Non-Auditory Factors that Factor into Outcomes

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EHDI
AAI
CHILD
MPO
Parents
ABR
Cerebral
DSL
Functional
ABEL
thresholds
Distortion
COSI-C
Client
Audition
output
Version
Sound
Outcome
Meaningful
Language
Real-ear
Difficulties
difference
PCHI
pressure
Oriented
OPP
emissions
Evaluation
ANSI
Aided
Infant-Toddler
Modernising
Committee
Maximum
RECD
Audibility
Pure
Program
Improvement
College
Observer-based
Acoustics
Situational
Benefit
Child
Behind-the-ear
Developmental
Speech
Response
Scale
Children
Bamford-Kowal-Bench
Joint
palsy
Sentences
average
HABIT
Laboratory
Ontario
procedure
Auditory
Function
Integration
Infants
Worksheet
Family
level
Early
Performance
dB
NAL
ASFT
psychoacoustic
Amplification
tone
Services
Listening
Inventory
Index
response
American
CAL
Home
neuropathy
power
hearing
FAPI
Real-ear-to-coupler
PTA
National
otoacoustic
spectrum
Pathologists
Intelligibility
Aid
Aural/Oral
childhood intervention
CP
Infant
Expectations
Audiologists
IT-MAIS
SII
CASLPO
Permanent
Institute
Standards
Laboratories
impairment
Sensation
REAR
product
brainstem
SPL
detection
Everyday
Behavior
Indicators
DIAL
Desired
BKB-SIN
HL
field
Noise
Toddlers
Profile
MCHAS
Decibel
JCIH
BTE
SHARP
disorder
Level
ANSD
DPOAE
ELF
sound
OIHP
Life
aided
PEACH
COW

“Measurable differences resulting from treatment”

– Frattali, 1998

Too Simple?

- What “differences” should we be measuring?
    - Subjective (reported) hearing aid satisfaction?
    - Objective (measured) benefit?
    - Process or program outcomes?
    - Research vs clinic?

- Whose perspective matters?
    - Clinician’s?
    - Patient’s?

Patient

- Hearing loved ones
- Eating at restaurants
- Participate in conversation
- Hear birds
- Not feel isolated
- Less straining

- Healthcare policy makers
- Third party payers
- Accrediting bodies
- Professional organizations

Clinician

- Measure efficacy
- Resource Allocation
- Objective benefit
- Documented gains
- Validation of clinical decisions
- Marketing

I want to talk a bit about the things that influence outcomes beyond the treatment itself

That we often talk about…and almost never measure…

“The good physician treats the disease; the great physician treats the patient who has the disease.”

–William Osler

Messaging…

- People don’t choose between things…

- They choose between descriptions or versions of things

Hodgetts et al., 2017

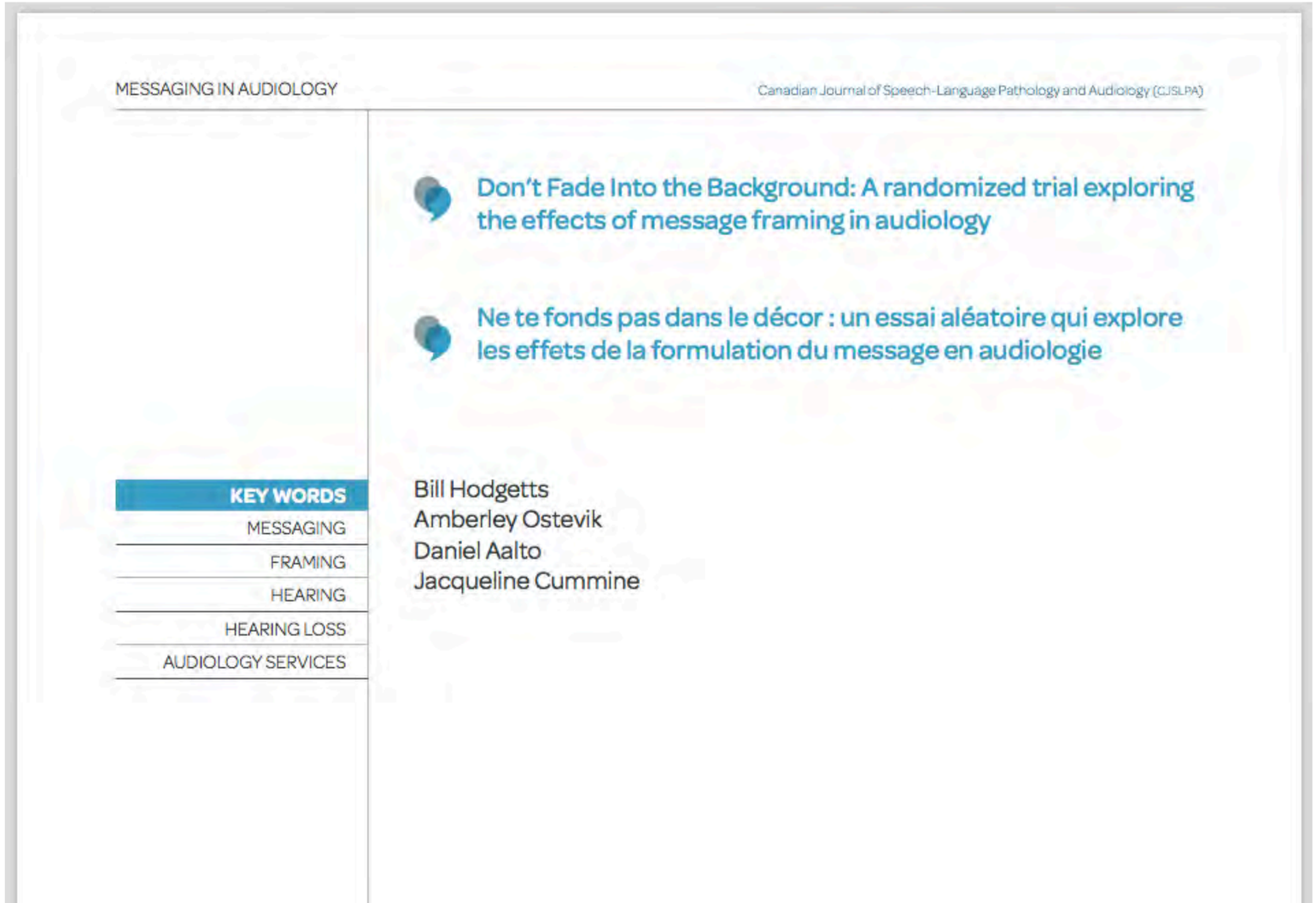
Decisions

- Lung cancer
  - Surgery or radiation.
  - “Surgery can extend your life but has risks”

- 90% survival = 75% choose surgery
- 10% mortality = 52% choose surgery

- People facing life-and-death decisions respond not to the odds but to the way the odds are described to them.

Messaging



Canadian Journal of Speech-Language Pathology and Audiology (CJSLPA)

Don't Fade Into the Background: A randomized trial exploring the effects of message framing in audiology

Ne te fonds pas dans le décor : un essai aléatoire qui explore les effets de la formulation du message en audiologie

