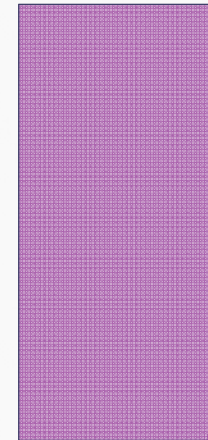




FACTORS INFLUENCING HEARING INSTRUMENT ADOPTION AND USE: LESSONS FROM THE HEALTH BELIEF MODEL

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Communication Disability Centre
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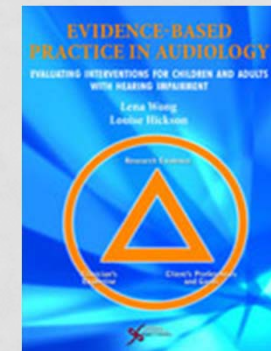
Advances in Audiology – Tomorrow's Solutions for
Today's Challenges, Las Vegas, Dec, 2012





BACKGROUND

- In Australia, 70% of older adults aged 70 years or older have hearing impairment (Chia et al., 2007).
- If worn, hearing aids can:
 - Reduce the communication difficulties associated with hearing impairment for the older person and significant others, improve quality of life
(review by Humes & Krull in Evidence-Based Practice in Audiology, 2012)
- In Australia, 39% of adults with hearing impairment have not consulted a health professional about hearing difficulties AND 58% do not own hearing aids (Hartley, 2005; Schneider et al., 2010).
- Recent study shows improved outcomes with hearing aids (open fit, thin tube, directional mics) but still 13% of adults fitted with hearing aid/s for the first time never or rarely use them post-fitting (Dillon, Hickson & Lloyd, 2012).



SENATE INQUIRY INTO HEARING HEALTH IN AUSTRALIA (2010)

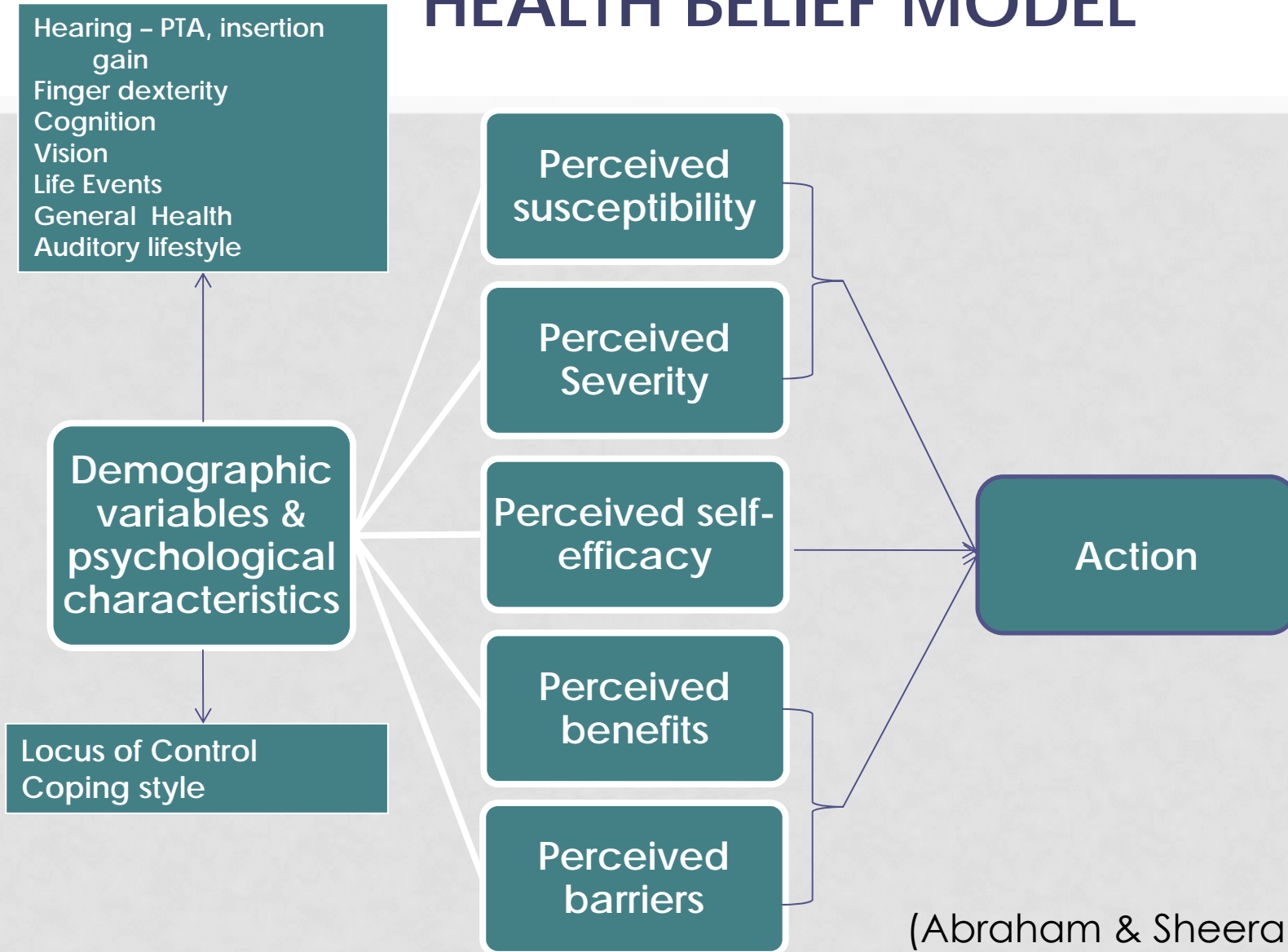
- *Recommendation 17*
- The committee recommends that Australian Governments prioritise and fund **research into the reasons for the under use of hearing aids**, and develop practicable strategies for hearing health practitioners **to help overcome the under use in the community.**



THINKING ABOUT HEARING INSTRUMENT ADOPTION AND USE..

- General consensus that audiological factors do not prompt help-seeking (See Meyer & Hickson review in *International Journal of Audiology*, 2012)
- Help-seeking for hearing impairment requires a change in behaviour → Health Belief Model

HEALTH BELIEF MODEL



(Abraham & Sheeran, 2005)

THE RESEARCH STUDY

Retrospective study of 4 groups of adults:

- Non-consulters
- Consulters
- Unsuccessful HA owners
- Successful HA owners

Detailed assessment of each person.

