Factors affecting help-seeking behavior for hearing rehabilitation in Singapore

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Hearing loss in Singapore

Prevalence of hearing loss in the World in 2010:

- 5.3% => 360 MILLION PEOPLE (by WHO)

Prevalence of hearing loss in Singapore in 2010:

- 2.9% (according to National Health Survey)

Hearing loss in Singapore

Country	Year published	Age (years)	Hearing loss prevalence using 4FAHL (%)		
			Mild HL	At least moderate HL	Total HL
ELDERLY POPULATION					
Singapore (Lim & Yap, 2000)	2000	72-96	-	67.1 (screening at 40 dB BEHL)	-
Singapore (Wu et al., 2004)	2000	62-90	-	54 (screening at 50 dB HL)	83 (screening at 30dB HL)

Previous studies on prevalence of hearing loss in Singapore do not follow the WHO definitions of hearing loss.

WHO definitions of hearing loss

Mild hearing loss:

- 26-40 dB HL in the better ear

Disabling hearing loss (or at least moderate hearing loss):

- >40 dB HL in the better ear

Country	Year published	Age (years)	Hearing loss prevalence using 4FAHL (%)		
			Mild HL	At least moderate HL	Total HL
ELDERLY POPULATION					
WHO estimates	2013	≥65	-	18	-
U.S. [NHANES]	2011	≥70	-	-	63.1 (>25 dB BEHL)
UK [National Study of Hearing]	1989	71-80	-	17.6 (≥45 dB BEHL)	-
Sweden (Johansson & Arlinger, 2003)	2003	70-80	-	-	73.8 (≥25 dB BEHL)
Australia (Hickson et al., 1999)	1999	60-93	40 (>25 to 40 dB BEHL)	17 (>40 dB BEHL)	-
Australia (Wilson et al., 1999)	1999	>70	-	21.4 (≥45 dB BEHL)	62.8 (≥25 dB BEHL)
Korea [Kanghwa-do] (Kim et al., 2000)	2000	≥65		10.6 (≥41 dB both ears)	43.4 (≥27 dB both ears)
U.S. [BOSS]	2011	65-84	-	-	42.7 (>25 dB WEHL)
Singapore (Lim & Yap, 2000)	2000	72-96	-	67.1 (screening at 40 dB BEHL)	-
Singapore (Wu et al., 2004)	2000	62-90	-	54 (screening at 50 dB HL)	83 (screening at 30dB HL)

Hearing aids in Singapore

Hearing aid adoption rate in Singapore in 2010:

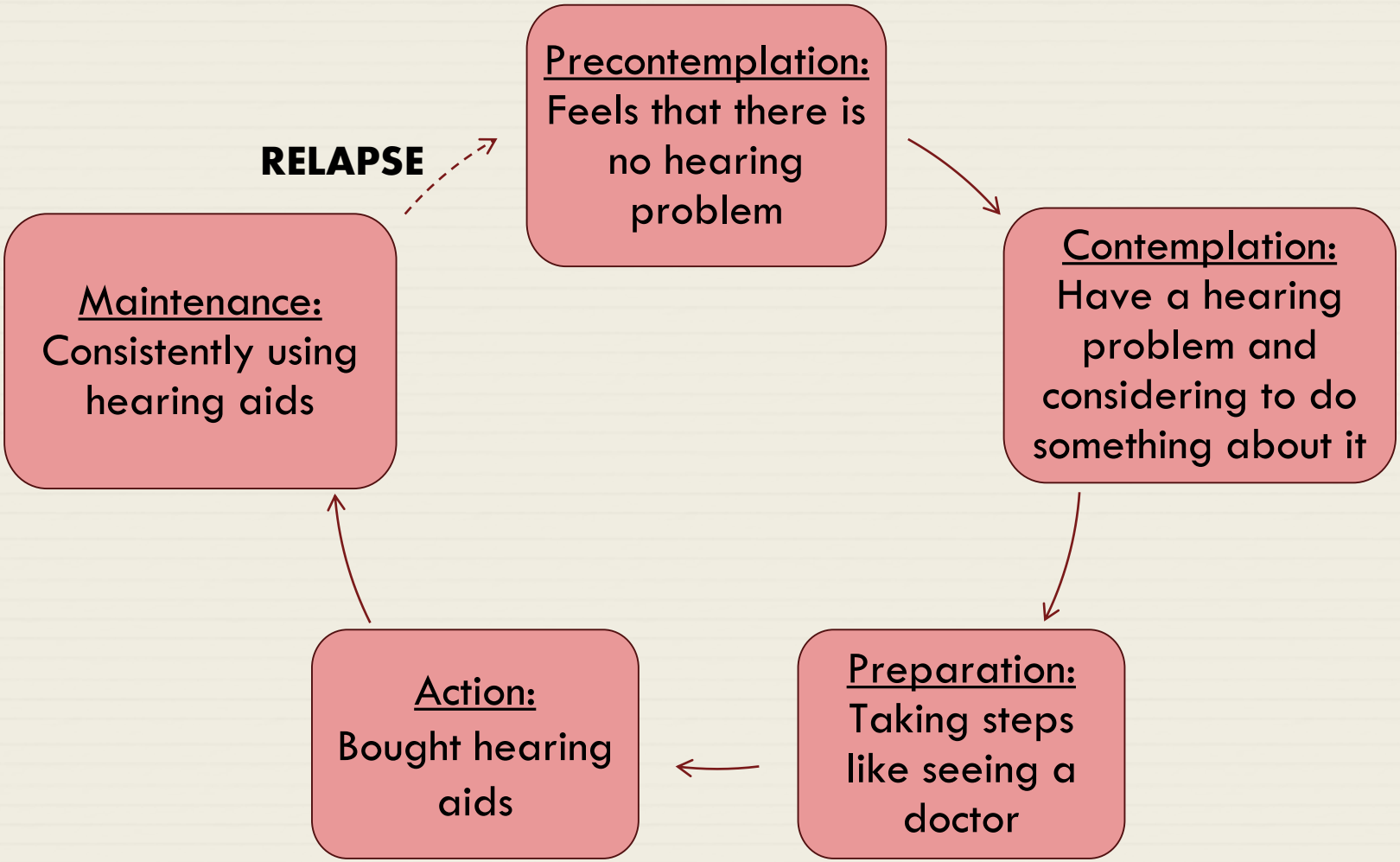
- 1-3% (according to National Health survey)

Acquisition of amplification by individuals with disabling hearing loss in Singapore (Tang, 2015).

- Hearing aid adoption rate: 61%
- This was taken from a hearing aid clinic in a hospital

What about the hearing loss population that has not sought help?

The Transtheoretical Model



Aims

1. Document the prevalence of hearing loss among an adult population ≥50 years old in Singapore using WHO definitions

2. Identify factors affecting help seeking behaviour for hearing loss

Hypotheses

for factors that could influence help-seeking behavior

1. Degree of hearing loss
2. Recognition of hearing loss
3. Stage of change in the Transtheoretical Model
4. Attitudes towards hearing aids

Initial study

1. Site:
Ghim Moh Sub-Planning Zone

2. Random selection of 2800 housing units

3. Inclusion criteria:

- Adults ≥50 years old
- Singaporean / Permanent Resident

4. Obtained:

- 594 respondents
- Answered questionnaire A to obtain:

(1) Demographics
(2) Hearing status, HHIE-S

5. Out of these 594 respondents:

- 235 individuals agreed to go for a hearing test
- The hearing test also included counseling and hearing rehabilitation options

The 235 individuals who went for the hearing test were categorized as

POPULATION 1, PHASE 1

Follow-up study

Went for hearing test: 122 had at least mild hearing loss (>25 dB HL) in the better ear

154 individuals included

Did not go for hearing test: 32 had significant self-reported hearing handicap

Obtained: 117 participants

- Answered questionnaire B to find out:

(1) Did they consult medical help for hearing after Phase 1
(2) Reasons that would convince them to consult medical help / acquire hearing aids
(3) Attitudes towards hearing aids and Staging Algorithm

