

A Comparison Between Self-reported Hearing Handicap and Hearing Impairment Among Subjects of Different Ethnicities

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Background

- Quality of life measures and health perception studies conducted in Singapore have shown differences among the ethnic groups in Singapore (S. R. Quah, 1993; Thumboo et al., 2003).
- Limited studies have been done to explore the influence of ethnicity on self-perceived hearing handicap in Singapore.



Background

- Self-perceived hearing handicap among the elderly are some of the obstacles to hearing aids adoption (Kochkin, 2007).



<http://www.lispeech.com/content/resources/Image/hearing-loss.jpg>

Significance of Study

- Provide insights for future aural rehabilitation planning that caters to patients of different ethnicity group in Singapore.



<https://i.ytimg.com/vi/aBV9iszwi-8/maxresdefault.jpg>

Study Aims

1. To examine the influence of ethnicity on self-perceived hearing handicap
2. To determine any correlation between self-perceived hearing handicap and actual hearing loss



Hypotheses

1. A higher proportion of Malays will report a greater degree of hearing handicap than Chinese and Indians
2. People with normal hearing or people diagnosed with mild hearing loss are less likely to report a hearing handicap as compared to those with moderate hearing loss or worse.

Study Design

1. Recruitment site



Part A:
Community Hearing Screening at
Ghim-Moh Housing Estate



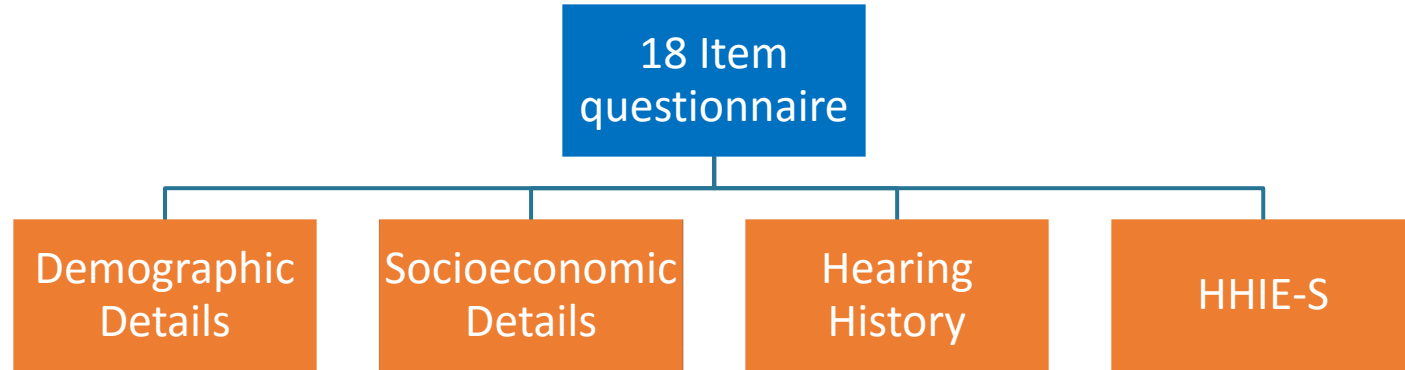
Part B:
Audiology Clinic at National
University of Singapore

2. Inclusion criteria

✓ 50 years and above

✓ Singapore Citizen and
Singapore Permanent
Residents (PR)

3. Material



Questionnaire was also translated into Mandarin, Malay and Tamil for subjects to answer in their preferred languages

Estimated time to complete ~5-10 mins

4. Procedure

Consent taking

Questionnaire

Otoscopy +
Pure-tone
audiometry

HEARING HANDICAP INVENTORY FOR THE ELDERLY – SCREENING VERSION (HHIE-S)				
No = 1, Sometimes =2, Yes = 3				
		1	2	3
E-1	Does a hearing problem cause you to feel embarrassed when you meet new people?			
E-2	Does a hearing problem cause you to feel frustrated when talking to members of your family?			
S-3	Do you have difficulty hearing when someone speaks in a whisper?			
E-4	Do you feel handicapped by a hearing problem?			
S-5	Does a hearing problem cause you difficulty when visiting friends, relatives, or neighbours?			
S-6	Does a hearing problem cause you to attend religious services less often than you would like?			
E-7	Does a hearing problem cause you to have arguments with family members?			
S-8	Does a hearing problem cause you to have difficulty when listening to television or radio?			
E-9	Do you feel that any difficulty with your hearing limits or hampers your personal or social life?			
S-10	Does a hearing problem cause you difficulty when in a restaurant with relatives or friends?			