Aim

- To determine factors associated with **consultation** and **hearing instrument uptake**
- To determine factors associated with **success with hearing aids**

The research team:

University of Queensland: Carly Meyer, Nerina Scarinci, Karen Lovelock, Paul Bunn

National Acoustic Laboratories – David Hartley, Emma van Wanrooy

Macquarie University – Michelle Lampert, John Newall

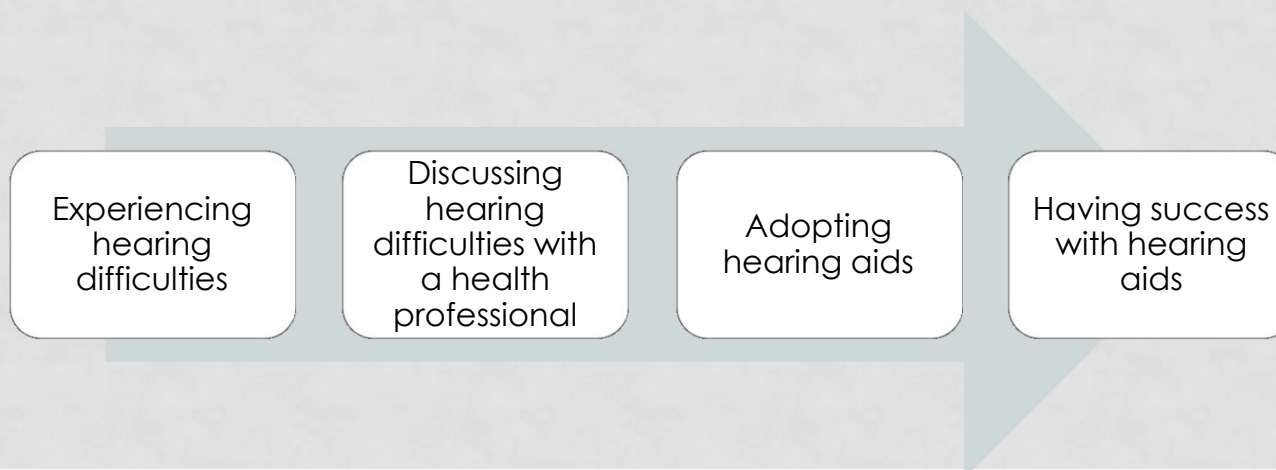
With thanks to....



RESEARCH AIMS

To determine which combination of factors are important for:

- Deciding to seek help for hearing impairment
- Achieving success with hearing aids



INCLUSION CRITERIA

All participants:

- 60+ years of age
- Average PTA threshold (.5, 1, 2, 4 kHz or 2, 3, 4kHz) >25 dB in 1 or 2 ears
- Functional English abilities
- Residing in the community
- No obvious cognitive impairment (≥ 23 on Mini-Mental State Examination)

Hearing aid owners:

- Hearing aid fitting for the first time in the previous 2 years

DEFINING SUCCESS

1. A minimum of 1 hour of daily hearing aid use reported on the International Outcome Inventory.

“Think about how much you used your present hearing aid(s) over the past two weeks. On an average day, how many hours did you use the hearing aid(s)?”

Response options: none, <1 hour/day, **1-4 hours/day**, **4-8 hours/day**, **8+ hours/day**

AND

2. At least moderate benefit from hearing aids reported on the International Outcome Inventory.

“Think about the situation where you most wanted to hear better, before you got your present hearing aid(s). Over the past two weeks, how much has the hearing aid helped in those situations?”

Response options: not at all, slightly, **moderately**, **quite a lot**, **very much**

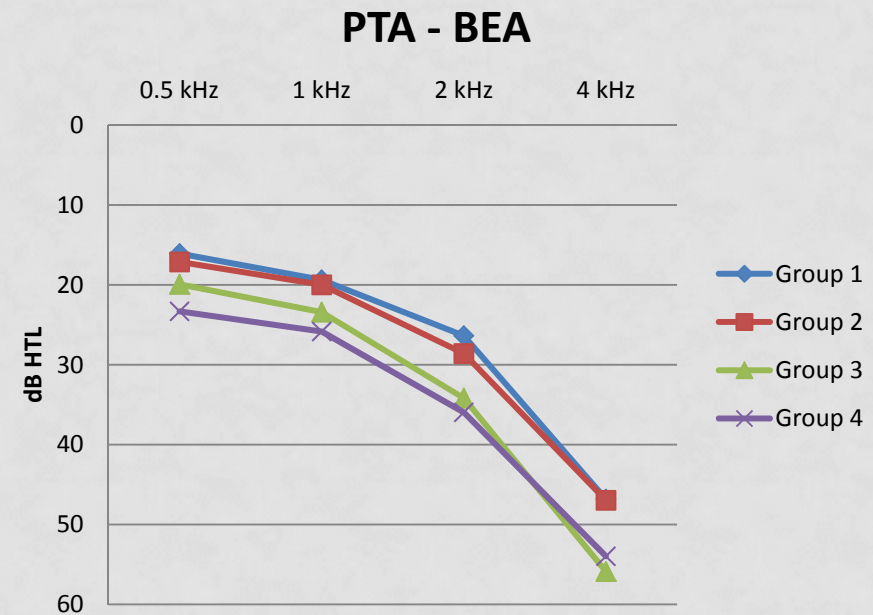
THE PARTICIPANTS (N = 307)

Group 1
Non-Consulters
55

Group 2
Consulters
92

Group 3
Unsuccessful
HA owners
75

Group 4
Successful HA
owners
85



AUDIOLOGIC REHABILITATION IN AUSTRALIA

- **Funding**

- Those receiving a government pension are eligible for free or subsidized hearing services, including hearing aids e.g., retirees on a low income and war veterans
- Those not receiving a government pension pay for their hearing aids. Those with private health insurance can receive some financial contribution.

