

An online evaluation of test-retest reliability of hyperacusis questionnaires with an adult population experiencing hyperacusis

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Online questionnaire study coordinated by NIHR Nottingham BRC, approved by HRA/HCRW (REC 23/EE/0116), opened 18 Aug 2023



Hyperacusis



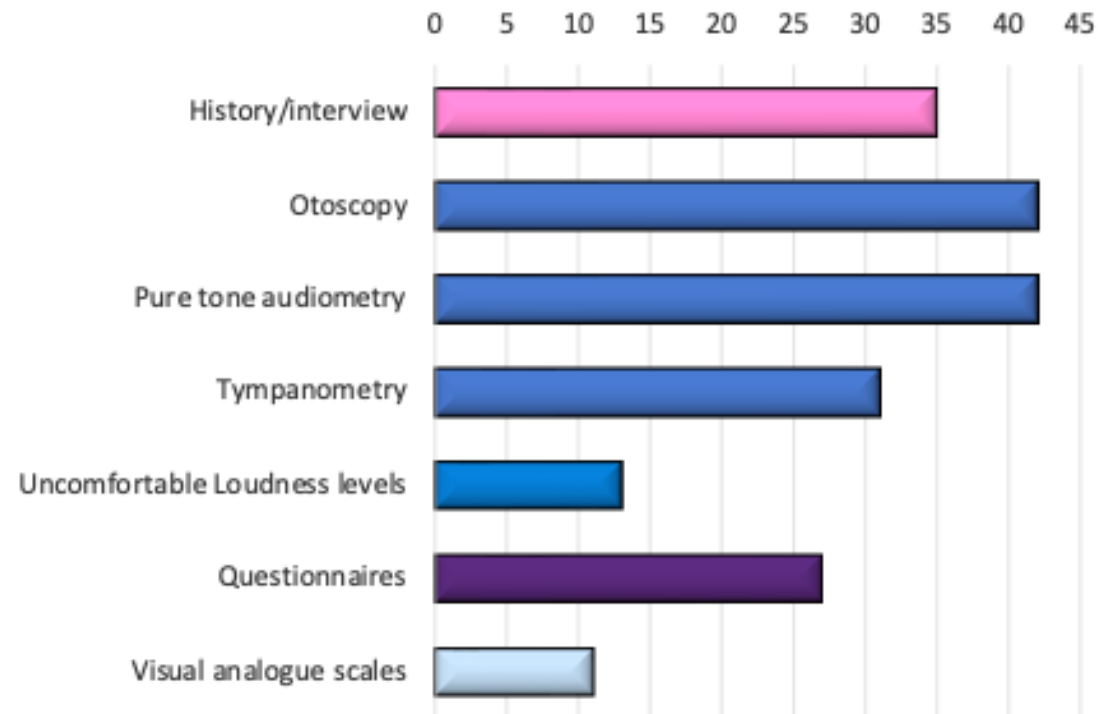
- A reduced tolerance to sound(s) that are perceived as normal to the majority of the population or were perceived as normal to the person before their onset of hyperacusis, where “normal” refers to sounds that are generally well tolerated.
- Affects about **3%** of children and **14%** of adults
- **No** cure for hyperacusis
- **No** standard clinical guidelines



How do we assess hyperacusis?

- **No** standardised guidance for assessment
- **No consensus** on the problems that should always be assessed
- **No consensus** on the measurement tools that should be used

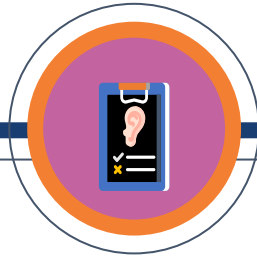
BSA service evaluation 2023: 42 NHS clinic representatives



Why use questionnaires?



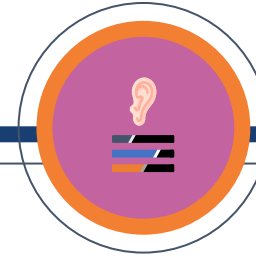
Assess severity
and impact across
different domains