Results

Subject number

	Total	Chinese	Malay	Indian
PART A	230	196 (85%)	14 (6%)	20 (9%)
PART B	143	95 (64%)	27 (19%)	21 (15%)
Combined	373	291 (74%)	41 (13%)	41 (13%)



Study population characteristics

	Chinese	Malay	Indian
Mean age	68.2	66.2	64.5
Female gender (%)	56.7	51.2	73.2
Mean HHIE-S score (%)	12.6 (19.0)	28.9 (31.4)	18.3(24.0)
PTA (better ear) (dB HL)	33.9 (17.1)	42.9 (21.7)	35.2 (19.0)

Differences in age, gender and PTA average (better ear) were adjusted using stepwise multiple linear regression models for statistical analysis



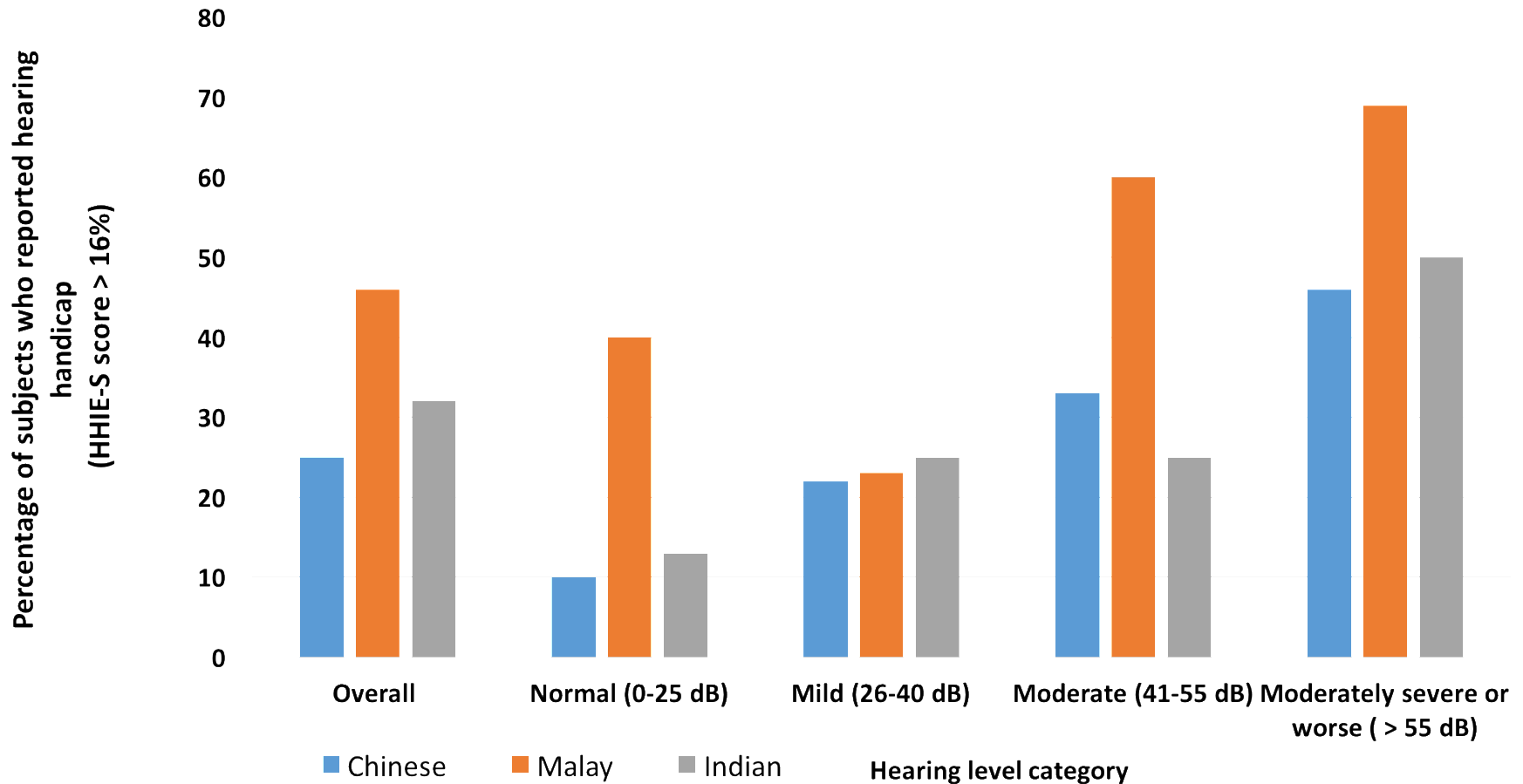
Key Findings

- Stepwise multiple linear regression shows that ethnicity and actual hearing loss were found to influence self-perceived hearing handicap after adjusting for the effects of age, gender and education level.