KEY WORDS
MESSAGING
FRAMING
HEARING
HEARING LOSS
AUDIOLOGY SERVICES

Bill Hodgetts
Amberley Ostevik
Daniel Aalto
Jacqueline Cummine

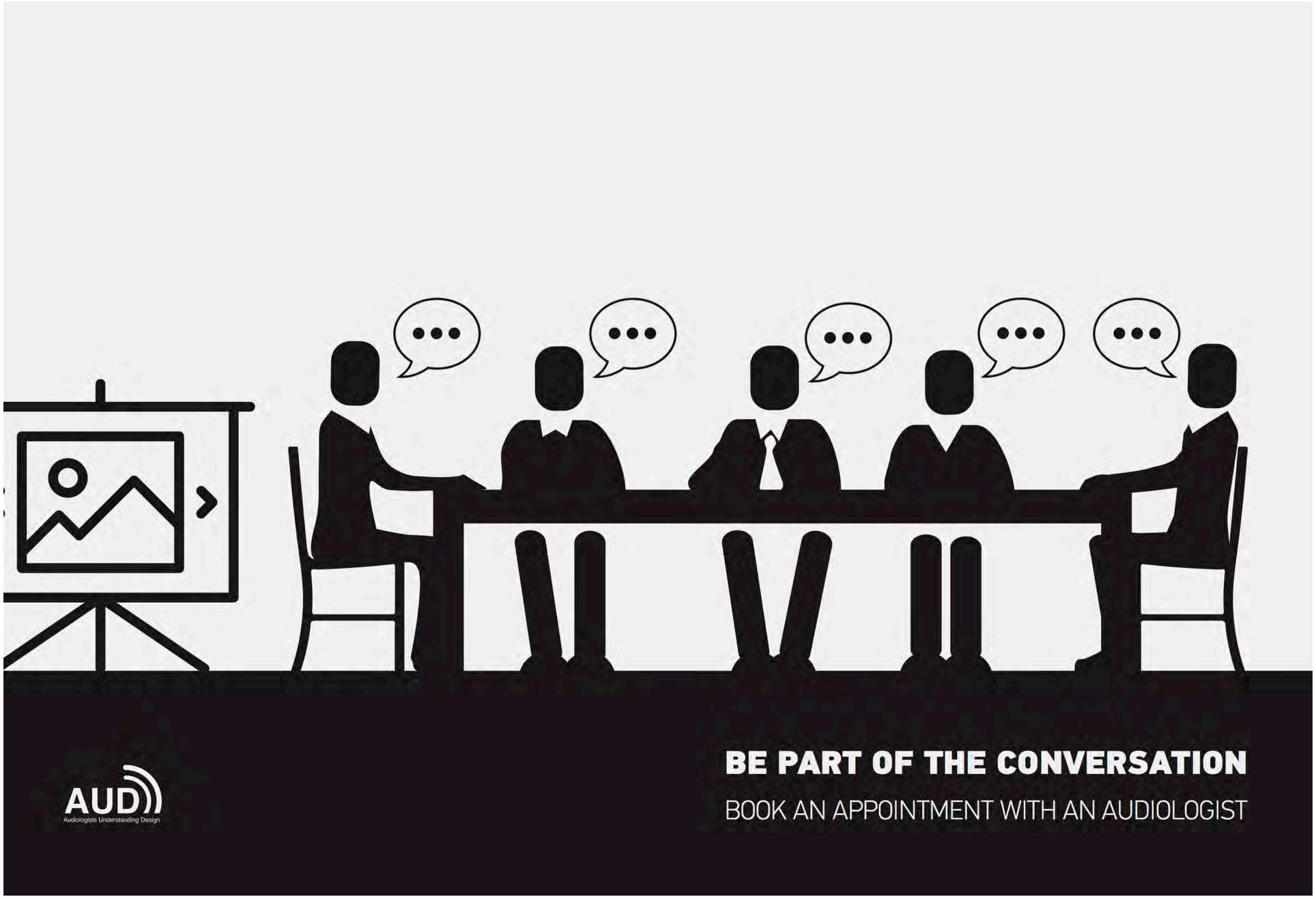
Hodgetts et al., 2017

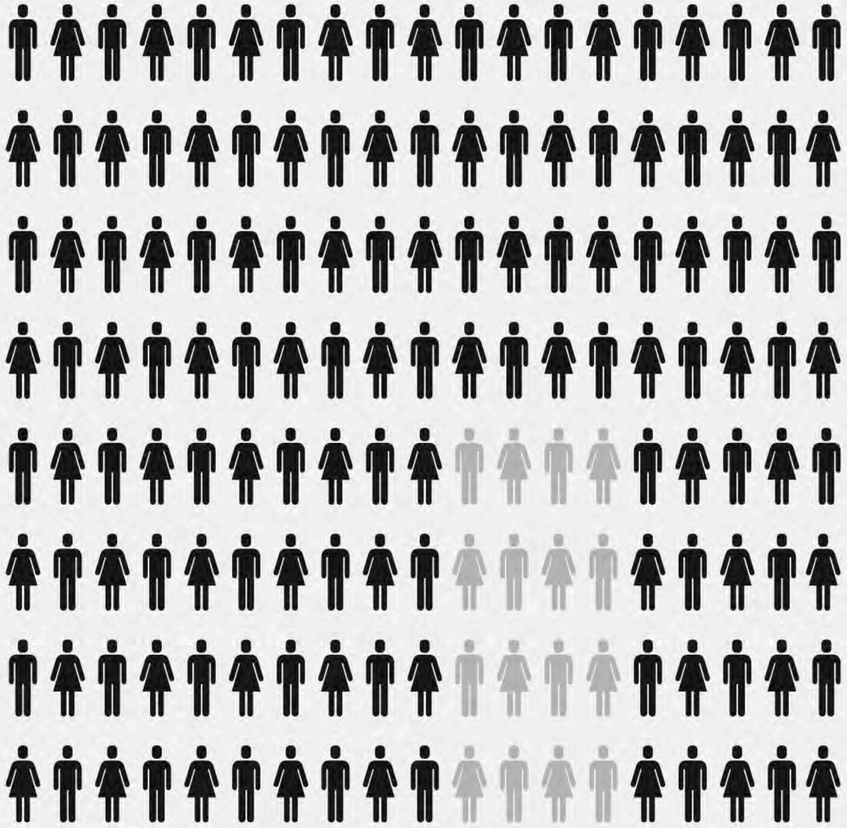
Messaging

- Online Survey

- We surveyed 769 adults (>18 years old) about their attitudes and beliefs around hearing loss and hearing aids.
  - Predictably, 1/5 of our sample had hearing aids.

- Individuals were then randomly assigned to 1 of 4 messaging conditions: inclusionary (positive), fact-based (neutral), exclusionary (negative) and *dissonant.*


AUD
Audiologists Understanding Design
BE PART OF THE CONVERSATION
BOOK AN APPOINTMENT WITH AN AUDIOLOGIST



1 in 10 PEOPLE HAVE HEARING LOSS

AUD
Audiologists Understanding Design

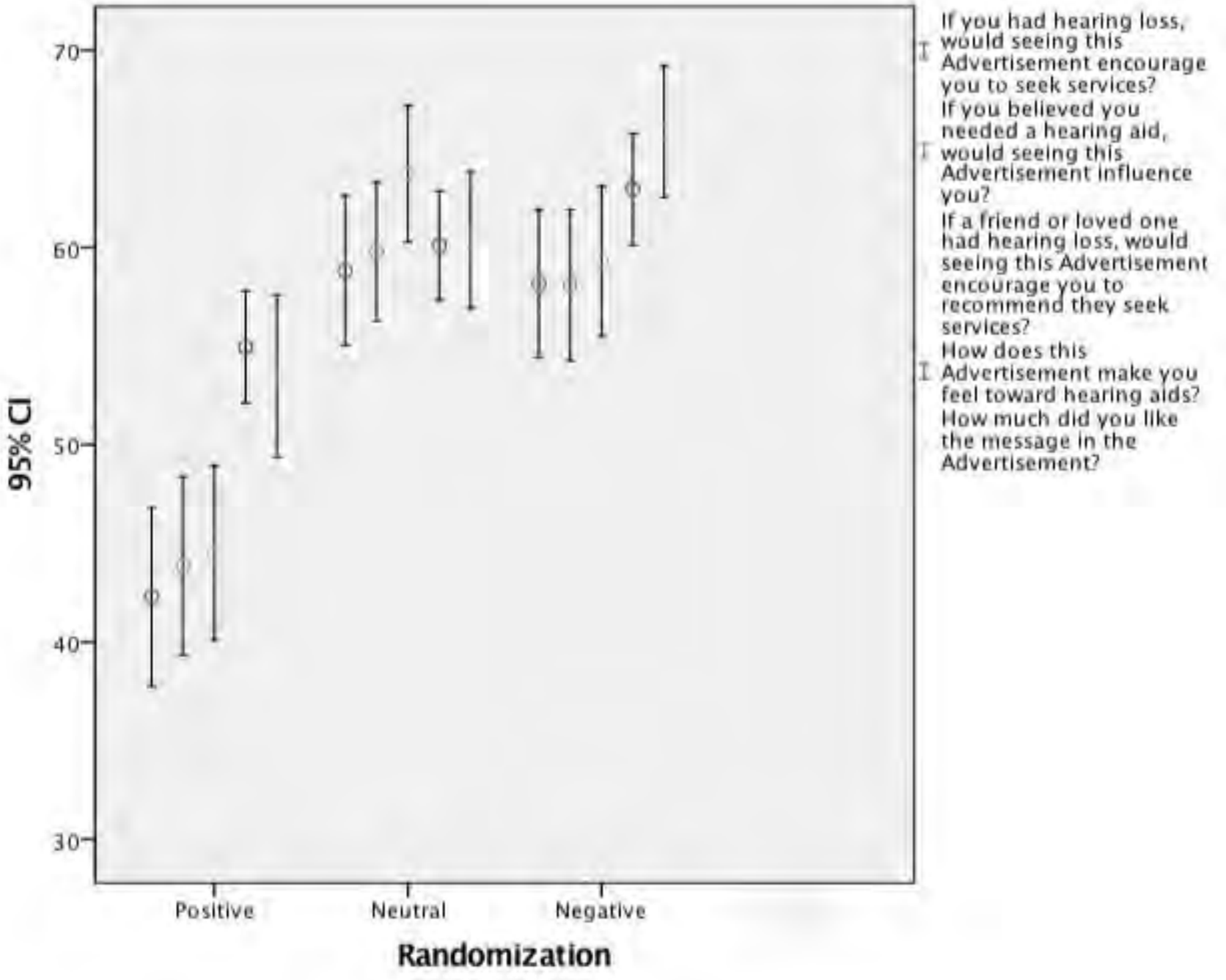
ONLY 1 in 5 PEOPLE THAT CAN BENEFIT FROM A HEARING AID HAVE ONE

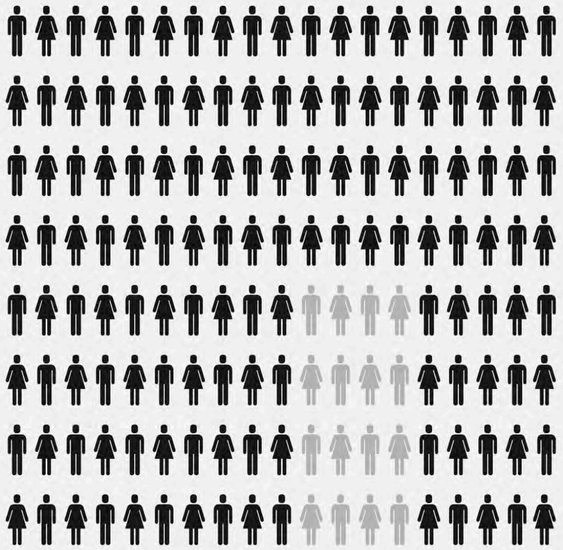
BOOK AN APPOINTMENT WITH AN AUDIOLOGIST


DON'T FADE INTO THE BACKGROUND
AUD
Audiologists Understanding Design
BOOK AN APPOINTMENT WITH AN AUDIOLOGIST

Primary Outcome Questions

- If you had hearing loss, would seeing this Advertisement encourage you to seek services?
- If you believed you needed a hearing aid, would seeing this Advertisement influence you?
- If a friend or loved one had hearing loss, would seeing this Advertisement encourage you to recommend they seek services?
- How does this Advertisement make you feel toward hearing aids?
- How much did you like the message in the Advertisement?


70
60
50
40
30
95% CI
Positive
Neutral
Negative
Randomization
If you had hearing loss, would seeing this Advertisement encourage you to seek services?
If you believed you needed a hearing aid, would seeing this Advertisement influence you?
If a friend or loved one had hearing loss, would seeing this Advertisement encourage you to recommend they seek services?
How does this Advertisement make you feel toward hearing aids?
How much did you like the message in the Advertisement?



