. Peters, M. D. J., Marnie, C., Tricco, A. C., Pollock, D., Munn, Z., Alexander, L., McInerney, P., Godfrey, C. M., and Khalil, H. (2020). Updated methodological guidance for the conduct of scoping reviews. *JBI Evidence Synthesis, 18*(10), 2119-2126.