Variables	p value
Ethnicity	0.01
PTA average (better ear)	0.001
Subject group	0.001

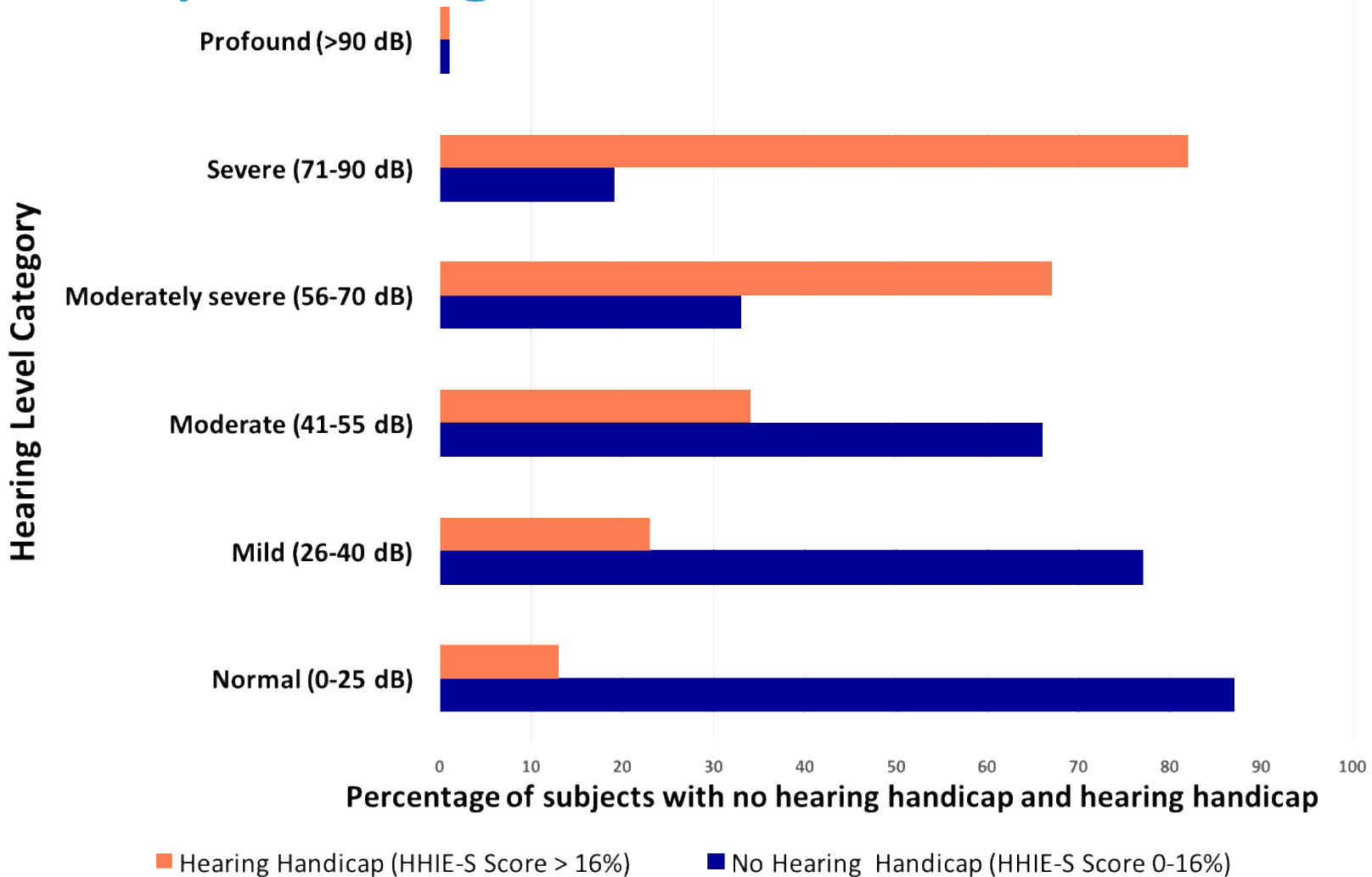
Key Finding 1

A greater proportion of Malay participants reported self-perceived hearing handicap as compared to Chinese and Indians participants in almost all hearing level categories.