- **Clinicians**

- Audiologists have a Masters' degree
- Audiometrists have vocational training



PARTICIPANTS (N = 307)

Gender	
Female	111 (36%)
Male	196 (64%)
Age	
Mean	73 years
SD	7.2 years
Education status	
Primary	24 (8%)
Secondary	113 (37%)
Tertiary	170 (55%)
Employment Status	
Retired/House Duties	256 (83%)
Employed (FT or PT)	51 (17%)

Pension Status

Age Pension	141 (46%)
Veteran's Pension	21 (7%)
Other Pension	17 (6%)
No Pension	128 (42%)

Living Status

No one	77 (25%)
Spouse/Family/Friend	230 (75%)

Degree of Hearing Impairment in Worse Ear

26 – 40 dB HL	157 (51%)
41 – 55 dB HL	85 (28%)
56 – 70 dB HL	18 (6%)
71+ dB HL	14 (4%)

95% SNHL

Hearing aids (n = 160)

Bilateral	138 (86%)
Behind-the-ear aids	128 (80%)

ASSESSMENT MEASURES

Information collected in the clinic:

- Demographic information
- Vision questionnaire
- Schedule of Life Events
- General Health Questionnaire
- Hearing test
- Hearing aid insertion gain
- Cognitive test (Cognistat)
- Manual dexterity test (Grooved Pegboard)

Questionnaires completed by client prior to appointment:

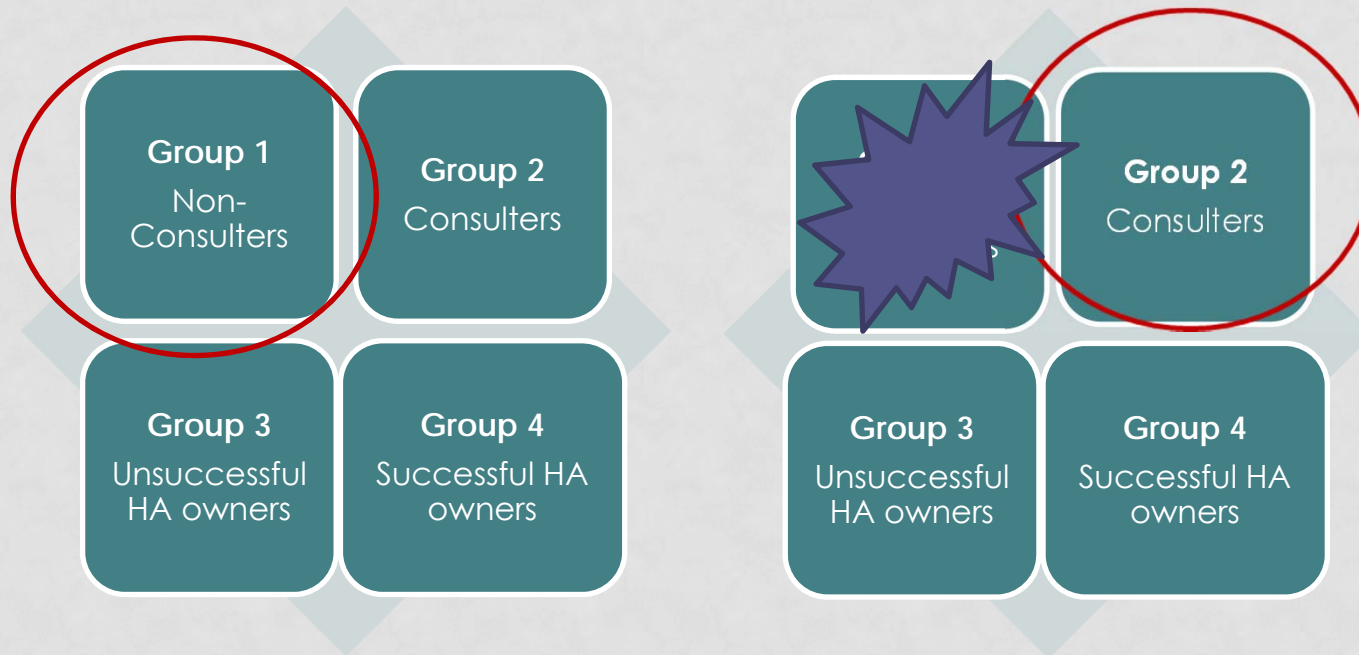
- Hearing Handicap Questionnaire
- Self-Assessment of Communication
- Attitudes Towards Hearing Aids
- Measure of Audiological Rehabilitation Self-efficacy for Hearing Aids
- Coping Strategy Indicator
- Locus of Control Scales
- Auditory Lifestyle and Demand Questionnaire
- Social Activities Checklist