1 in 10
PEOPLE
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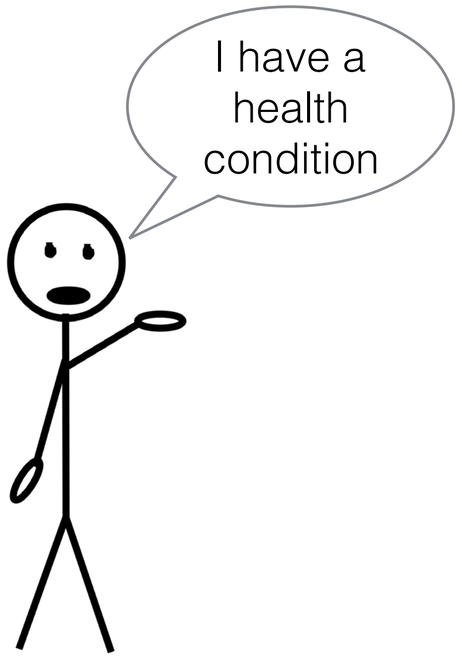
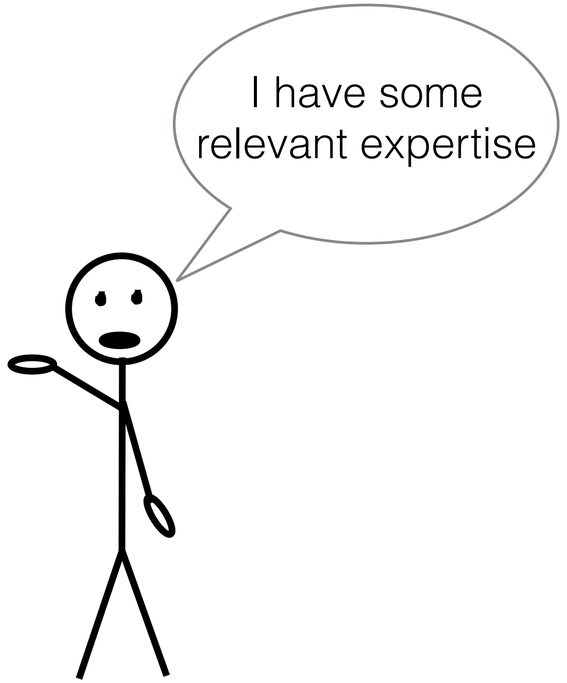
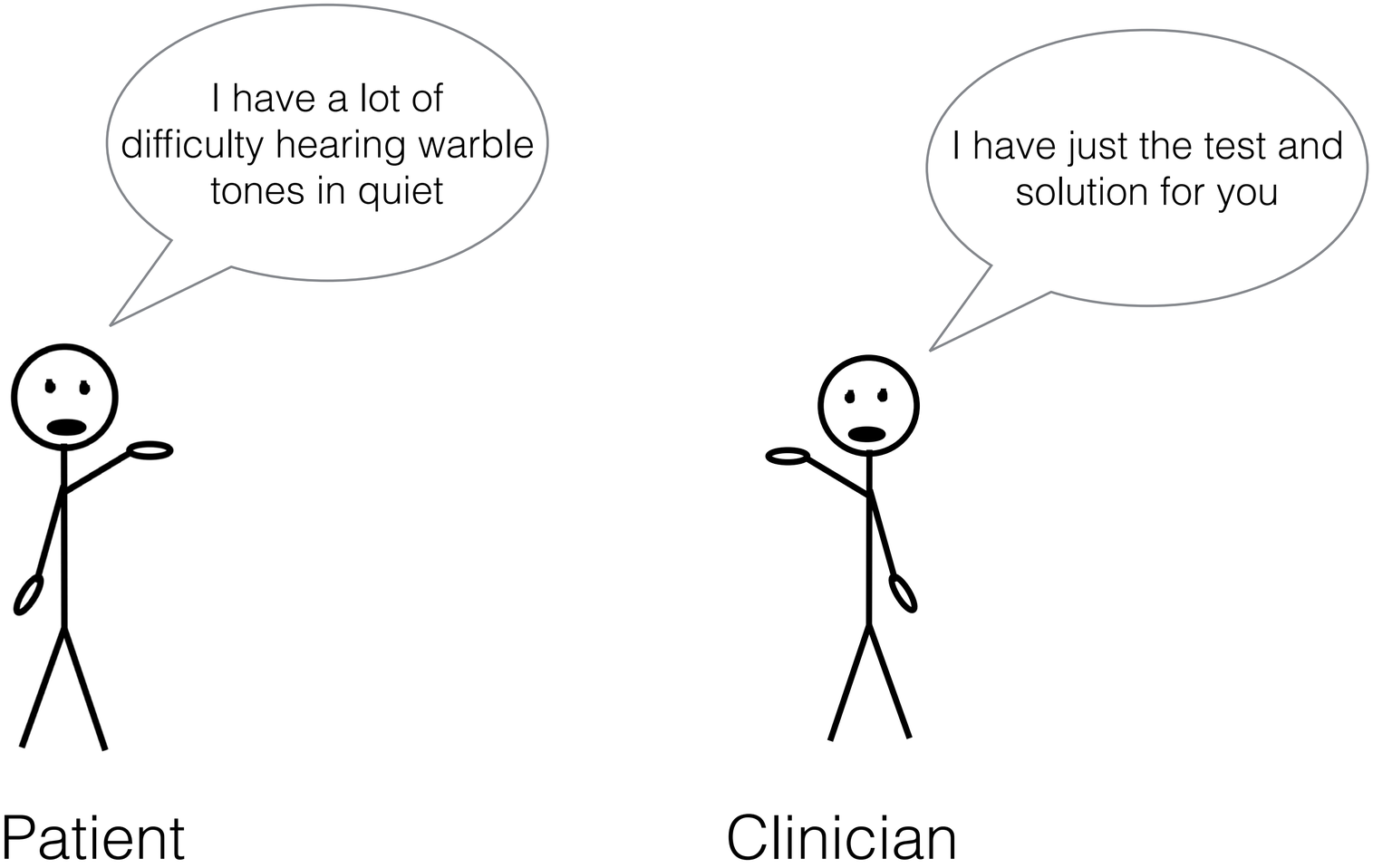


Patient



Clinician


I have a lot of difficulty hearing warble tones in quiet
I have just the test and solution for you
Patient
Clinician

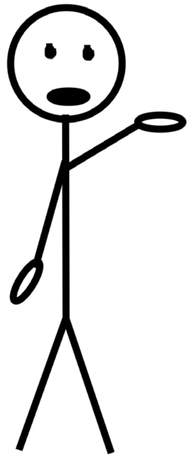
I don’t really want to be here
- I don’t have a problem
- I was dragged in

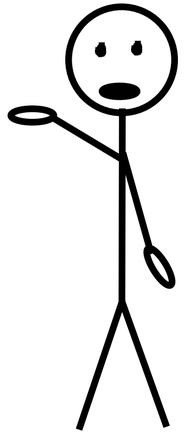
I’m already a user of a
hearing device and doing ok
- is there something better?

I’m finally ready to face
this health condition

I have low self-efficacy
and high expectations of the
technology

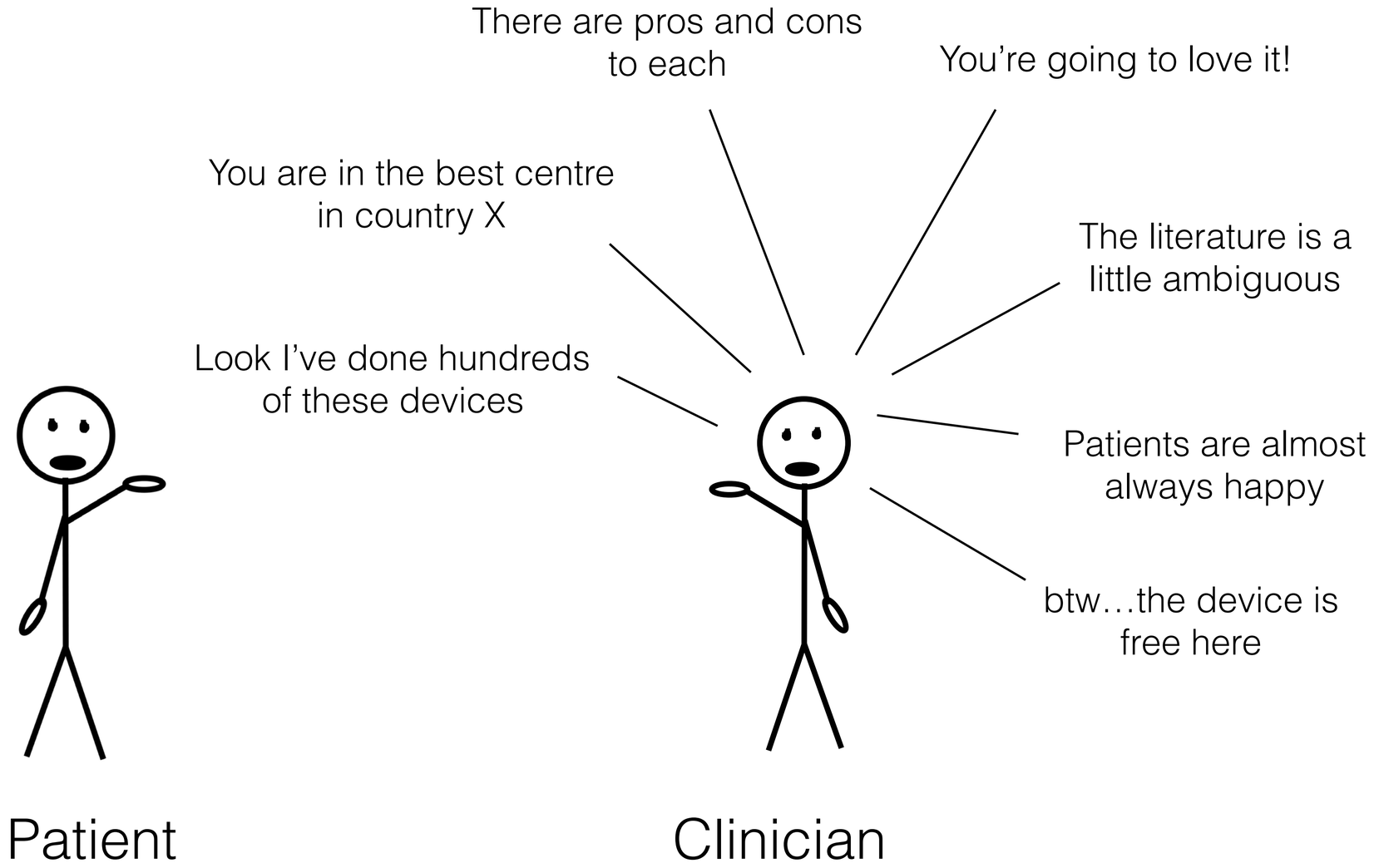
I’m already a user of a
hearing device and doing poorly