Standardise
assessment, triage,
and patient
selection



Guide clinical
decision-making and
treatment planning



Measure treatment
outcomes and
improvements over
time

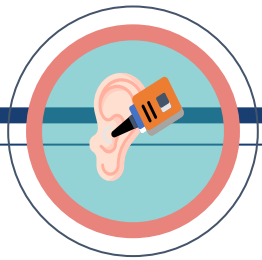
Questionnaire	Purpose	Items	Response options	Total score	Subscales
HQ	Measures sound sensitivity	14	4-point Likert (No–Yes, a lot)	0–42	Attentional, Social, Emotional
HIQ	Measures the impact of hyperacusis	8	4-point frequency (0–1 to 11–14 days)	0–24	None
SSSQ	Measures frequency of hyperacusis symptoms	5	4-point frequency (0–1 to 11–14 days)	0–15	Loudness, Pain/Discomfort, Annoyance (Misophonia), Fear
IHS	Assesses the impact of hyperacusis on quality of life and functioning	25	4-point Likert (Not at all–Very much so)	25–100	Quality of Life, Emotional Wellbeing, Social Situations, Functional Impairment, Sound Sensitivity

Aims & Methods

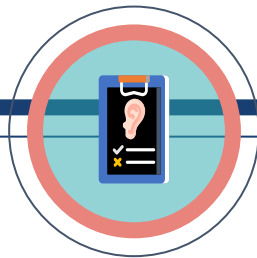
To evaluate the test–retest reliability of four hyperacusis questionnaires (HQ, IHS, HIQ, SSSQ) in adults with hyperacusis

How?

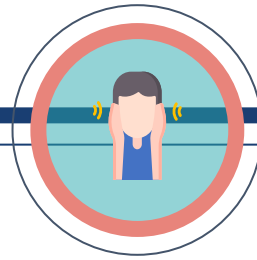
Recruited adults (≥ 18 years) with self-reported or diagnosed hyperacusis to complete online survey with questionnaires



N = 110 adults (mean age 50; 58% female)