RESULTS

HELP-SEEKING FOR HEARING IMPAIRMENT

STATISTICAL COMPARISONS



HELP-SEEKING: IMPORTANT VARIABLES

Attitude to
hearing aids

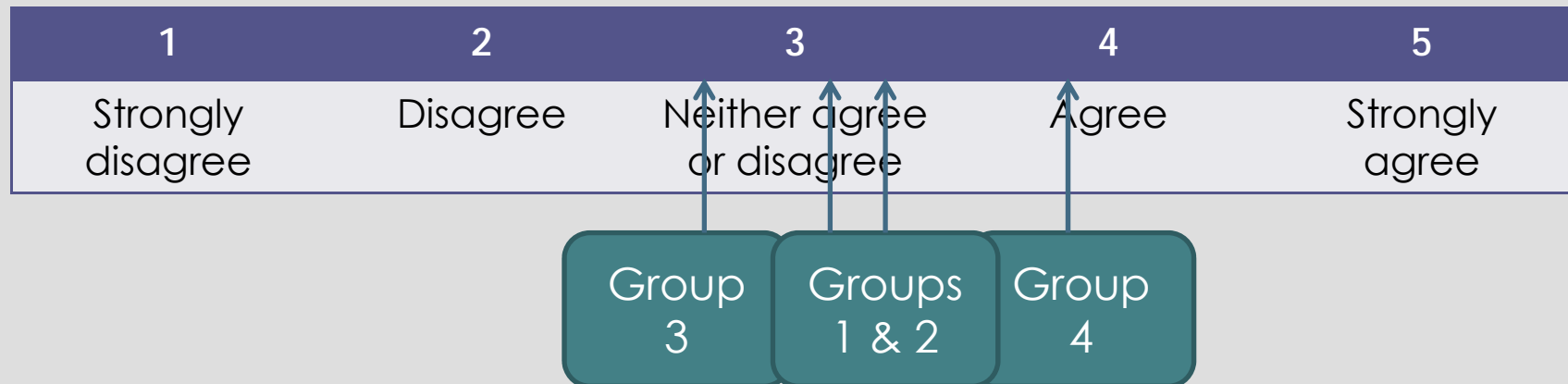
Hearing aid
Self-efficacy

Pension status

Support of
significant
others

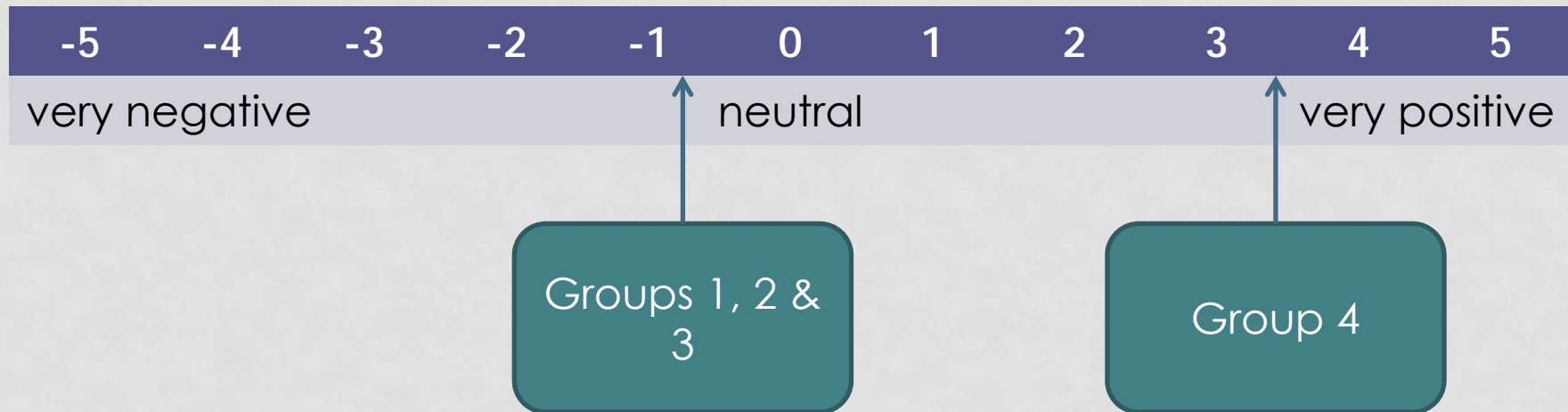
ATTITUDE TO HEARING AIDS

- Based on the Health Belief Model
- 23-item questionnaire on Attitudes Towards Hearing Aids (adapted from van den Brink, 1995)
- Perceived benefits (9 items) *e.g., My hearing aid makes listening less of a strain*



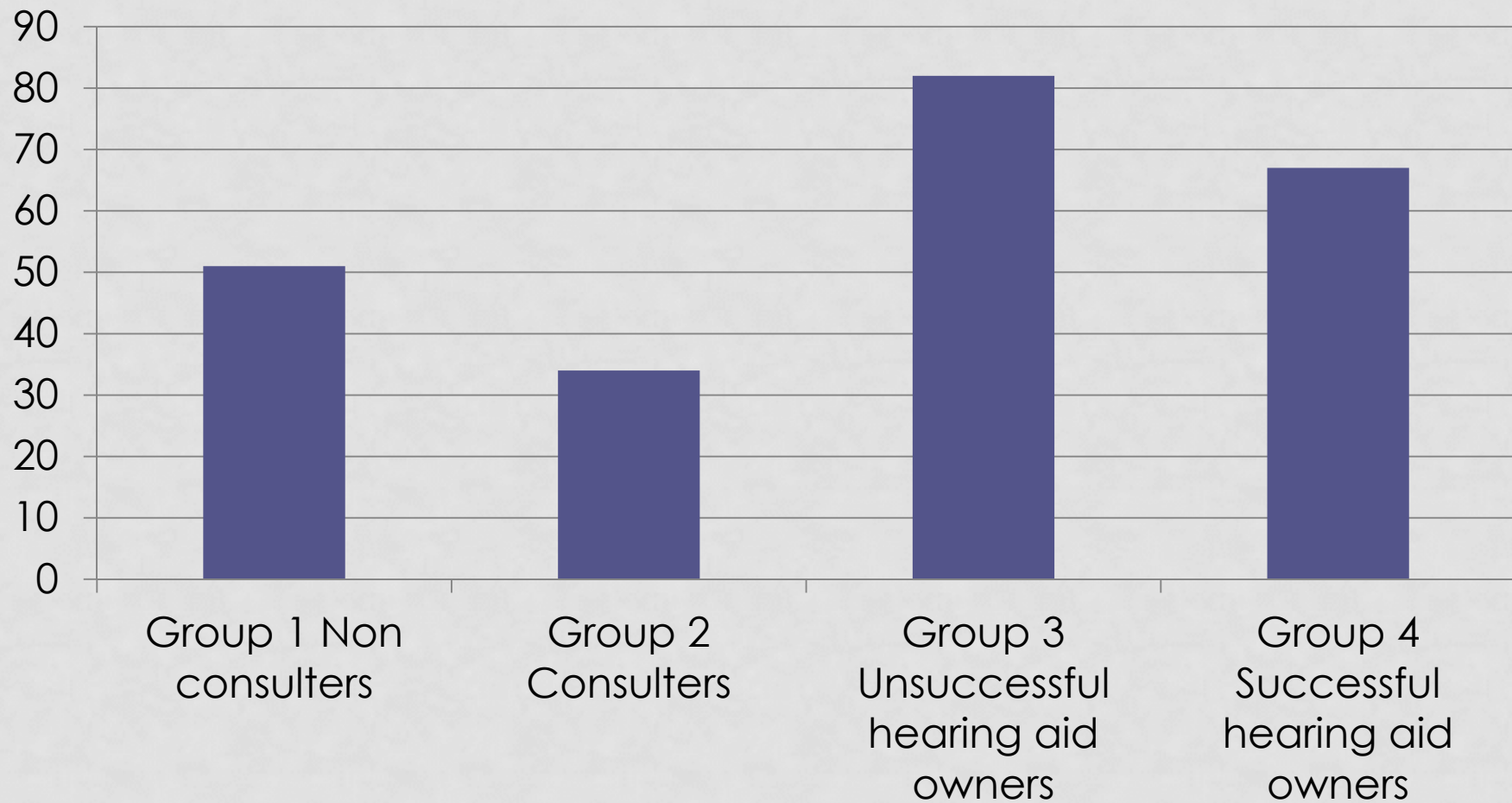
ATTITUDE TO HEARING AIDS

How would you rate your general attitude to hearing aids?



