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Interactive Health Literacy: Individual Difference and Message Listenability

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Interpersonal Interaction and Decision-Making About H1N1 Vaccination Among High Risk Persons

- **Swine flu still a worry for people with asthma – 24 September 2009**

An Asthma UK poll has shown that more than half of people with asthma are planning to take the swine flu vaccine. The Asthma UK's Adviceline is also continuing to receive a wide range of calls about swine flu, suggesting that the virus is still a worry for people with asthma.

The online poll was completed by 166 people between 2 and 21 September. While 58% of people with asthma said they were planning to take it, 25% are still undecided and 17% are not planning to take the vaccine at all.

“All the sources you turn to when you need information or assistance in dealing with health or medical issues…"

Ask a health professional	86%
Ask a friend or family member	68%
Use the internet	57%
Use books or other printed reference material	54%
Contact insurance provider	33%
Other option	5%

Source: Pew Internet & American Life Project Survey, November-December 2008. N=2253. Margin of error is +/-2%. *American adults 18 years and over

HINTS: Cancer Information Sources

Table 2: The most recent time you wanted information on cancer, where did you go to first?

	Age			
	< 60 (n=3584)	60-69 (n=872)	70-79 (n=715)	≥ 80 (n=415)
Source of Information				
Health Care Provider	20.9%	31.4%	44.8%	42.2%
Internet	51.4%	31.9%	16.2%	4.7%
Books	8.4%	13.8%	12.0%	13.3%
Brochures and Pamphlets	1.9%	4.2%	2.9%	7.8%
Cancer Organizations	2.0%	2.8%	3.9%	3.9%
Family	2.8%	3.5%	3.2%	7.0%
Friend/Co-Worker	2.2%	1.4%	2.6%	3.1%
Library	5.2%	4.9%	5.5%	7.0%
Magazines	2.6%	3.0%	6.2%	5.5%
Newspapers	1.2%	1.2%	1.9%	5.5%
Someone with Cancer	0.2%	0.9%	0.0%	0.0%
Telephone Information Number (1-800 Number)	0.3%	0.2%	0.0%	0.0%
Other	0.7%	0.7%	0.6%	0.0%

Source: Health information National Trends Survey, 2005 (HINTS, 2005); National Cancer Institute, DCCPS, Behavioral Research Program, Health Communication and Informatics Research Branch.

Interpersonal sources most trusted

Table 1:Trust in Information Sources by Age Group

	Age			
	< 60 (n=3584)	60-69 (n=872)	70-79 (n=715)	≥ 80 (n=415)
Source of Information				
Doctor or Health Professional *Trust a Lot*	70.2%	68.0%	65.6%	60.8%
Family and Friends *Trust a Lot*	22.4%	21.0%	19.6%	16.7%
Newspapers *Trust a Lot*	20.6%	17.1%	14.5%	13.5%
Magazine *Trust a Lot*	21.5%	18.6%	16.1%	13.5%
Radio *Trust a Lot*	12.1%	11.2%	7.1%	5.9%
Internet *Trust a Lot*	19.6%	22.4%	17.9%	20.0%
Television *Trust a Lot*	21.6%	18.4%	16.2%	11.3%

Source: Health information National Trends Survey, 2005 (HINTS, 2005); National Cancer Institute, DCCPS, Behavioral Research Program, Health Communication and Informatics Research Branch.

Interpersonal Processing of Internet Health Information

- The pursuit of health information does *not* occur in a social vacuum.
- Two-thirds of e-patients talk with someone else about what they find online, most often a friend or spouse.
- Health information-seeking/validation interactions occur with a variety of lay information sources as well as with health providers...in informal as well as in formal encounters

Source: Pew Internet & American Life Project Survey, November-December 2008. N=2253. Margin of error is +/-2%. *American adults 18 years and over

Measuring Interactive Health Literacy

The MIHL pilots

- Controlled sample of authentic health discourse
- Manageably administrated (<10 mins telephone administration)
- Manageably scored (real time, intercoder reliability)
- Variability due to interviewER and topic may be statistically accounted for (Rasch model)

Measuring Interactive Health Literacy

MIHL Outcome Indices

- Information-Seeking
  - Unprompted ISUs (per minute)
  - Prompted ISUs (per minute)
- Interactivity (conversational turns per minute)
- Conversational Assertiveness (interviewEE vocalization time percent total talk time)

Measuring Interactive Health Literacy

Elicitation script design--

- High salience topic
  - HPV (age<30)
  - Shingles (age>60)
- Conversational framing
- Deliberate information gaps
- Scripted long pauses (10 secs)
- Scripted prompts for questions (repeated to satiation)