The 117 individuals who participated in the follow-up study were categorized as

POPULATION 2, PHASE 2

POPULATION 1, PHASE 1

Hearing loss percentages for the better ear

1. Adults ≥50 years old:
- Mild HL: 34.5%
- At least moderate HL: 17.4%
- Total HL: 51.9%

2. Men ≥50 years old:
- Mild HL: 31.9%
- At least moderate HL: 24.5%
- Total HL: 56.4%

4. Elderly ≥65 years old:
- Mild HL: 40.5%
- At least moderate HL: 23.8%
- Total HL: 64.3%

3. Women ≥50 years old:
- Mild HL: 36.2%
- At least moderate HL: 12.8%
- Total HL: 48.9%

Country	Year published	Age (years)	Hearing loss prevalence using 4FAHL (%)		
			Mild HL	At least moderate HL	Total HL
ELDERLY POPULATION					
Singapore [current study]	-	≥65	40.5 (26-40 dB BEHL)	23.8 (>40 dB BEHL)	64.3 (>25 dB BEHL)
WHO estimates	2013	≥65	-	18	-
U.S. [NHANES]	2011	≥70	-	-	63.1 (>25 dB BEHL)
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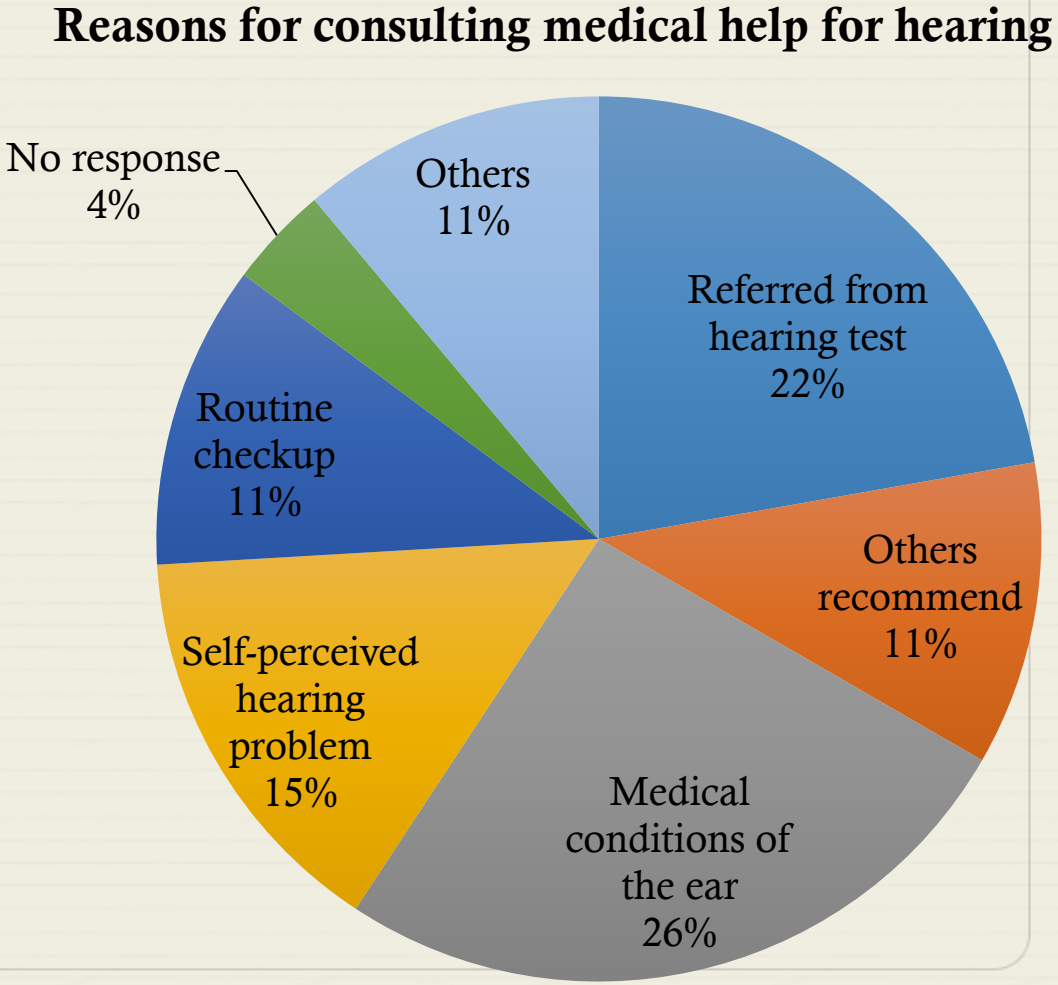
When using the WHO definitions of hearing loss, the prevalence of hearing loss in the elderly in Singapore was comparable to that reported in other countries

POPULATION 2, PHASE 2

20% consulted medical help for hearing after Phase 1



POPULATION 2, PHASE 2

Factors significantly associated with consulting medical help for hearing:

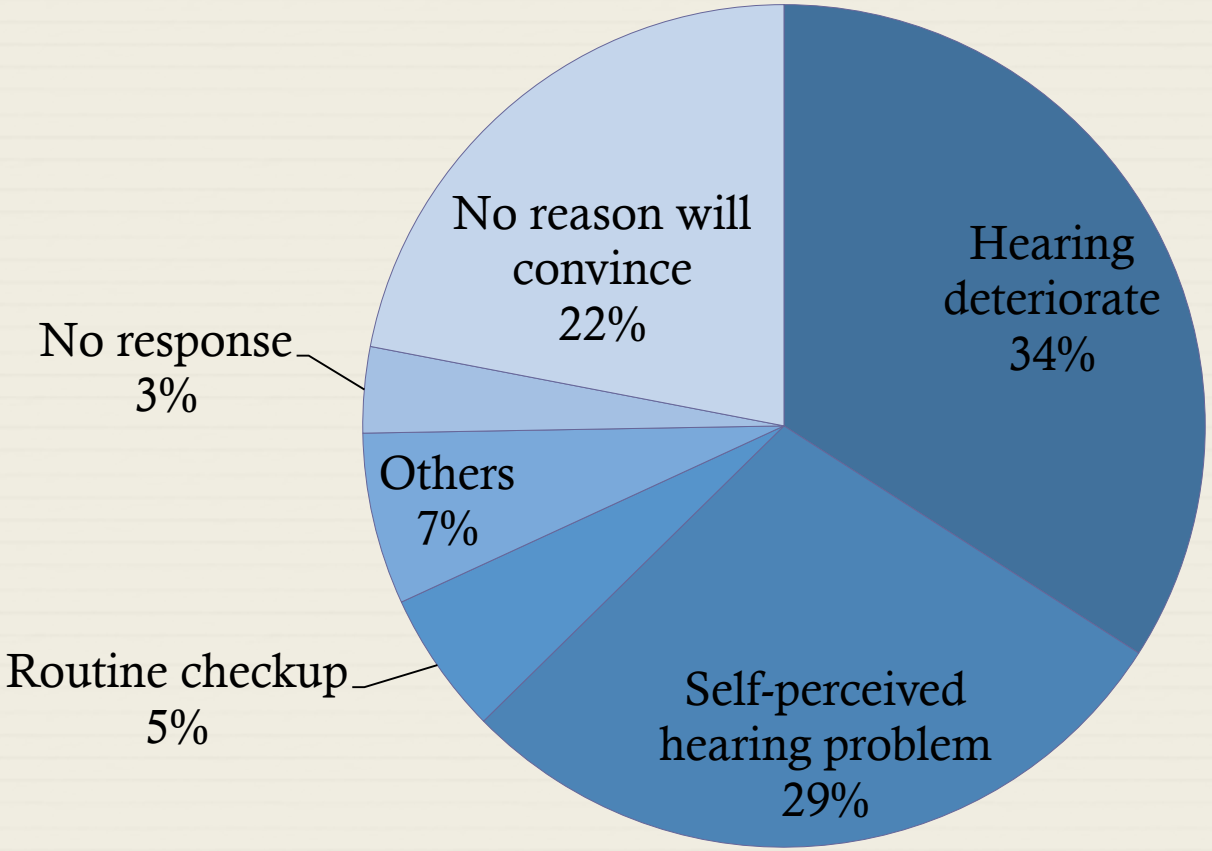
1. HHIE-S ✔
   - Recognition of hearing loss ✔
2. Stage of change at Phase 1 ✔
3. Social pressure ($p<0.001$)
   - Family and friends tell me I have hearing loss.
   - Family and friends encourage me to use hearing aids.
4. Living status