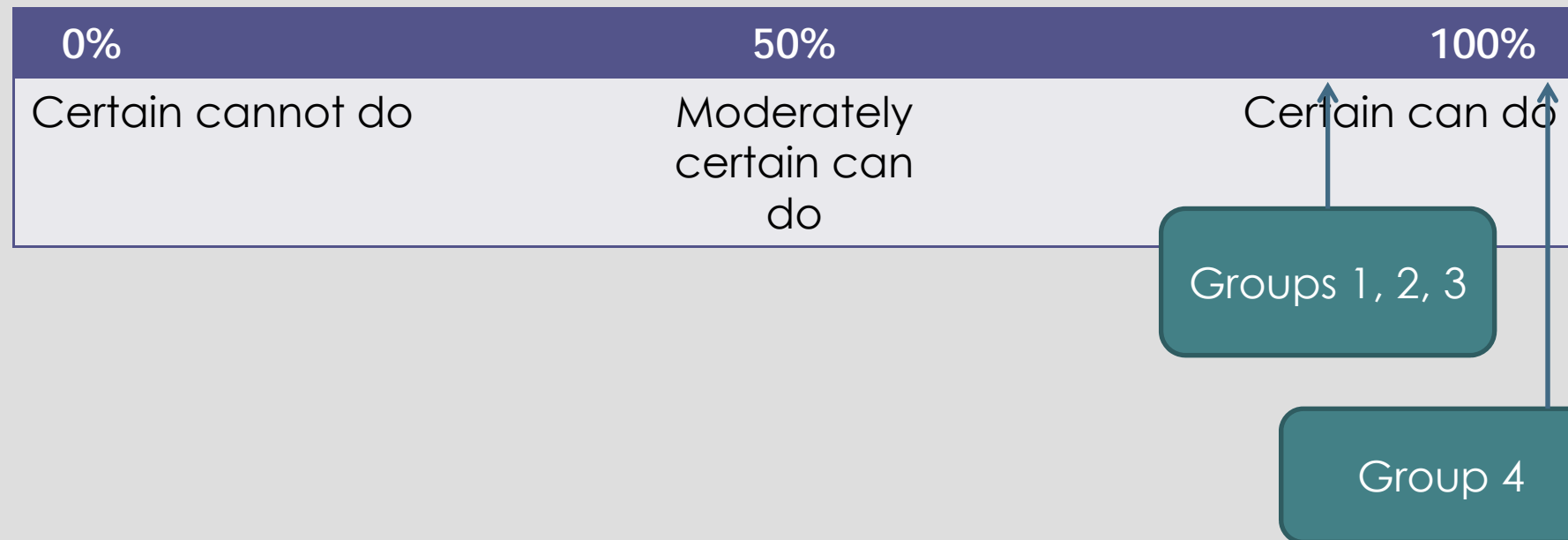
PENSION STATUS

Percentage receiving pension



HEARING AID SELF-EFFICACY

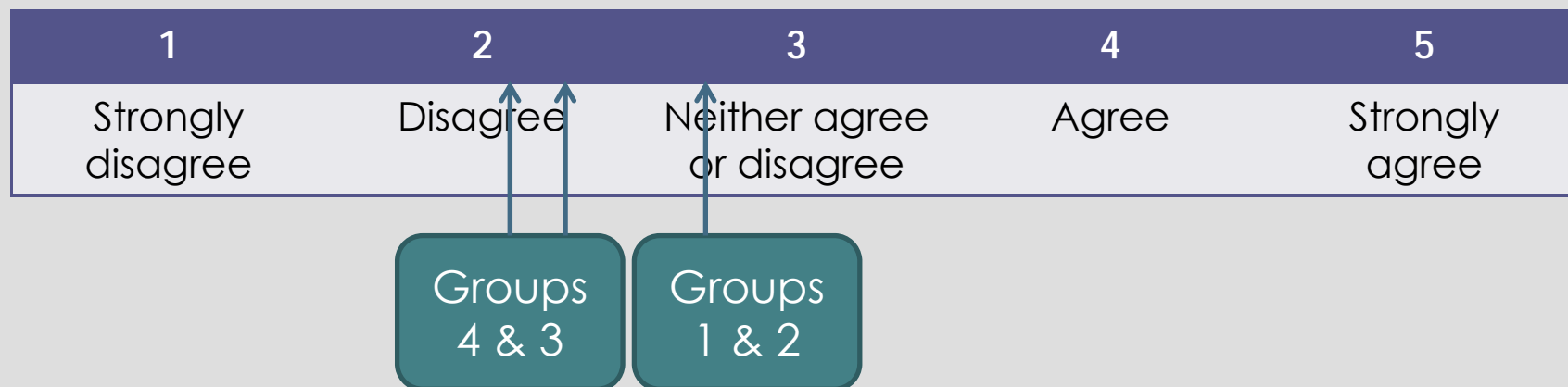
- Measure of Audiologic Rehabilitation Self-Efficacy for Hearing Aids (MARS-HA) (West & Smith, 2007)
- 24-item questionnaire
- Four factors:
 - Basic Handling (7 items) *e.g., I can insert a battery into a hearing aid with ease*