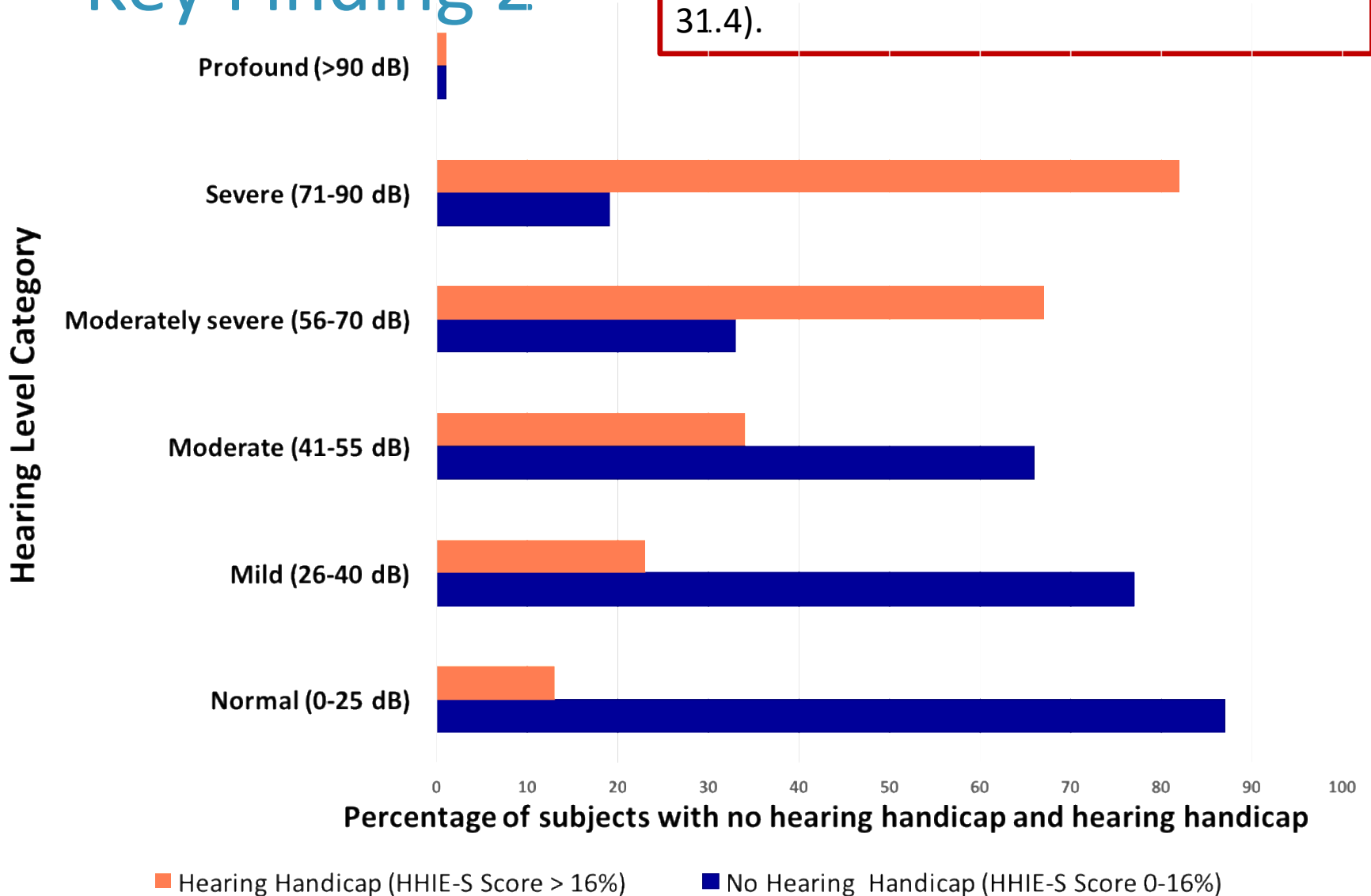
Key Finding 2

The proportion of subjects who reported hearing handicap increased with increased hearing loss severity.