Descriptives for MIHL Outcome Variables Among Older Adults (n=20)

	Tot mins	interviewEE talk time (%	Interactivity (conversational turns/minute)	# unprompted ISUs	# prompted ISUs
mean	8.83	20.05	8.19	1.33	1.22
s.d.	3.43	11.35	2.69	1.414	1.44

Correlative Measures

- Age
- 3-item self reported HL (Chew)
- 5-item T/F comprehension test
- 6 CAHPS items: satisfaction with provider communication

Correlations with MIHL Indices (n=19, 1-tailed, p<.05)

- Interactivity/Unprompted ISUs (.53)
- Interactivity/Self Report HL (.48)

Other Correlations of Interest

- Age/Comprehension (-.47)
- Self Report HL/Comprehension (.41)

Listenability

Just because a message is spoken doesn't make it listenable

"When a corporation is involved, of course, it may act only through natural persons as its agents or employees; and, in general, any agent or employee of a corporation may bind the corporation by his acts and declarations made while acting within the scope of his authority delegated to him by the corporation, or within the scope of his duties as an employee of the corporation." [model jury instructions, Fed District Court, Northern Dist Ill]

Listenability

Just because a text is readable doesn't make it listenable

"Follow total hip precautions (especially for the first 6 weeks).

1- No flexing hip past 90°, unless knees far apart.

2- No crossing legs unless "figure-4" exercises (taught by P.T.).

3- No turning the knee inward (especially when sitting).

4- When standing straight or extended at the hip avoid turning the foot outward more than 10°."

Listenability

Discourse characteristics of listenable messages can be determined by "reverse engineering" the conditions under which we speak.

- Fast-fading medium—temporal and memory constraints
- High context
- Thinking at the point of utterance--low planning, low focus on form

5 Elements of Listenable Language

1. **Oral-based lexis and syntax—e.g.**, verbal rather than nominalized constructions, coordinating conjunctions, few introductory prepositional phrases (see Biber, 1988)
2. **Low lexical diversity** (Halliday, 1987)
3. **Accessible rhetorical structures—e.g.**, narratives, explicit organizational cues, "flat" causal networks (Trebasso & van den Broek, 1985)
4. **Evocation of interpersonal context—e.g.**, 1st and 2nd person pronouns, imperative mood (Ong, 1984)
5. **Considerateness**—e.g., predictable information flow, redundancy, coherence, abiding by conversational maxims (Arbruster, 1984).

High Listenable Discharge Instructions (oral-based style)

"Let's say you get home from the hospital and you feel your medical condition is deteriorating. Maybe you're feeling chest pain. Or maybe your incision is turning red, swelling, or giving you pain. Maybe the stuff draining from your incision has a foul smell or yellow discharge. Or let's say you have shortness of breath that doesn't go away, even if you rest. If you experience any of those signs, you better go immediately to your nearest emergency room."

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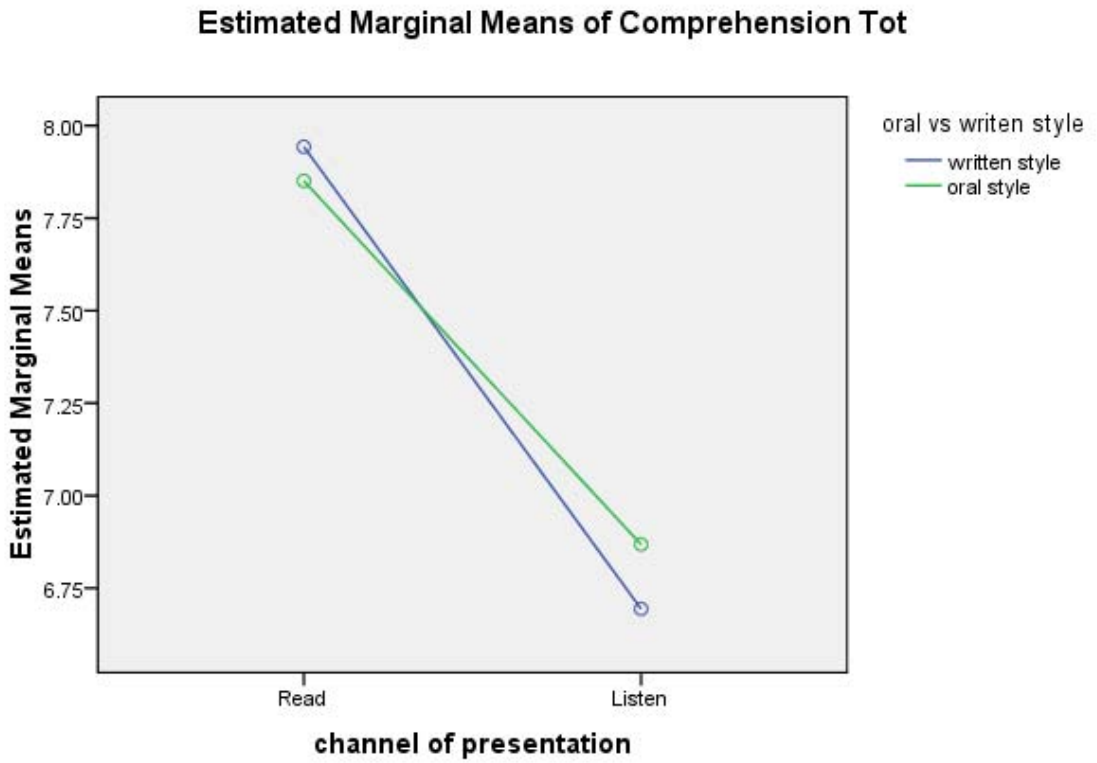
Moderate Listenable Discharge Instructions (writing-based style)