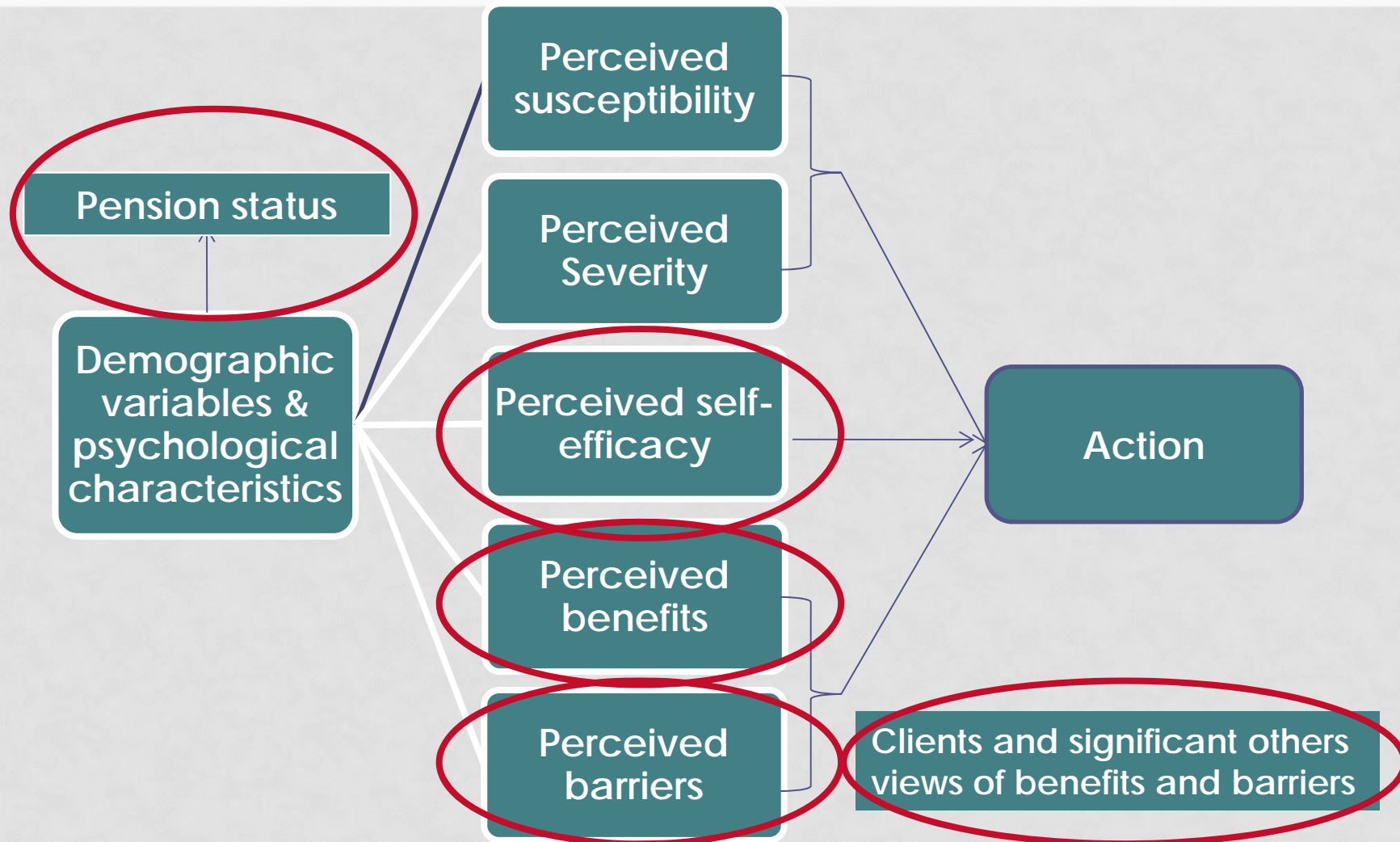
SUPPORT OF SIGNIFICANT OTHERS

Used 23-item Attitudes Towards Hearing Aids questionnaire (adapted from van den Brink, 1995)

- Negative support from significant others (3 items) *e.g., People around me think a hearing aid has more disadvantages than benefits*