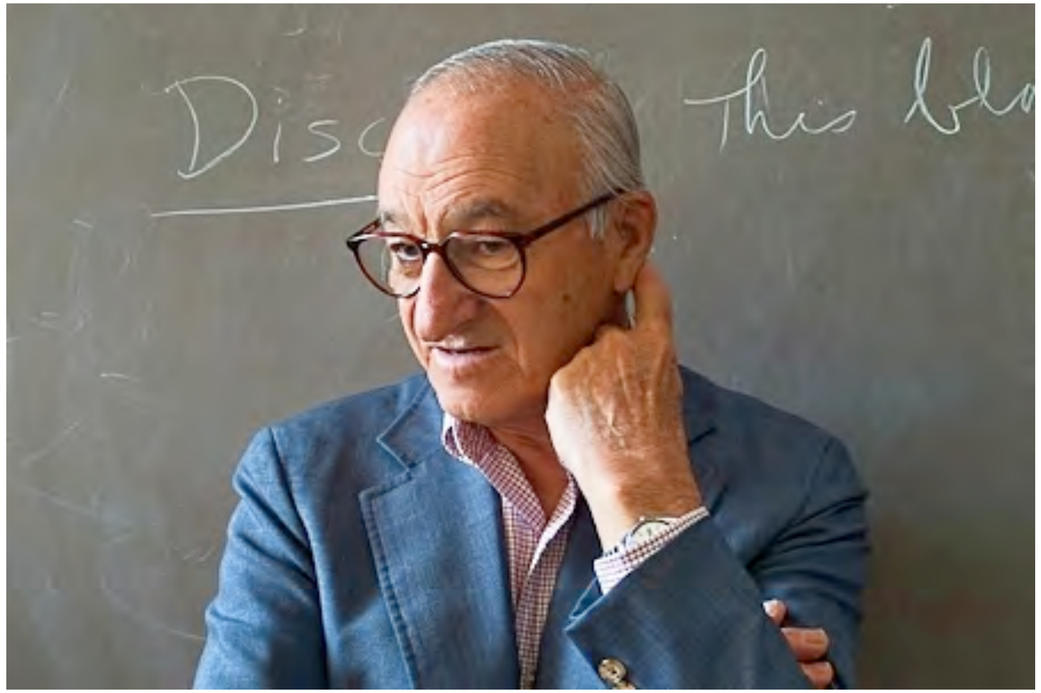




Patient

Clinician

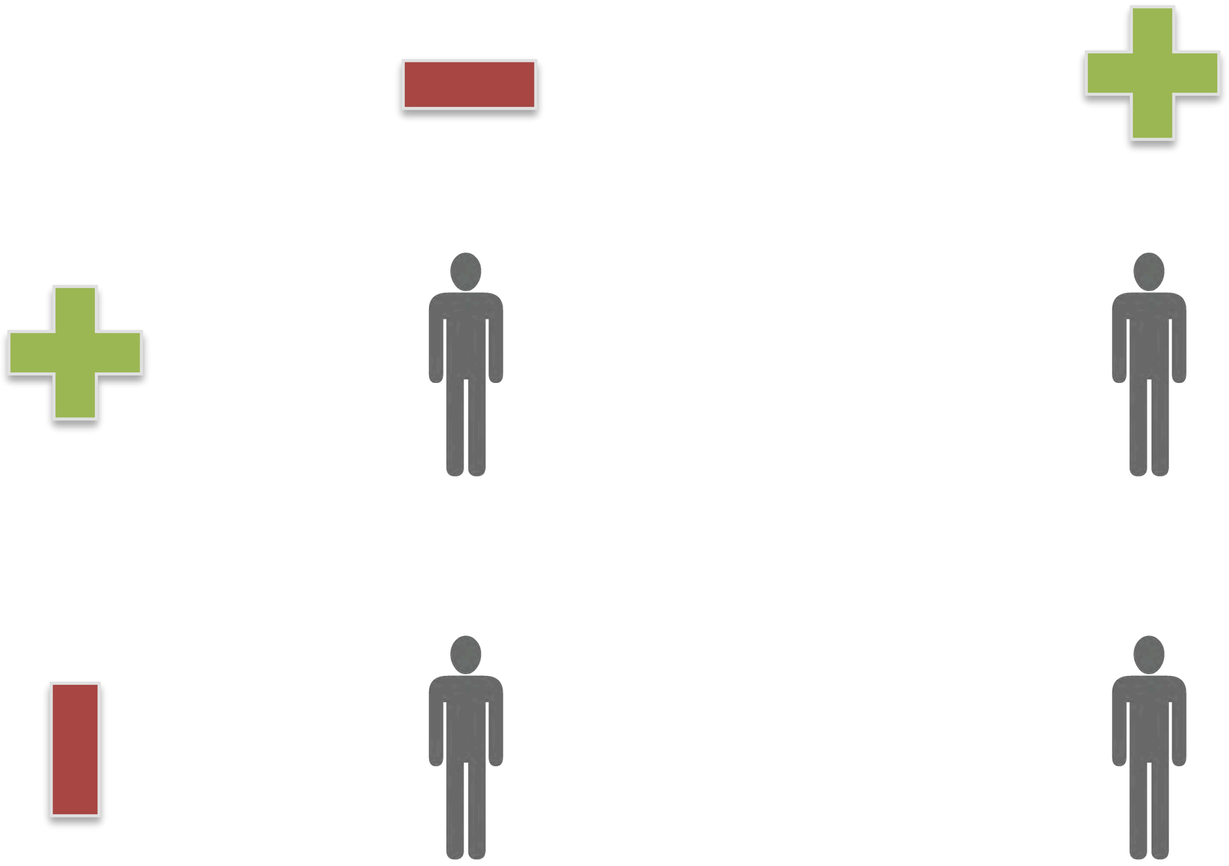

There are pros and cons to each
You're going to love it!
You are in the best centre in country X
The literature is a little ambiguous
Look I've done hundreds of these devices
Patients are almost always happy
btw…the device is free here
Patient
Clinician



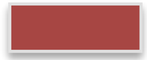
“People’s level of motivation, affective states and actions are based more on what they believe than on what is objectively true.” – A. Bandura

Expectations of Treatment

Self-Efficacy



Outcome Expectations



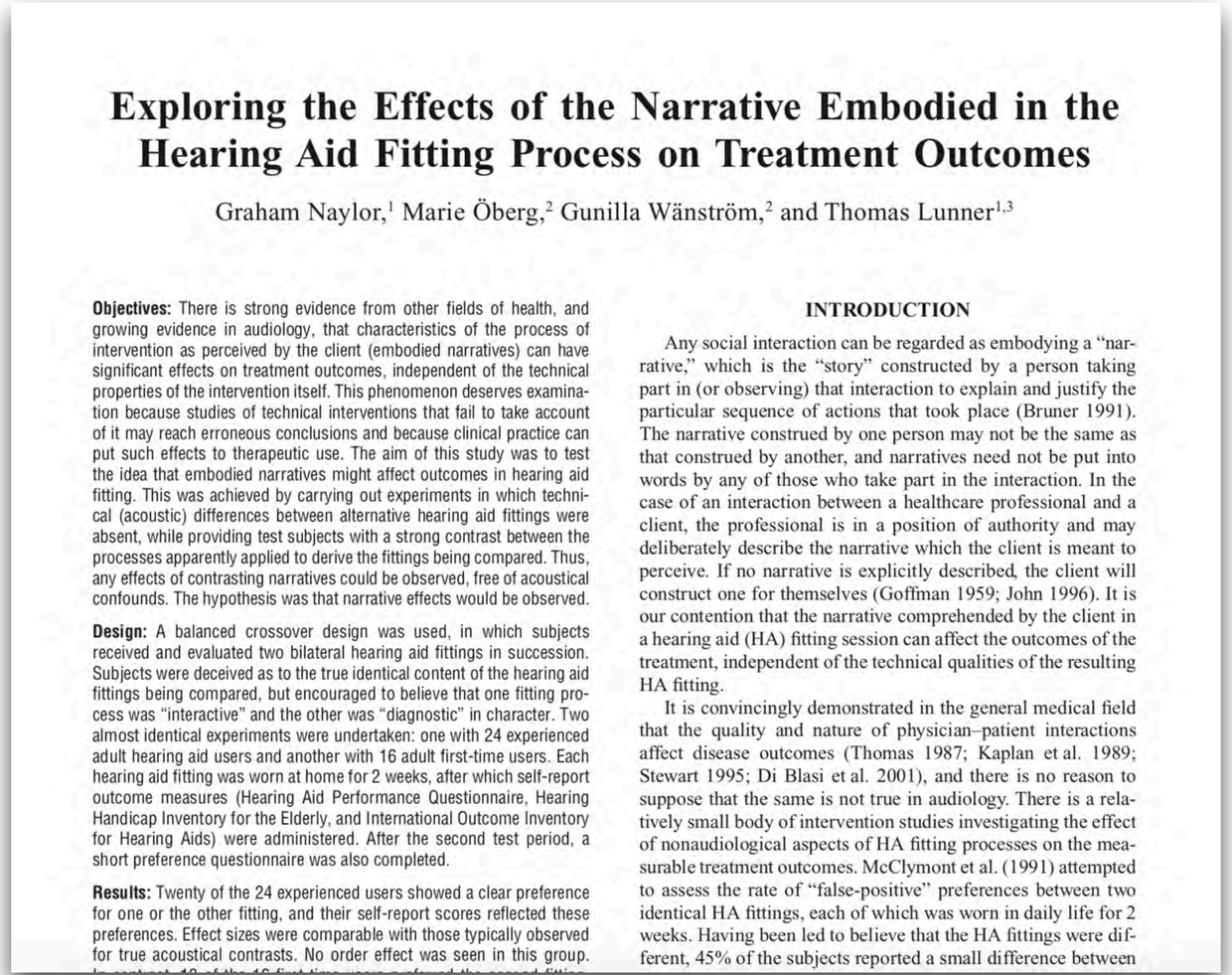
Self-Efficacy

Outcome Expectations

Self-Efficacy

Naylor et al., 2015

Everyone has a narrative…



Exploring the Effects of the Narrative Embodied in the Hearing Aid Fitting Process on Treatment Outcomes

Graham Naylor,[1] Marie Öberg,[2] Gunilla Wänström,[2] and Thomas Lunner[1,3]

Objectives: There is strong evidence from other fields of health, and growing evidence in audiology, that characteristics of the process of intervention as perceived by the client (embodied narratives) can have significant effects on treatment outcomes, independent of the technical properties of the intervention itself. This phenomenon deserves examination because studies of technical interventions that fail to take account of it may reach erroneous conclusions and because clinical practice can put such effects to therapeutic use. The aim of this study was to test the idea that embodied narratives might affect outcomes in hearing aid fitting. This was achieved by carrying out experiments in which technical (acoustic) differences between alternative hearing aid fittings were absent, while providing test subjects with a strong contrast between the processes apparently applied to derive the fittings being compared. Thus, any effects of contrasting narratives could be observed, free of acoustical confounds. The hypothesis was that narrative effects would be observed.