may be related to

- Recognition of hearing loss
- Social pressure

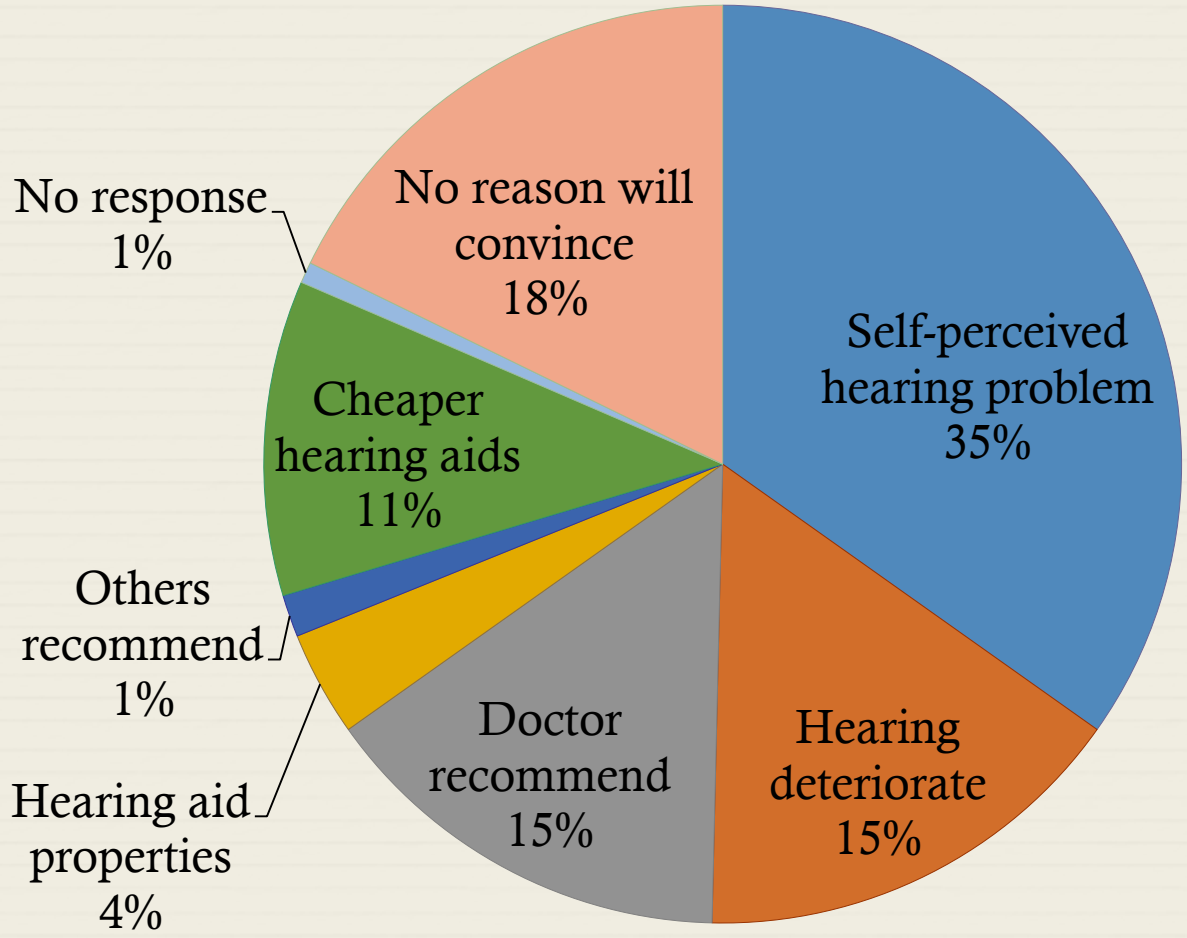
POPULATION 2, PHASE 2

Reasons that would convince participants to consult medical help for hearing



POPULATION 2, PHASE 2

Reasons that would convince participants to use hearing aids



POPULATION 2, PHASE 2

Factors significantly associated with HHIE-S (self-reported hearing handicap):

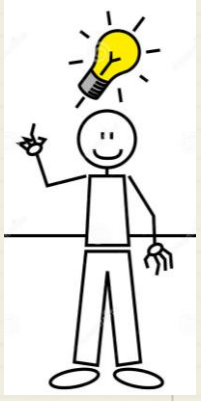
1. Stage of change at Phase 1 ($p<0.001$)

2. Social pressure ($p<0.001$)

3. Degree of hearing loss

Discussion

on applying the Transtheoretical Model to hearing rehabilitation



- The Transtheoretical Model is an <u>intrapersonal</u> theory
- Social pressure is indicative of interpersonal factors influencing behaviors more than intrapersonal factors
- Use <u>interpersonal</u> theories to come up with management strategies to deal with help-seeking behavior
  - Eg. Social Cognitive Theory: Reciprocal determinism

Limitation

of using the Transtheoretical Model in this study

- Different ways were used to chart the stages of change in Phase 1 and Phase 2

- Used a defining step in the area of hearing rehabilitation that relates to the Transtheoretical Model:
  Consulting medical help for hearing

Conclusion

- **Standard definitions** of hearing loss should be used when reporting prevalence.
- **Social pressure** and **recognition of hearing loss** are two main factors of help-seeking behaviour for hearing loss in Singapore.

Future work

1. How does social pressure affect help-seeking behaviour?
   - Socially active vs not socially active

2. What factors affect **maintenance** of hearing rehabilitation?

THE END

Thank you for your attention