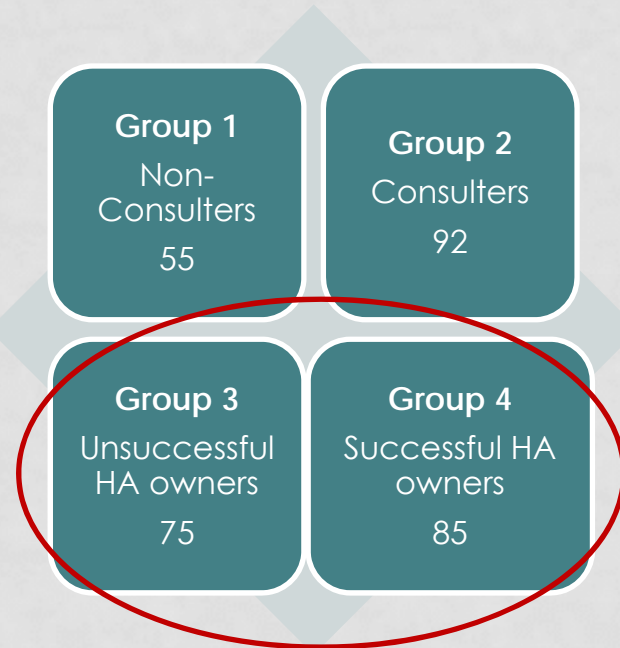
HELP-SEEKING SUMMARY



RESULTS

SUCCESS WITH HEARING AIDS

STATISTICAL COMPARISON



SUCCESS WITH HEARING AIDS: IMPORTANT VARIABLES

Support of
significant
others

Self-reported
hearing
difficulties

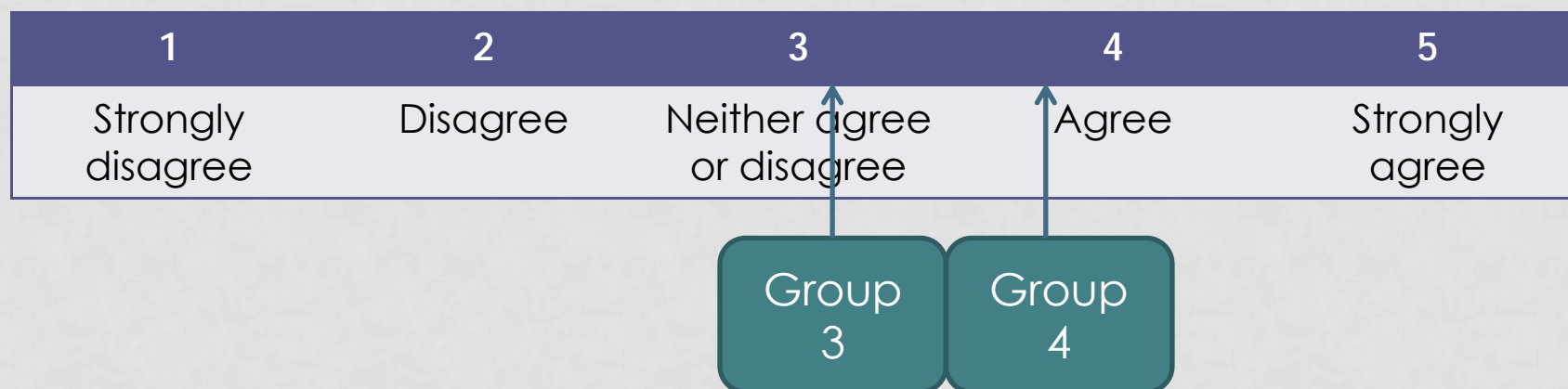
Insertion gain

SUPPORT OF SIGNIFICANT OTHERS

- 23-item questionnaire (adapted from van den Brink, 1995)

Positive Support Item Examples

- People around me say I am not hearing well without my HA
- The people around me think I hear better with my HA
- The people around me think it was wise to obtain a HA

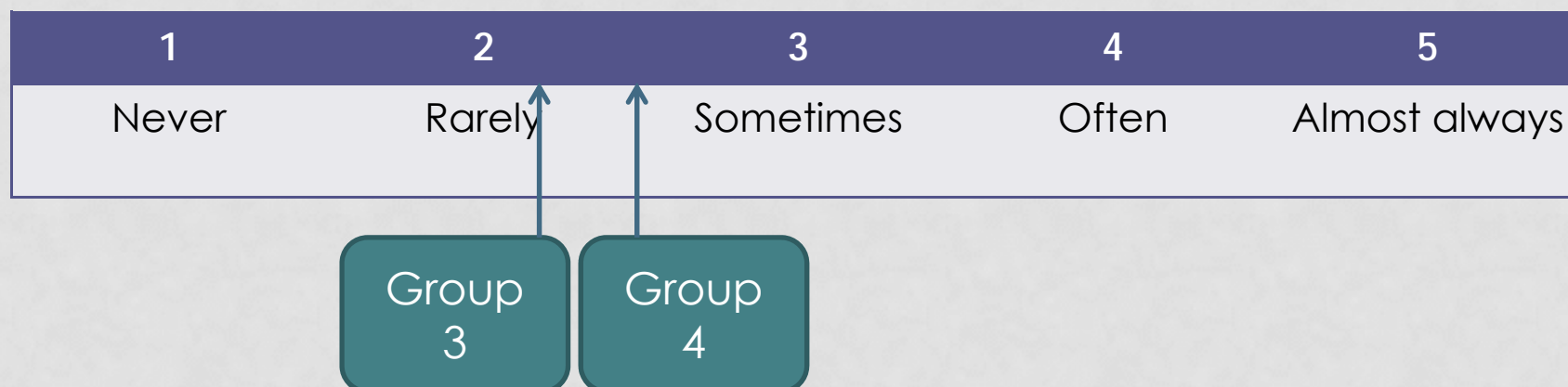


SELF-REPORTED HEARING DIFFICULTIES

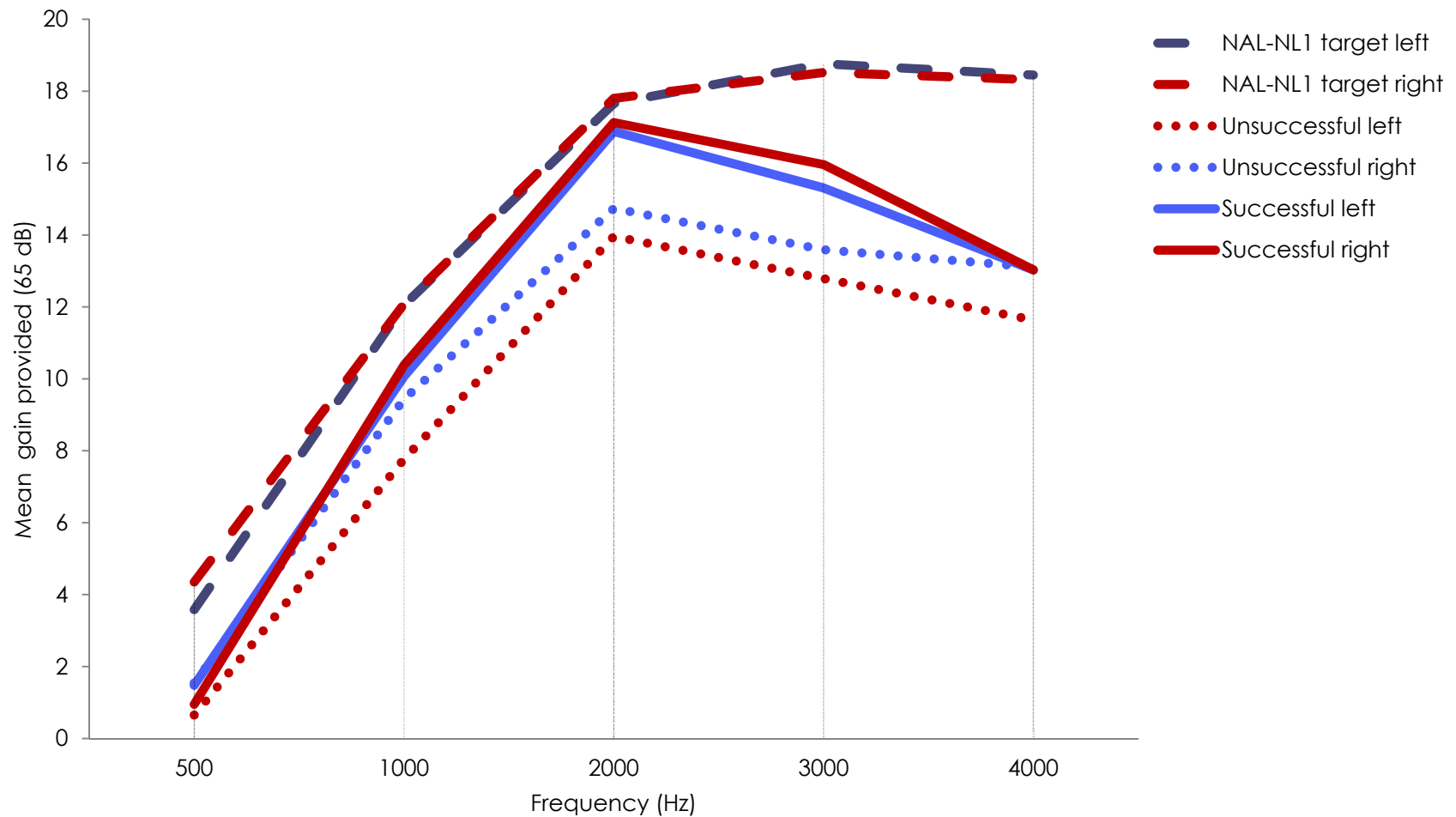
Hearing Handicap Questionnaire (Noble & Gatehouse, 2004)