Online survey at T1 and ~2 weeks later

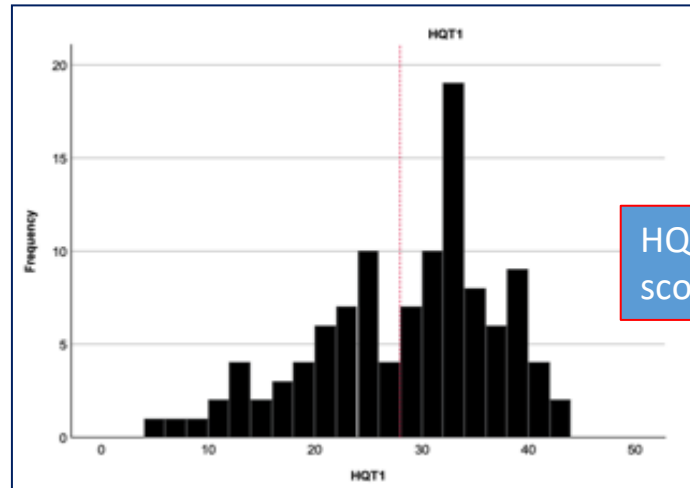


N = 73 “no change” (CGI) for analysis

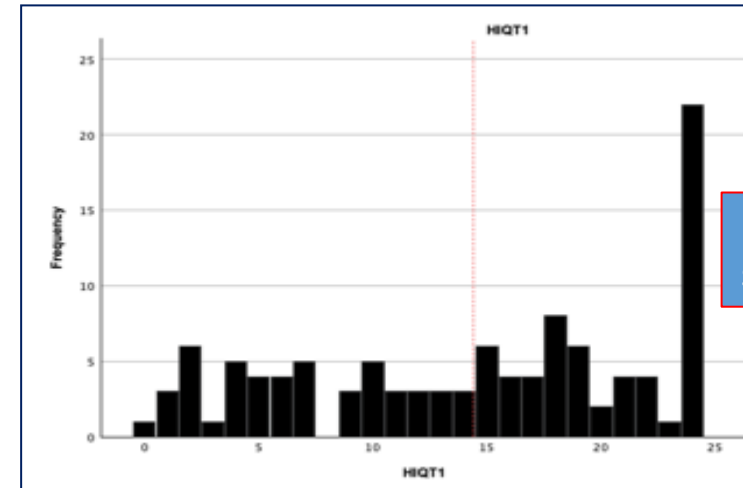


ICC → score consistency
SEM → score precision

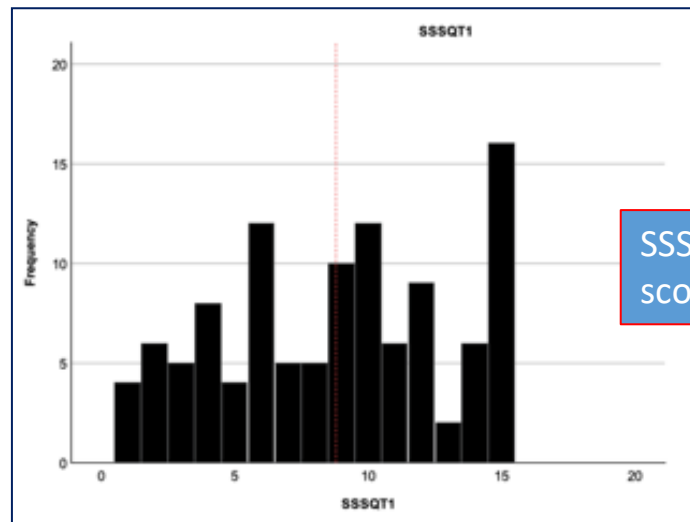
Distribution of questionnaire scores



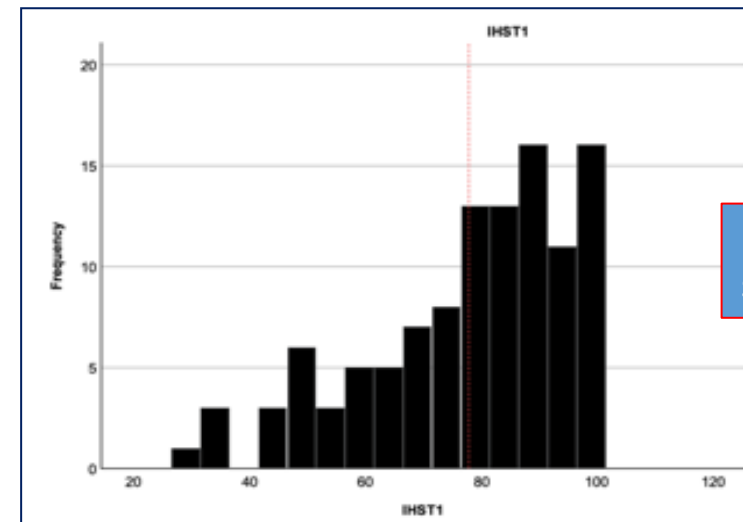
HQ Mean
score: 27.2



HIQ Mean
score: 13.6



SSSQ Mean
score: 8.40



IHS Mean
score: 75.7

CGI scores

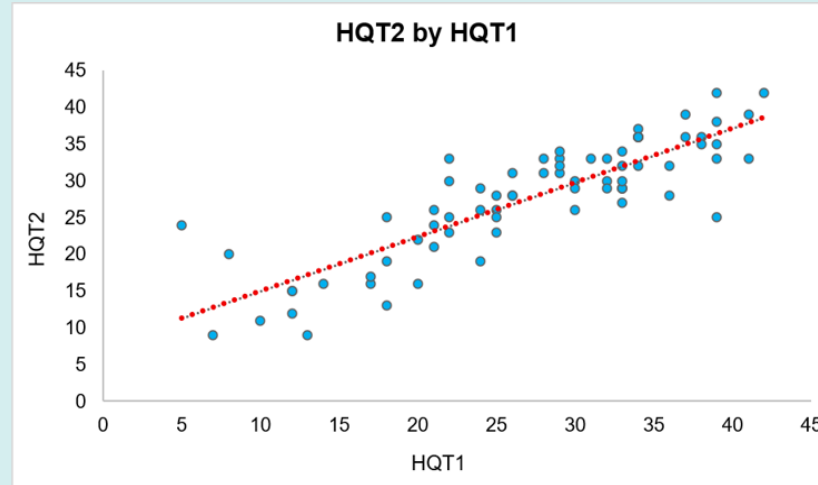
Clinical Global Impression (CGI) scale scores for 110 participants.