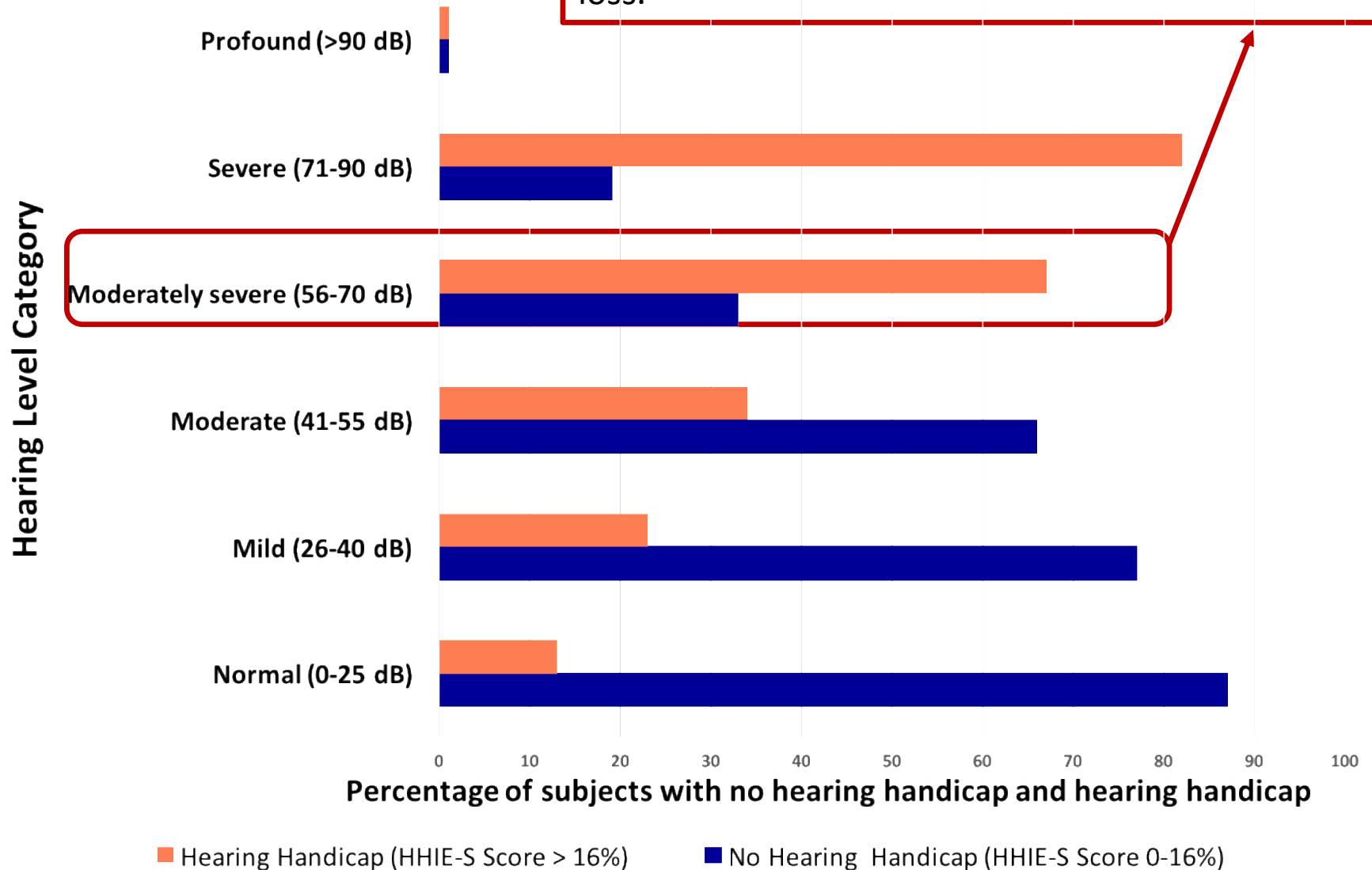
Key Finding 2

Weak correlation of self-reported ($r = 0.17$) hearing handicap and actual hearing loss with high standard deviation ($SD=19.0-31.4$).



Key Finding 2

A sharp increase in the number of subjects who reported self-perceived hearing handicap as hearing deteriorates beyond moderate hearing loss.



Key Finding 2

- Possible reasons for the sharp increase in self-perceived hearing handicap beyond moderate hearing loss:
 1. Asian elderly were less reluctant to disclose hearing disability as compared to Western counterparts (Gao, 1996)
 2. Younger generation adapting communication strategies to help the elderly to understand conversations (Diao, et. al, 2014)

Conclusion & Clinical implication

- Pure-tone sensitivity alone does not take into account other non-audiometric variables that can influence an individual's response to hearing impairment
- Recommended for clinicians to supplement self-assessment questionnaire in addition to audiometric data to better understand patient's rehabilitation needs.

Limitations & Future Work

- Sample size -> Extending data collection to other parts of Singapore
- Middle ear status vs overall hearing handicap
- Qualitative descriptive studies to capture more elements of self-perceived hearing loss among the different ethnic groups

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The End

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