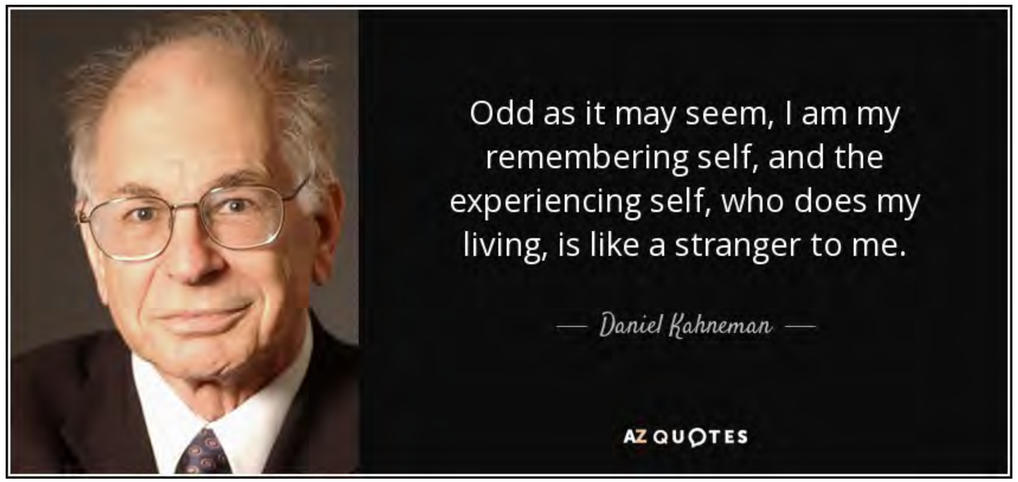
Design: A balanced crossover design was used, in which subjects received and evaluated two bilateral hearing aid fittings in succession. Subjects were deceived as to the true identical content of the hearing aid fittings being compared, but encouraged to believe that one fitting process was "interactive" and the other was "diagnostic" in character. Two almost identical experiments were undertaken: one with 24 experienced adult hearing aid users and another with 16 adult first-time users. Each hearing aid fitting was worn at home for 2 weeks, after which self-report outcome measures (Hearing Aid Performance Questionnaire, Hearing Handicap Inventory for the Elderly, and International Outcome Inventory for Hearing Aids) were administered. After the second test period, a short preference questionnaire was also completed.

Results: Twenty of the 24 experienced users showed a clear preference for one or the other fitting, and their self-report scores reflected these preferences. Effect sizes were comparable with those typically observed for true acoustical contrasts. No order effect was seen in this group.

INTRODUCTION

Any social interaction can be regarded as embodying a "narrative," which is the "story" constructed by a person taking part in (or observing) that interaction to explain and justify the particular sequence of actions that took place (Bruner 1991). The narrative construed by one person may not be the same as that construed by another, and narratives need not be put into words by any of those who take part in the interaction. In the case of an interaction between a healthcare professional and a client, the professional is in a position of authority and may deliberately describe the narrative which the client is meant to perceive. If no narrative is explicitly described, the client will construct one for themselves (Goffman 1959; John 1996). It is our contention that the narrative comprehended by the client in a hearing aid (HA) fitting session can affect the outcomes of the treatment, independent of the technical qualities of the resulting HA fitting.

It is convincingly demonstrated in the general medical field that the quality and nature of physician–patient interactions affect disease outcomes (Thomas 1987; Kaplan et al. 1989; Stewart 1995; Di Blasi et al. 2001), and there is no reason to suppose that the same is not true in audiology. There is a relatively small body of intervention studies investigating the effect of nonaudiological aspects of HA fitting processes on the measurable treatment outcomes. McClymont et al. (1991) attempted to assess the rate of "false-positive" preferences between two identical HA fittings, each of which was worn in daily life for 2 weeks. Having been led to believe that the HA fittings were different, 45% of the subjects reported a small difference between



Experiencing self: Does it hurt now when I touch here?

Remembering self: How have you been feeling lately?

We don't choose between experiences we choose between memories of experiences

Meaning Responses - Imparting

Changing Hearing Performance and Sound Preference With Words and Expectations: Meaning Responses in Audiology

William E. Hodgetts,[1,2] Daniel Aalto,[1,2] Amberley Ostevik,[1] and Jacqueline Cummine[1]

Objectives: In this article, we explore two manipulations of "meaning response," intended to either "impart" meaning to participants through the manipulation of a few words in the test instructions or to "invite" meaning by making the participant feel involved in the setting of their preferred sound.

Design: In experiment 1, 59 adults with normal hearing were randomly assigned to one of the two groups. Group 1 was told "this hearing in noise test (HINT) you are about to do is really hard," while the second group was told "this HINT test is really easy." In experiment 2, 59 normal-hearing adults were randomly assigned to one of two groups. Every participant was played a highly distorted sound file and given 5 mystery sliders on a computer to move as often and as much as they wished until the sound was "best" to them. They were then told we applied their settings to a new file and they needed to rate their sound settings on this new file against either (1) another participant in the study, or (2) an expert audiologist. In fact, we played them the same sound file twice.

Results: In experiment 1, those who were told the test was hard performed significantly better than the easy group. In experiment 2, a significant preference was found in the group when comparing "my setting" to "another participant." No significant difference was found in the group comparing "my setting" to the "expert."

Conclusions: Imparting or inviting meaning into the context of audiological outcome measurement can alter outcomes even in the absence of any additional technology or treatment. These findings lend support to a growing body of research about the many nonauditory factors including motivation, effort, and task demands that can impact performance in our clinics and laboratories.

that are available in the treatment environment (Naylor et al., 2015). There is a large body of literature that shows meaning responses can have a substantial influence on physiological and psychological performance (for a thorough review of meaning responses see Moerman and Jonas (2002)). The authors define meaning response as "the physiologic or psychological effects of meaning in the origins or treatment of illness; meaning responses elicited after the use of inert or sham treatment can be called the 'placebo effect' when they are desirable and the 'nocebo effect' when they are undesirable." The magnitude of these meaning responses can be as minor as liking the outfit that the physician wears when treating you (stethoscope and lab coat; Blumhagen, 1979), all the way to achieving the same outcome with sham surgery (an incision with no actual surgery for knee repair; Sihvonen et al., 2013). The color of pills is known to have an effect even when the pills themselves are inert (i.e., red pills are known to create a stimulant effect, whereas blue pills create a depressive effect [Blackwell et al., 1972; Shapira, McClelland, Griffiths, Newell, 1970]). Taking 2 inert pills can have a larger meaning than taking only 1 inert pill (Moerman, 2000), and the name recognition of the pill can influence its effectiveness (i.e., familiar brand named pills are more effective than unfamiliar named pills; Branthwaite, & Cooper, 1981). In sports medicine, the same 10-week exercise program designed to target aerobic improvements worked for 2 groups equally well. However, one of the groups was told that the 10-week

Hodgetts et al., 2018

“Meaning responses can be defined as a change in performance, outcome, and/or preference that is governed by factors that are not necessarily related to the treatment of interest (i.e., motivation, effort, task demands, the surrounding context in which you find yourself, personal beliefs and biases, the narrative you tell yourself about experiences”

–Moeman & Jonas, 2002

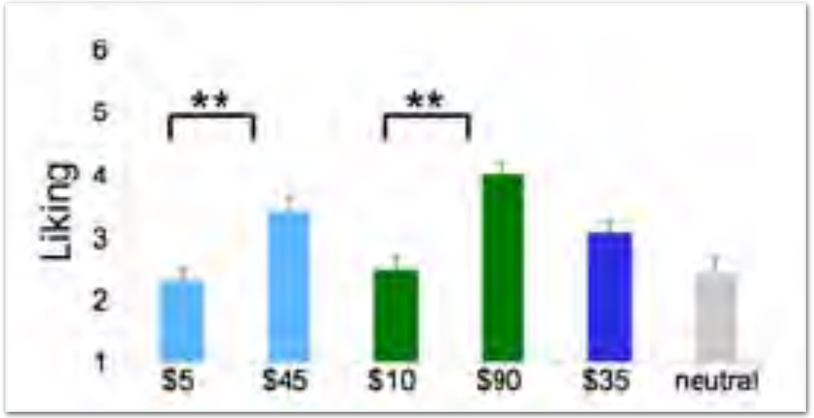
“The physiologic or psychological effects of meaning in the origins or treatment of illness; meaning responses elicited after the use of inert or sham treatment can be called the ‘placebo effect’ when they are desirable and the ‘nocebo effect’ when they are undesirable. ”

– Moerman & Jonas, 2002

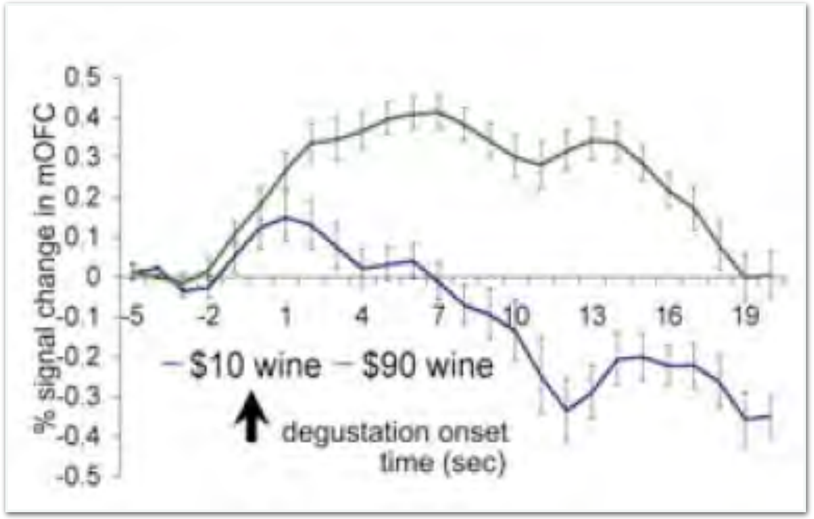
Some Examples…

- Taking two inert pills is better than one.
- Red pills stimulate, blue bills depress
- Name recognition of the pill matters
- Chinese people born in “unlucky years” die 7% earlier than those born in “lucky” years