73 no change participants: average 22 days (range: 10 - 62) between time 1 and 2

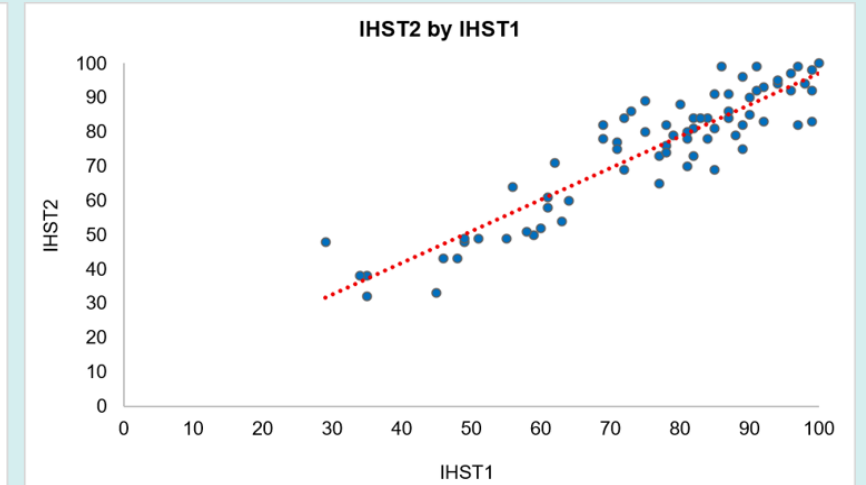
CGI categories	Frequency (n)	Percentage (%)
Moderately Worse	5	4.5
Slightly Worse	21	19.1
No Change	73	66.4
Slightly Improved	8	7.3
Moderately Improved	2	1.8
Much Improved	1	0.9
Total	110	100.0

Reliability

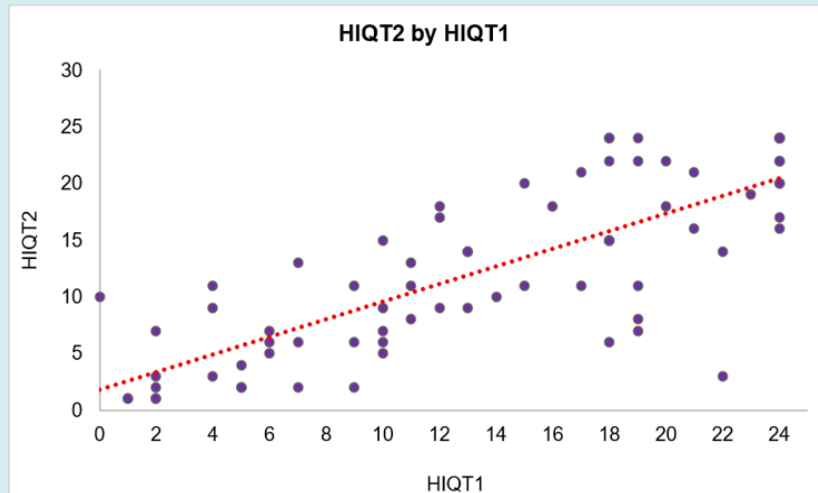
- All show high reliability
- IHS most reliable
- SEM indicates minimal error in measurement



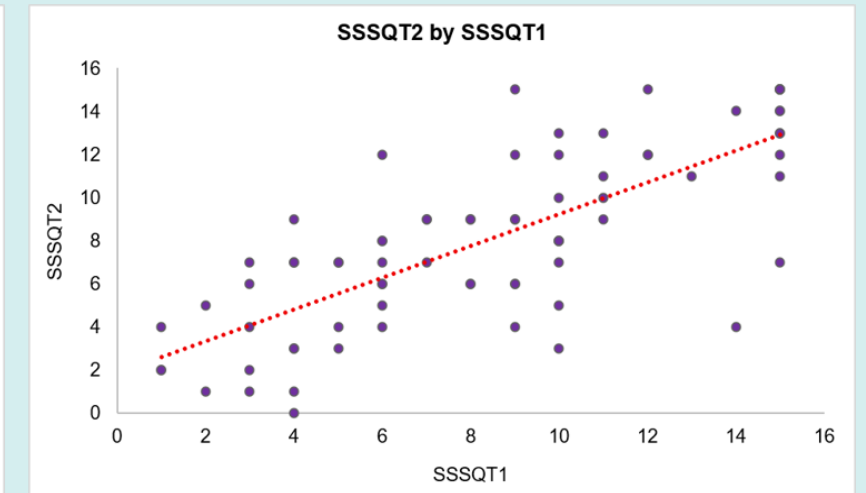
HQT1	HQT2	ICC (95% CI)	Mean diff^2	SEM
27.2 (9.1)	27.7 (7.9)	0.85 (0.76 – 0.90)	0.5	3.4