Item Examples

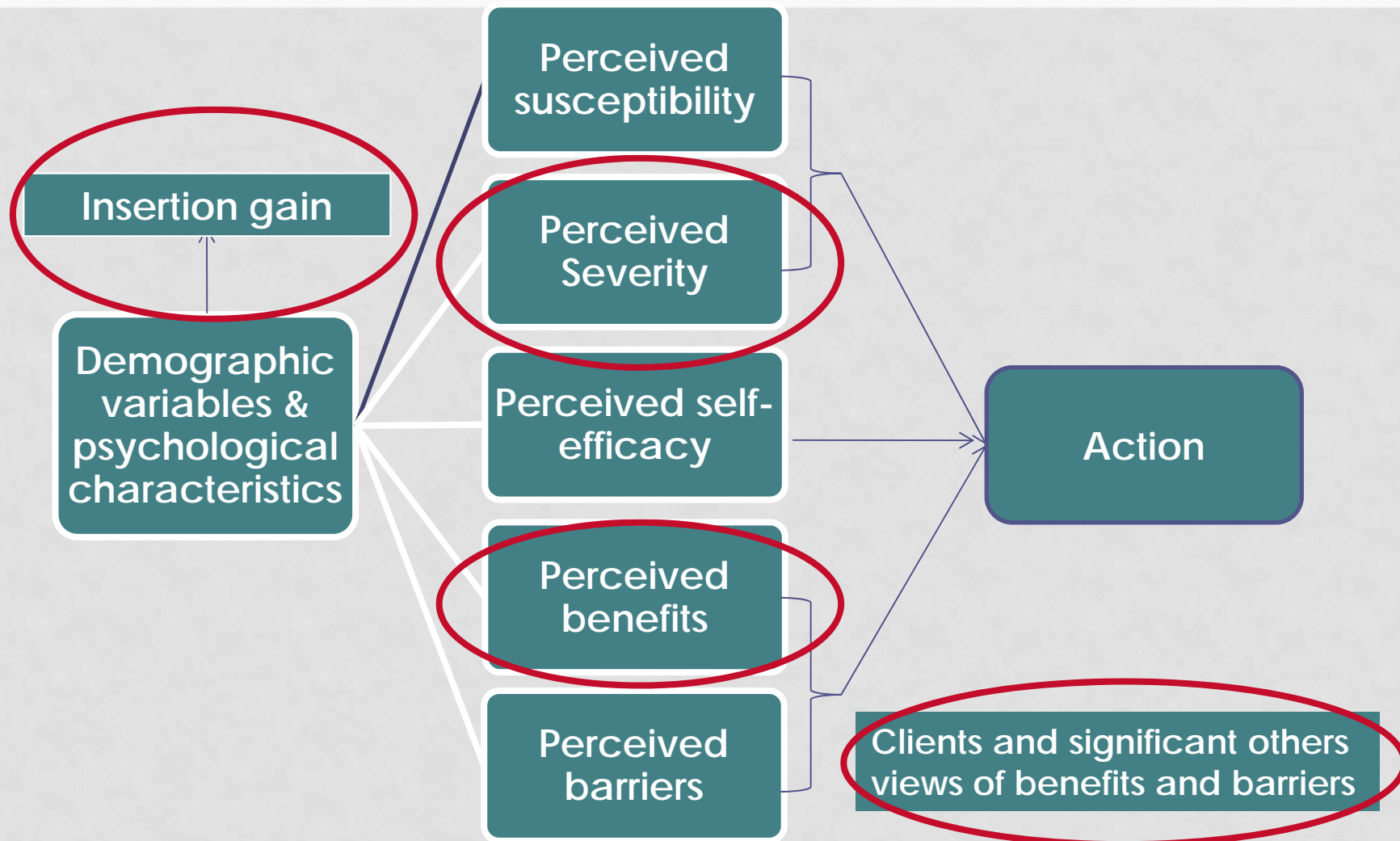
- How often does your hearing difficulty restrict the things you do?
- How often do you feel worried or anxious because of your hearing difficulty?
- How often do you feel inclined to avoid social situations because of your hearing difficulty?



MEAN INSERTION GAIN CURVES FOR SUCCESSFUL AND UNSUCCESSFUL HEARING AID USERS



HEARING AID SUCCESS SUMMARY



WHAT DOES THIS MEAN IN THE REAL WORLD?

To improve uptake and outcomes in hearing rehabilitation there is a need to address:

- **Support of significant others**
- **Attitudes to hearing instruments**
- **Self-reported hearing difficulties**
- **Perceived self-efficacy**

And with hearing aid fitting

- **Insertion gain matching target**



FUTURE DIRECTIONS

- Family members' involvement in hearing rehabilitation (Nerina Scarinci)
- Evaluating an intervention aimed at improving self-efficacy – if improved, do uptake and outcomes also improve?
- Do hearing aid user guides optimally designed for health literacy improve hearing aid management?
- Patient-practitioner interaction and its relationship to uptake and outcomes

THANK YOU!

- My contact details: l.hickson@uq.edu.au

World Congress of Audiology,
Brisbane, 3-8 May, 2014.