Grape Expectations



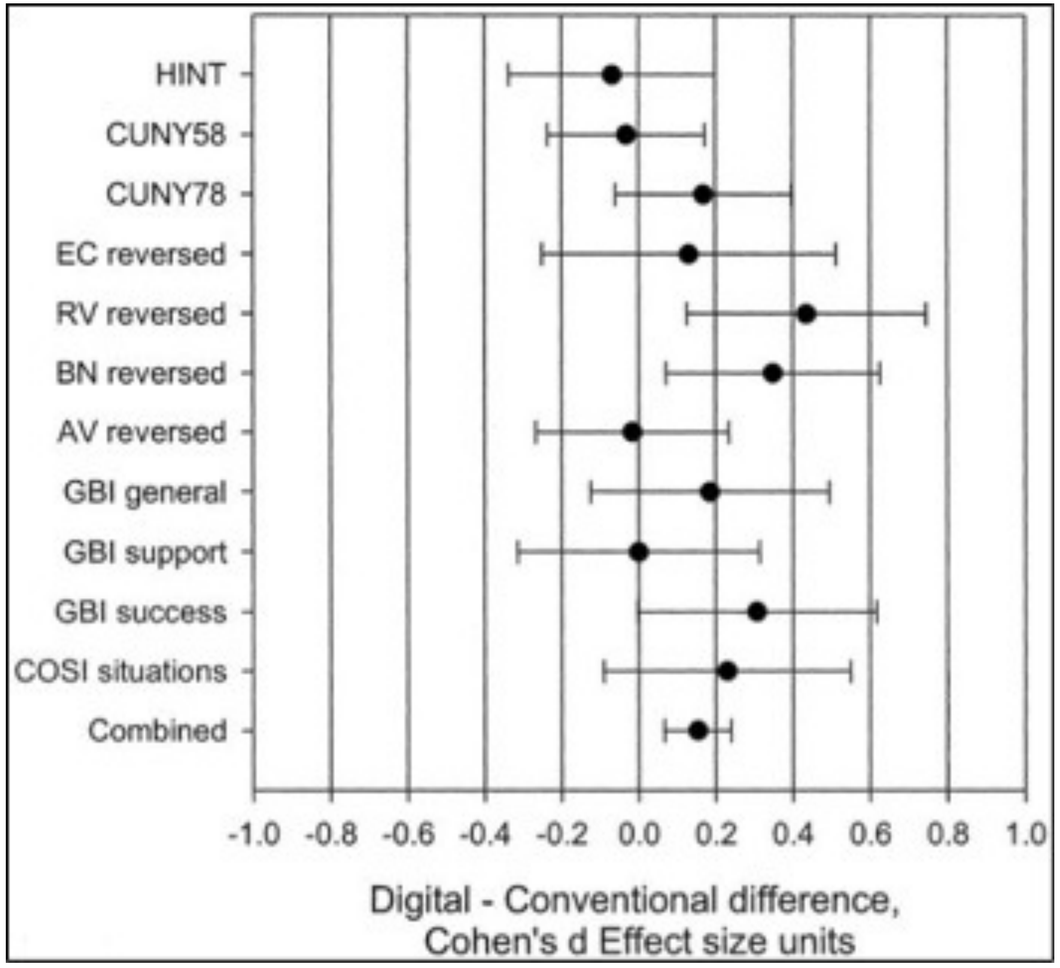
People ranked taste of a $45 wine higher than the same wine priced at $5, and the same for a different wine marked $90 and $10.
(Credit: CalTech, Stanford)



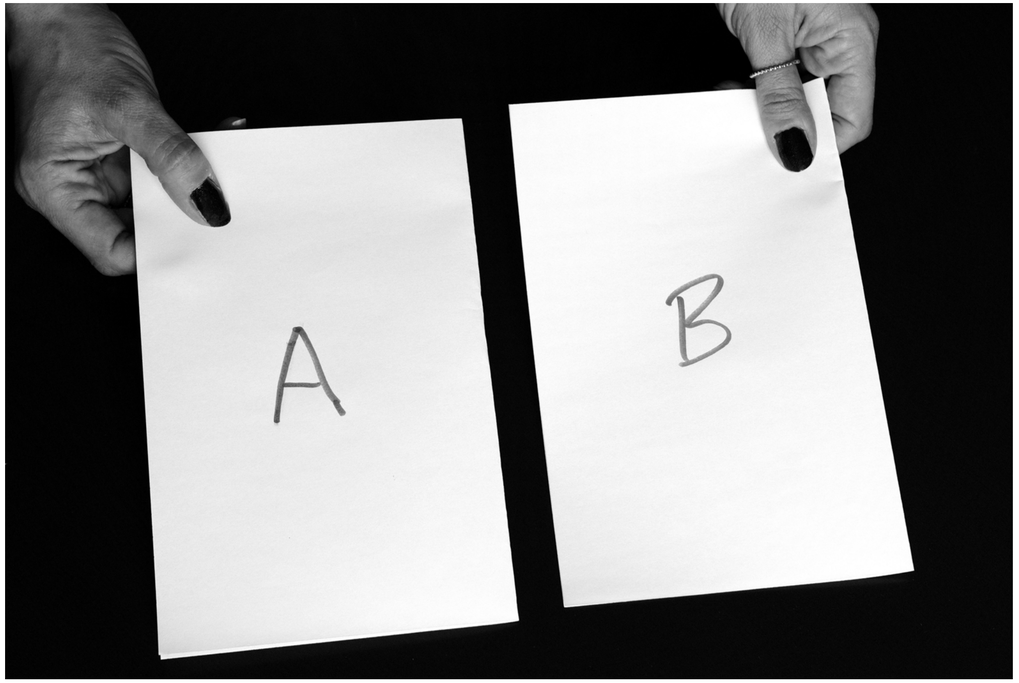
Activity in the brain's pleasure centre (medial orbitofrontal cortex); there's more activity with wine subjects think costs $90 a bottle (top line) than the same wine priced at $10. The arrow shows the moment when the subjects started tasting the wine.
(Credit: CalTech, Stanford)

