

## ABSTRACT

Hyperacusis remains a misunderstood and often confusing hearing disorder that is complicated by a lack of consensus about how best to diagnose it and characterize its severity. By systematic analysis, we found 9 articles(10 questionnaires) and could be divided the questions into 4 categories(physical, attention/perceptual, emotional, behavioral/social aspects). Clinicians should select the appropriate questionnaire to screening or diagnose hyperacusis.

## OBJECT

This present study reviews the clinical questionnaires currently used for patients with hyperacusis by applying a systematic search and provides useful information to determine a more appropriate tools.

## METHODS and MATERIALS

To review the prospective studies that contributed to the development of the hyperacusis questionnaires, five electronic journal databases (ScienceDirect, Web of Science, PubMed, Medline, and CINAHL) were searched.

Further, items extracted from each questionnaire were classified into four new categories: physical, attentional/perceptual, emotional, and behavioral/social aspects since most experts mentioned these categories as characteristics of hyperacusis.

## RESULTS

Using the search criteria, 8544 articles were initially found in the database. 9 papers(10 questionnaires) were finally selected for research. Seven questionnaires could screen patients for hyperacusis, and the remaining three could distinguish mild, moderate, substantial, and severe cases. Each category was decomposed into 16 subcategories based on similar content; it appeared very different in content and distribution although each had its own purpose and method.

The physical category included the questions about sensory changes, such as ear pain and problem with balance and odor. The attentional/perceptual category had items on high/hypersensitivity to sound stimuli and background noise for loudness. The emotional category included anxiety, anger, stress, and aversion. The behavioral/social category consisted of items effects of hyperacusis, such as negative influences on relationships with family and/or friends and intentional (or not) limitations and restrictions.(fig.1)

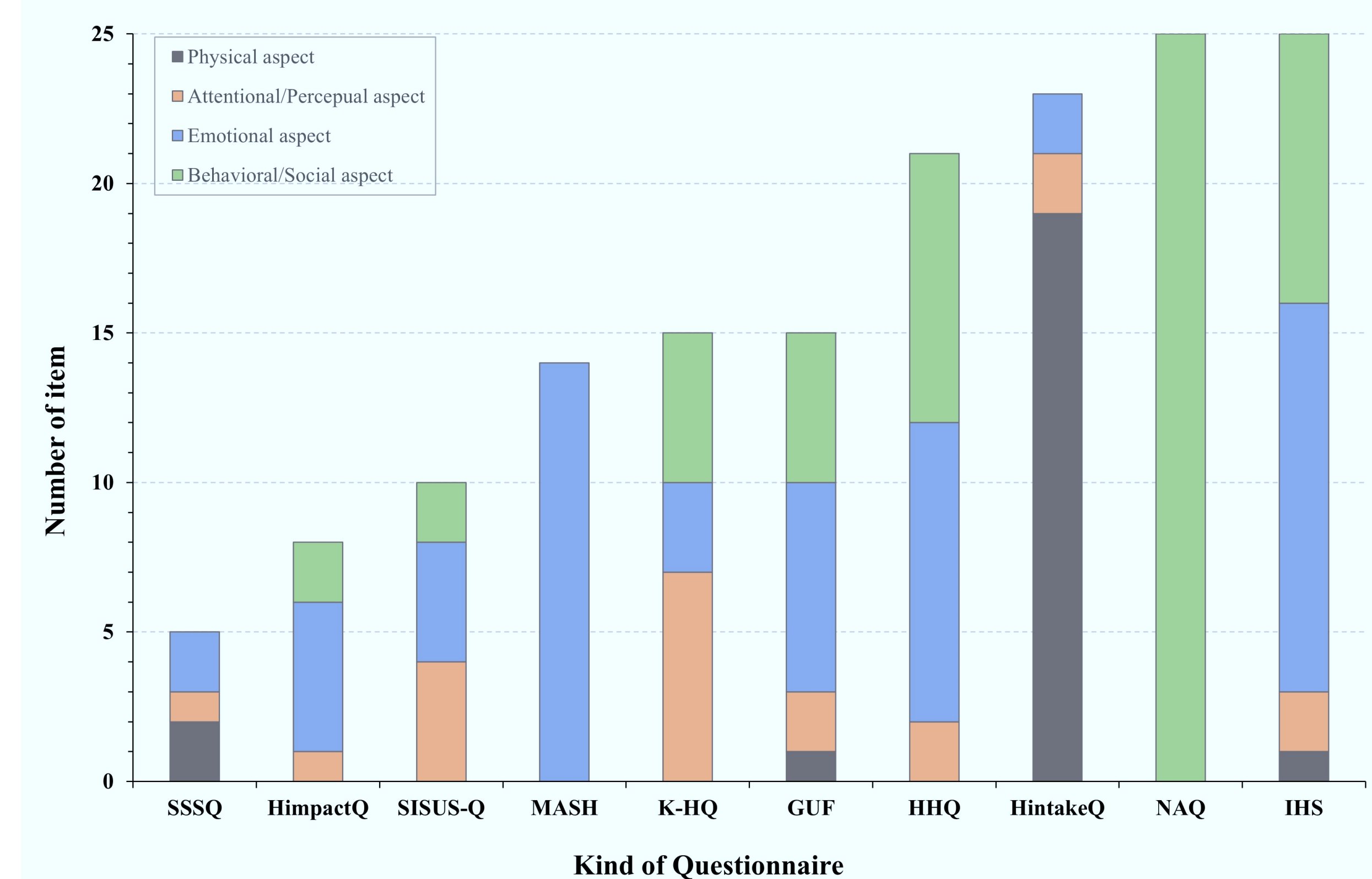


Figure 1. Questionnaire's category diving into 4 categories. SSSQ: Sound Sensitivity Symptoms Questionnaire; HimpactQ: Hyperacusis Impact Questionnaire; SISUS-Q: Sensitivity to Infra-Sound and Ultra-Sound Questionnaire; MASH: Multiple-Activity Scale for Hyperacusis; K-HQ: Hyperacusis Questionnaire developed by Khalfa et al.; GUF: Questionnaire on Hypersensitivity to Sound; HHQ: Hyperacusis Handicap Questionnaire; HintakeQ: Hyperacusis Intake Questionnaire; NAQ: Noise Avoidance Questionnaire; and IHS: Inventory of Hyperacusis Symptoms

## CONCLUSION

Clinicians should select a questionnaire based on its purpose and subcategories. Of course, the questionnaires varied in content and structure because they had different developmental purposes, so it is difficult to say which questionnaire was most accurate in evaluating hyperacusis.

Given the heterogeneity of the questionnaires, researchers or clinicians should carefully identify the subcategories and items of a questionnaire and use it according to their screening or diagnostic purpose.

## KEY REFERENCE

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