IHST1	IHST2	ICC (95% CI)	Mean diff^2	SEM
75.7 (17.9)	74.8 (18.1)	0.92 (0.87 – 0.95)	-0.9	5.3



HIQT1	HIQT2	ICC (95% CI)	Mean diff^2	SEM
13.6 (7.5)	12.4 (7.5)	0.78 (0.67 – 0.86)	-1.2	3.5

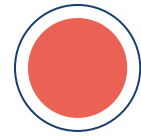


SSSQ1	SSSQ2	ICC (95% CI)	Mean diff^2	SEM
8.4 (4.2)	8.0 (4.1)	0.76 (0.64 – 0.84)	-0.3	2.1

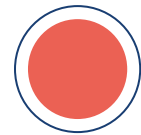
Limitations & conclusion



Mostly female,
white sample



Variable retest
interval (10-62 days)



Tinnitus (66%) may
inflate scores



HQ & IHS robust for
online monitoring



HIQ & SSSQ precise
but need refinement

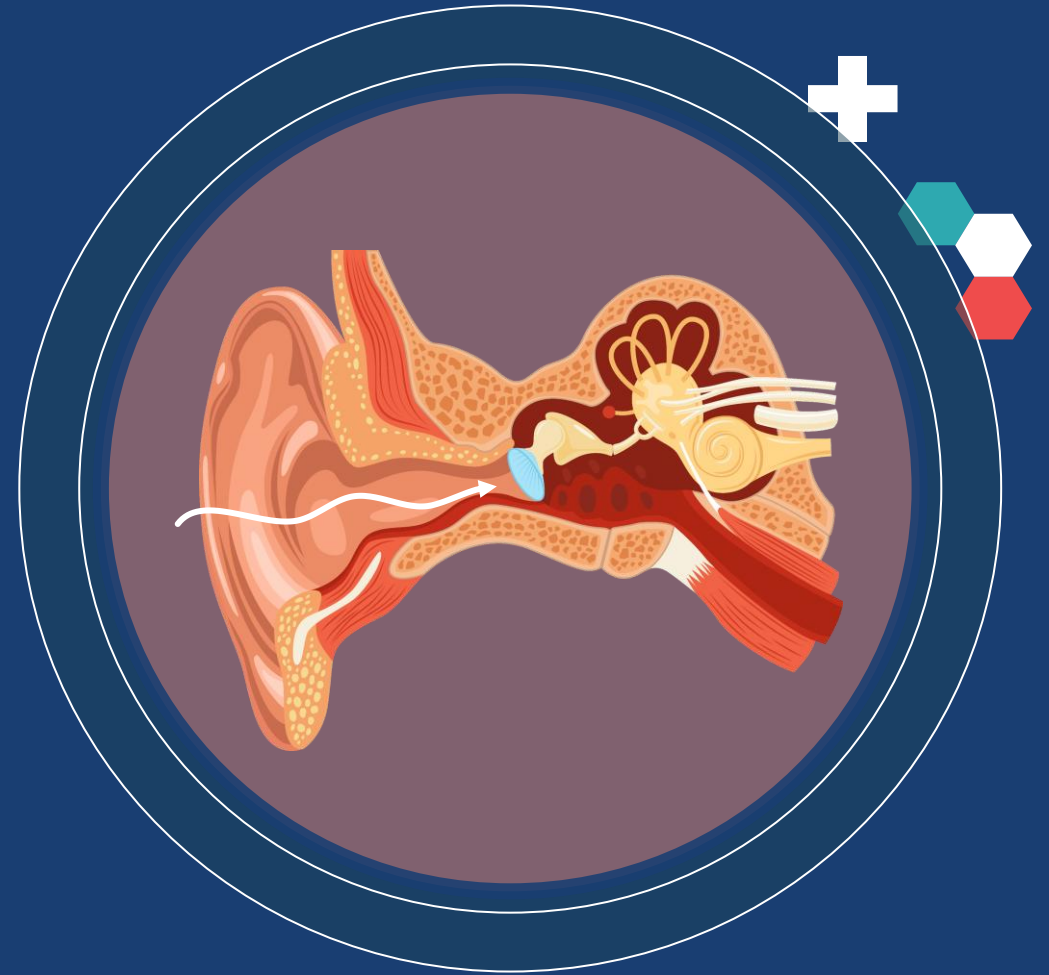


Improved tools →
better assessment
and interventions

Thank you

Do you have any questions?

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For references please scan QR code →