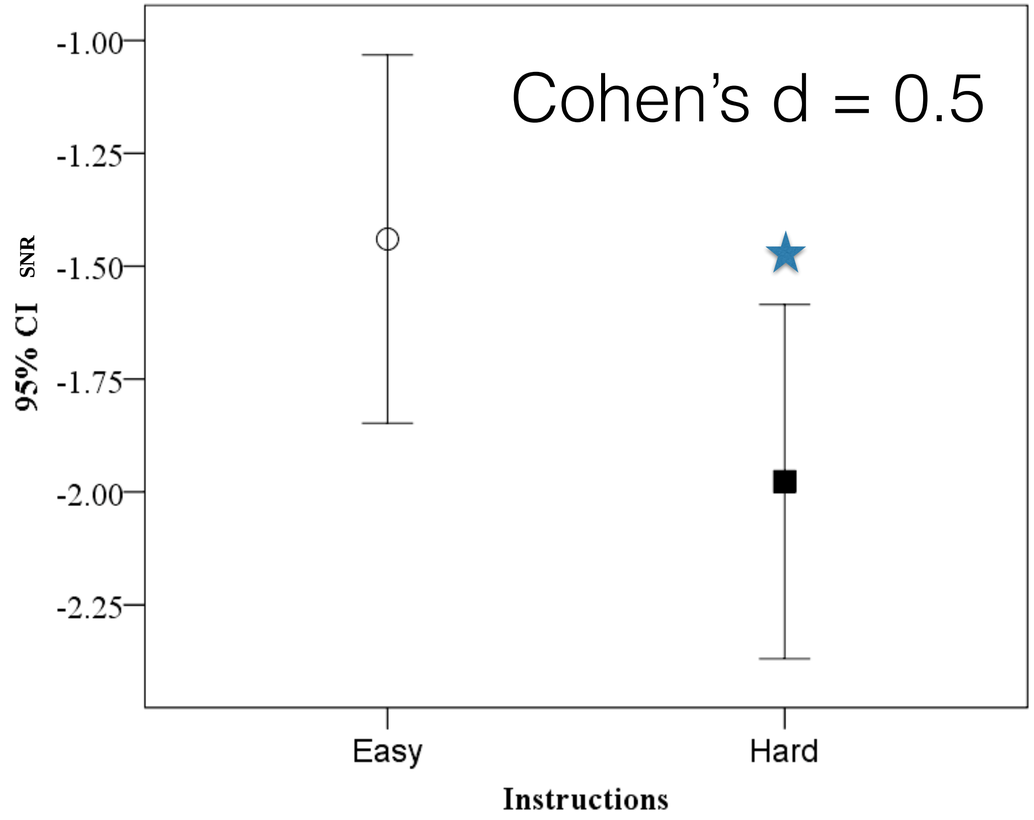
Great Expectations

- Bentler et al, 2003
- Digital Labels



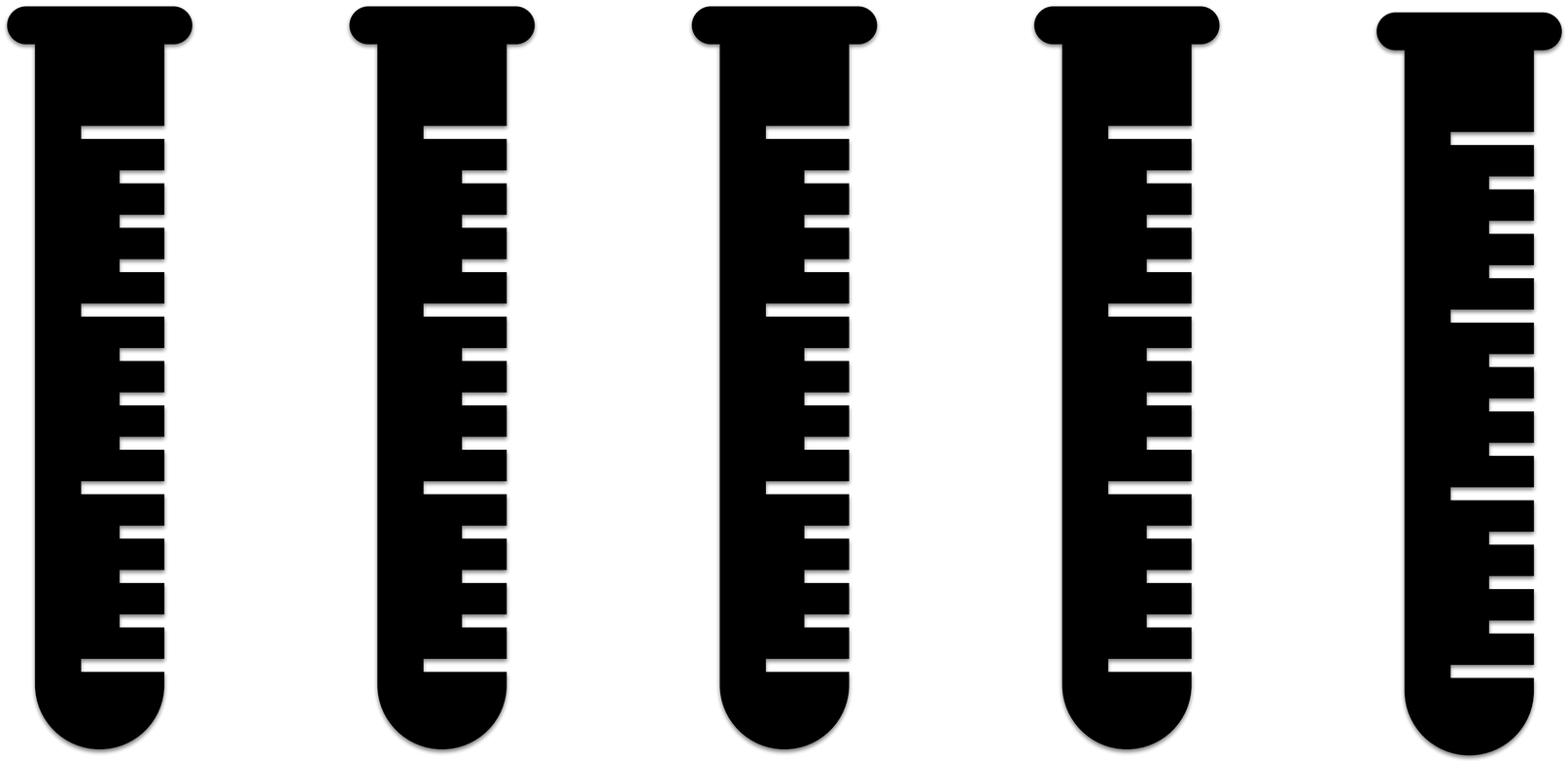
Meaning Responses - Imparting





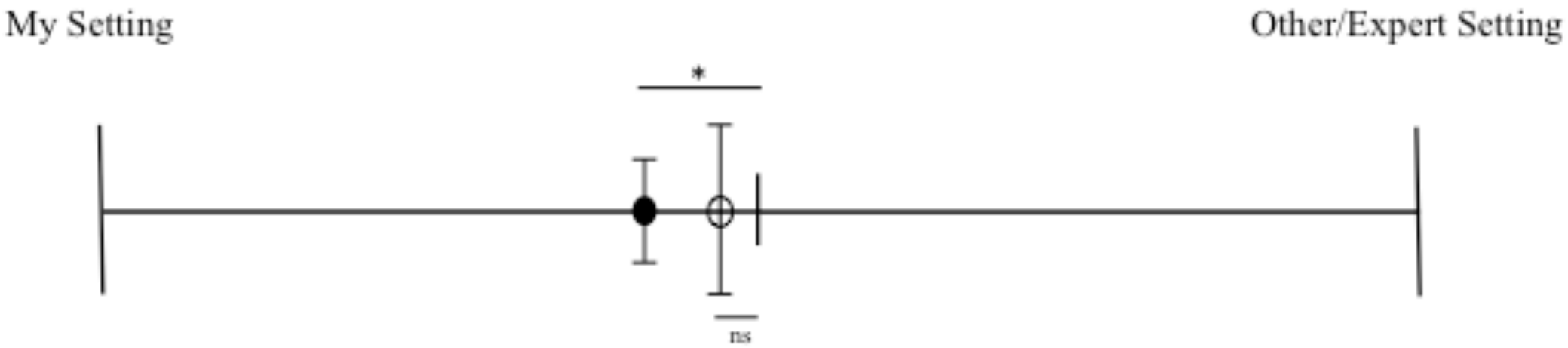
Hodgetts et al., 2018

Meaning Responses - Inviting



Hodgetts et al., 2018

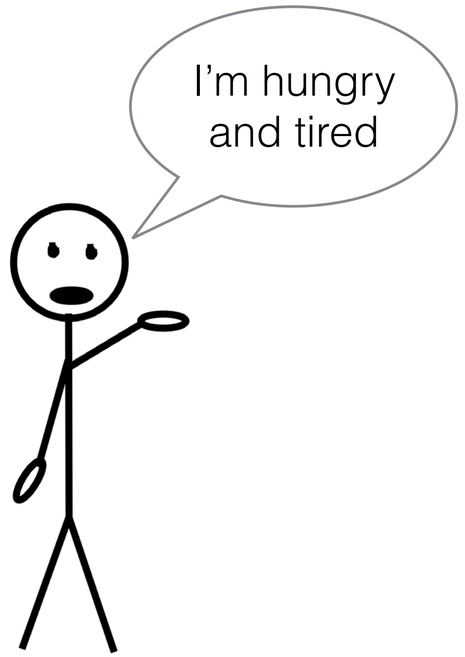
Meaning Response - Inviting



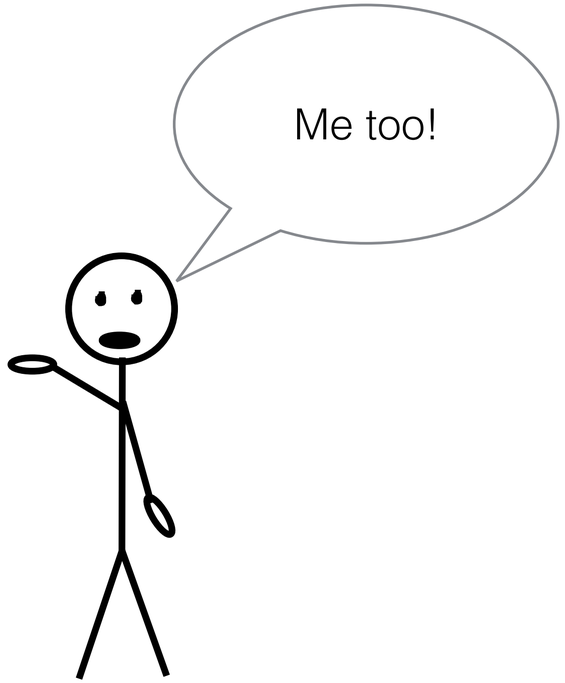
Cohen’s d = 0.45

“Ikea Effect?”

“Auditory Endowment Effect?”

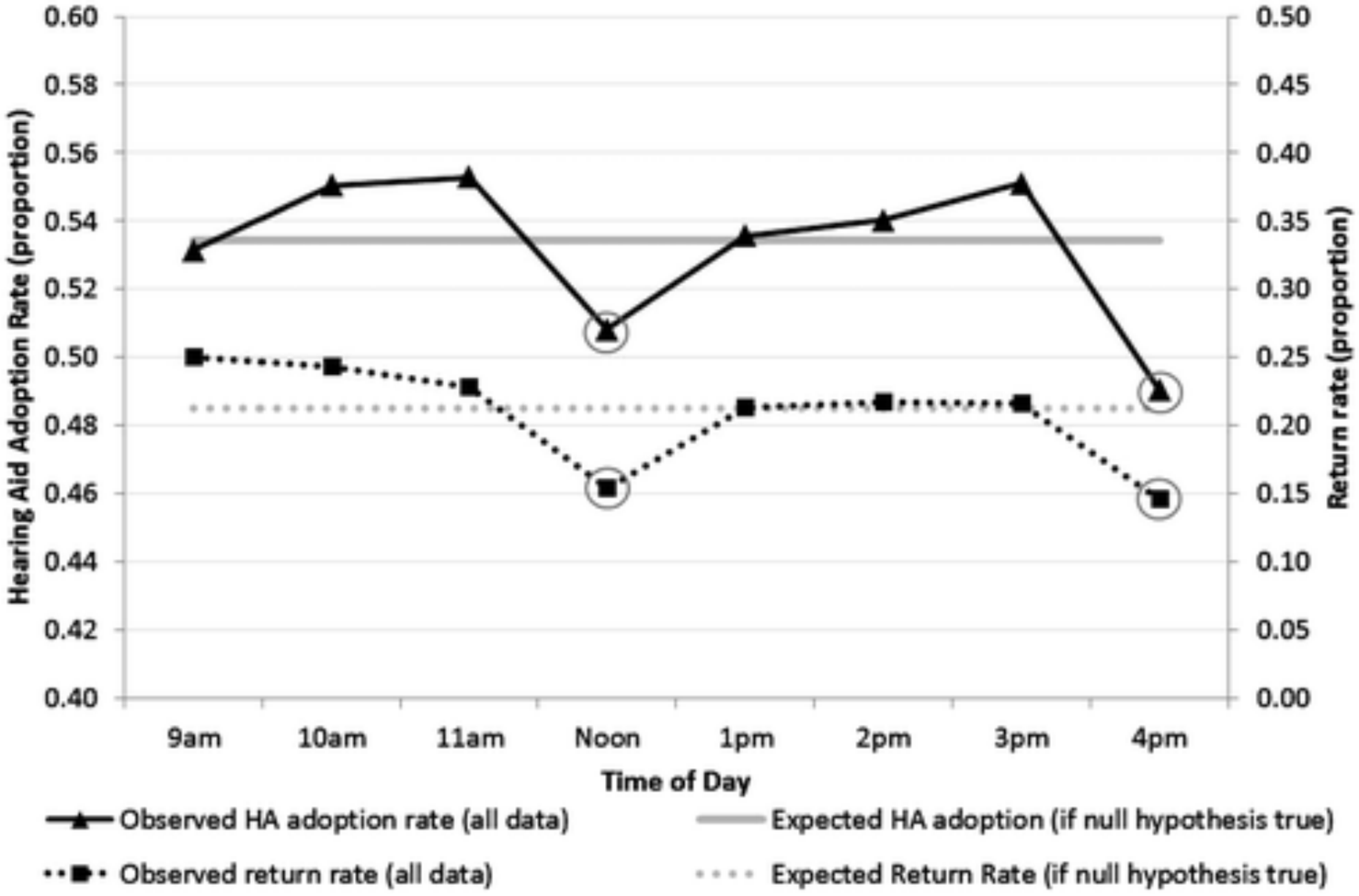


Patient

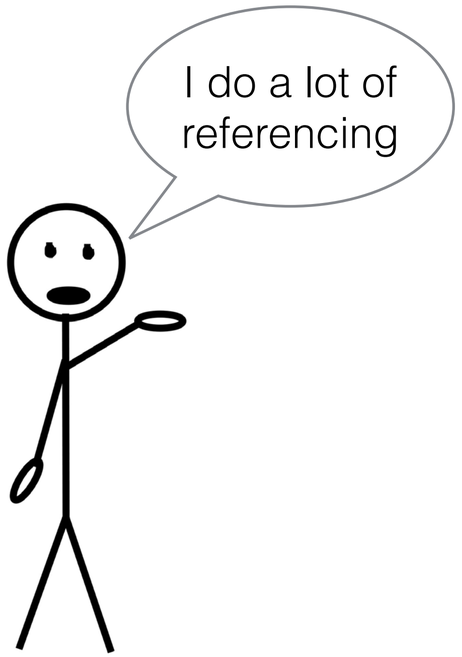


Clinician

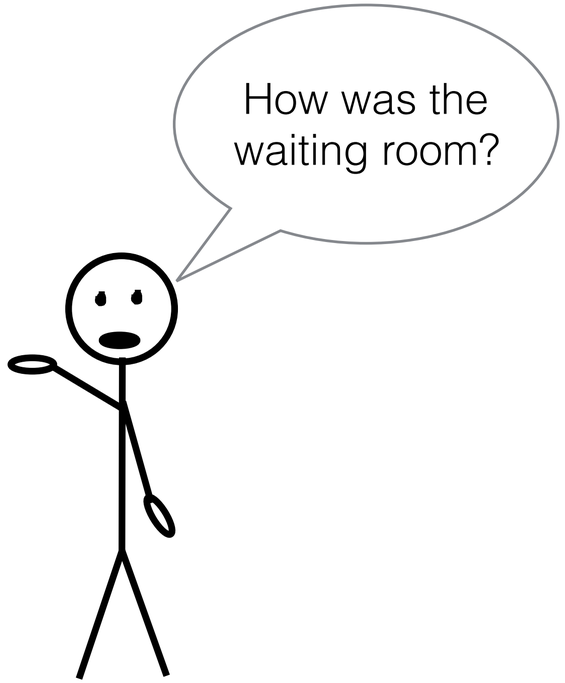
Hearing aid Adoption Rate



Singh & Launer, 2017

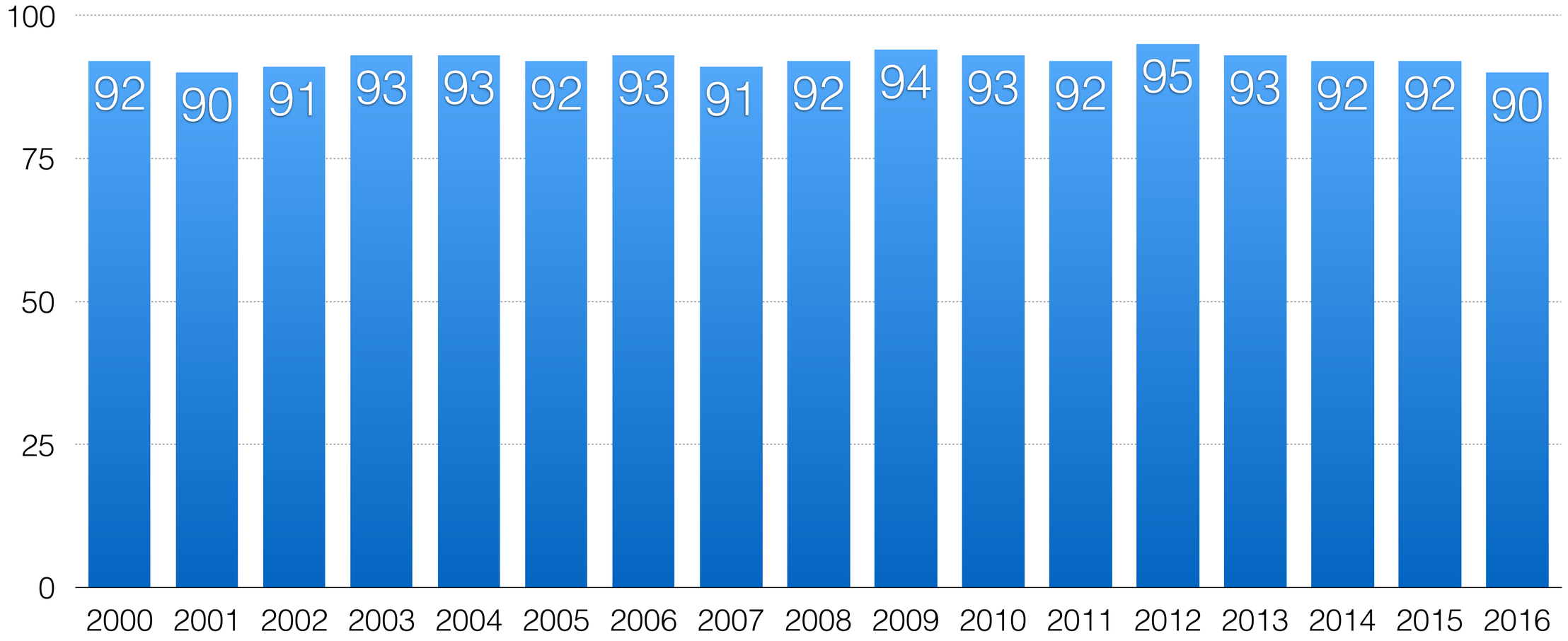


Patient



Clinician

Satisfaction with your care at iRSM

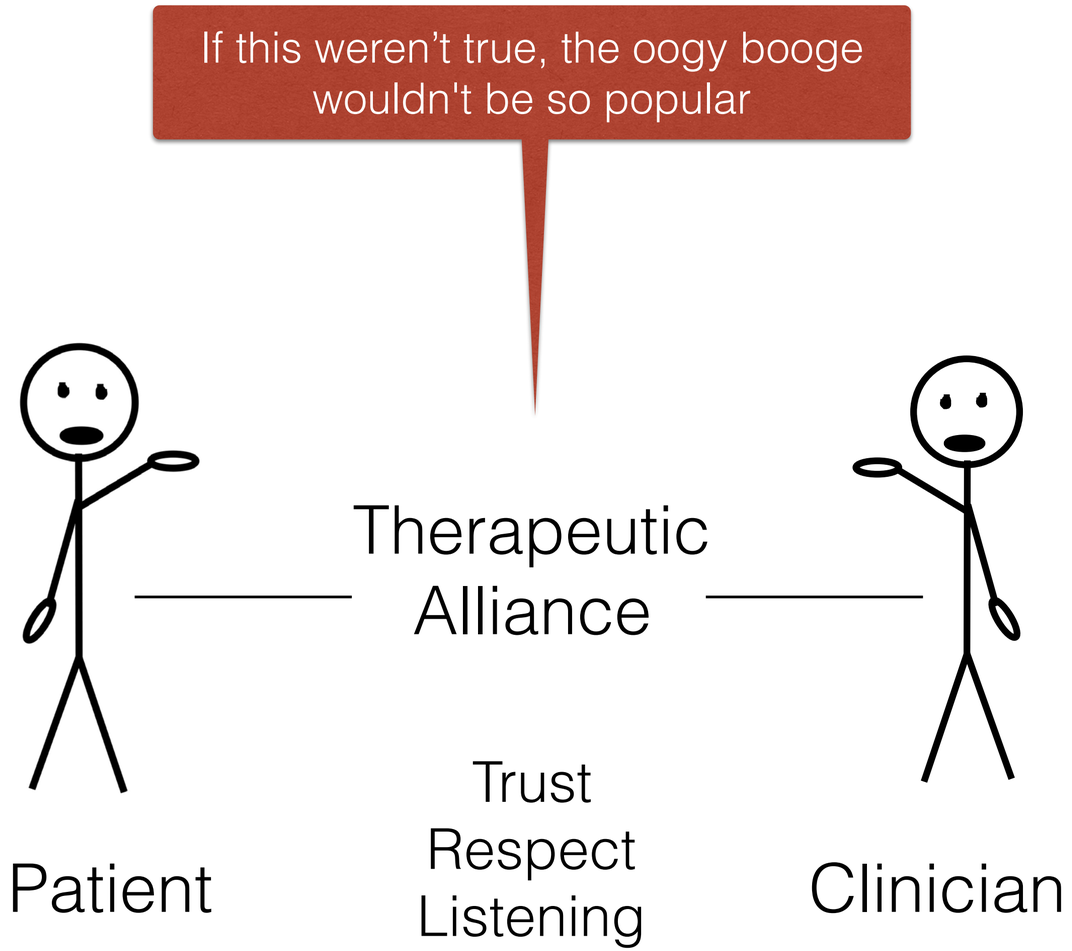


Social Comparison - Referencing

	Upward Comparison	**Downward Comparison**
Positive Effects	Hope, Inspiration	Gratitude
Negative Effects	Dissatisfaction, Envy	Scorn

Festinger, 1954

What is going to influence outcomes?



“The quality of the communication and interaction between the patient/client and the clinician is known to be of great importance. This therapeutic alliance (Rogers, 1958) encompasses concepts such as active listening, understanding, and empathy. In the context of care, the approach the clinician takes to treatment (Blumhagen, 1979), the verbal attitude or enthusiasm, and the words they choose (Uhlenhuth et al., 1966) can alter the outcomes by manipulating the meaning of the treatment from the patient’s perspective.”

– Hodgetts et al., 2018

Thank you very much for listening

Any Questions?

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