"There is a small possibility that a patient's medical condition may deteriorate, including but not limited to experiencing any of the following. In that case the patient should go immediately to the nearest emergency room. Following evaluation by the emergency room physician, the doctor will notify the surgeon on call at our practice."

Dependent Variables

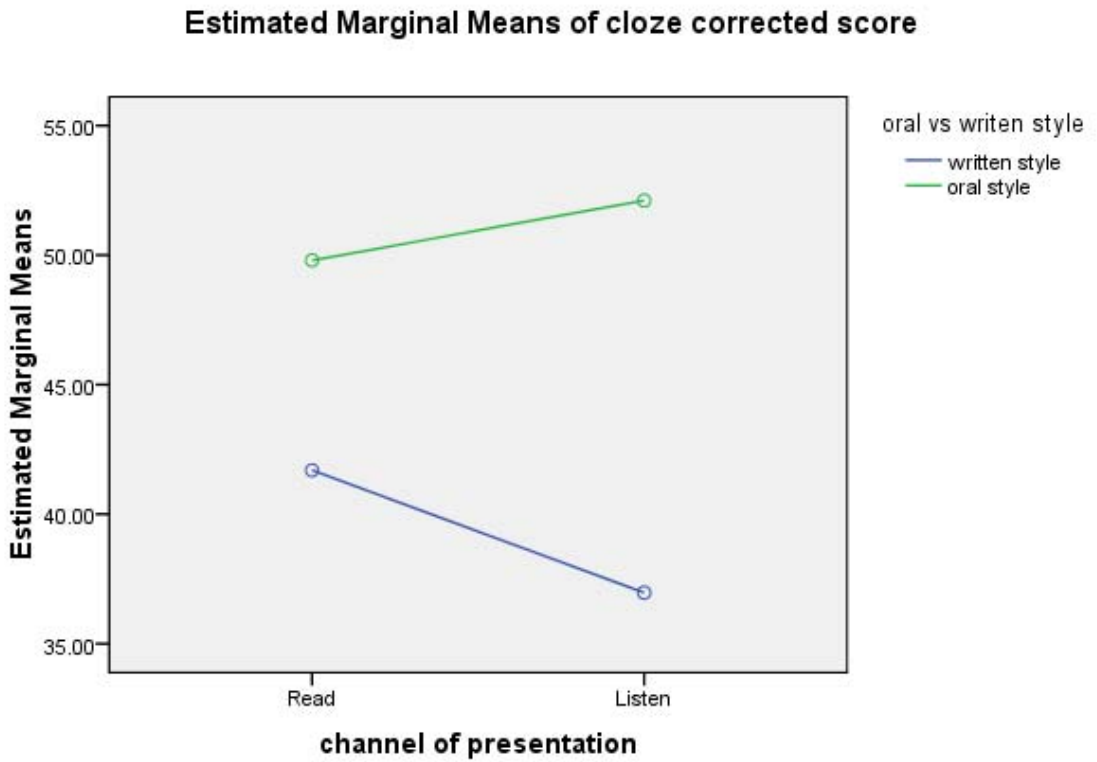
- 10-item multiple choice comprehension test
- Cloze test of comprehension (every 6th content word deleted)
- 4-item Amount of Invested Mental Effort
- COVARIATE: 1-item self-reported prior knowledge of surgical recovery
- Oral- and written- scripts matched on readability (9.5)

Finding: Reading comprehension exceeds listening comprehension across oral-based and writing-based styles



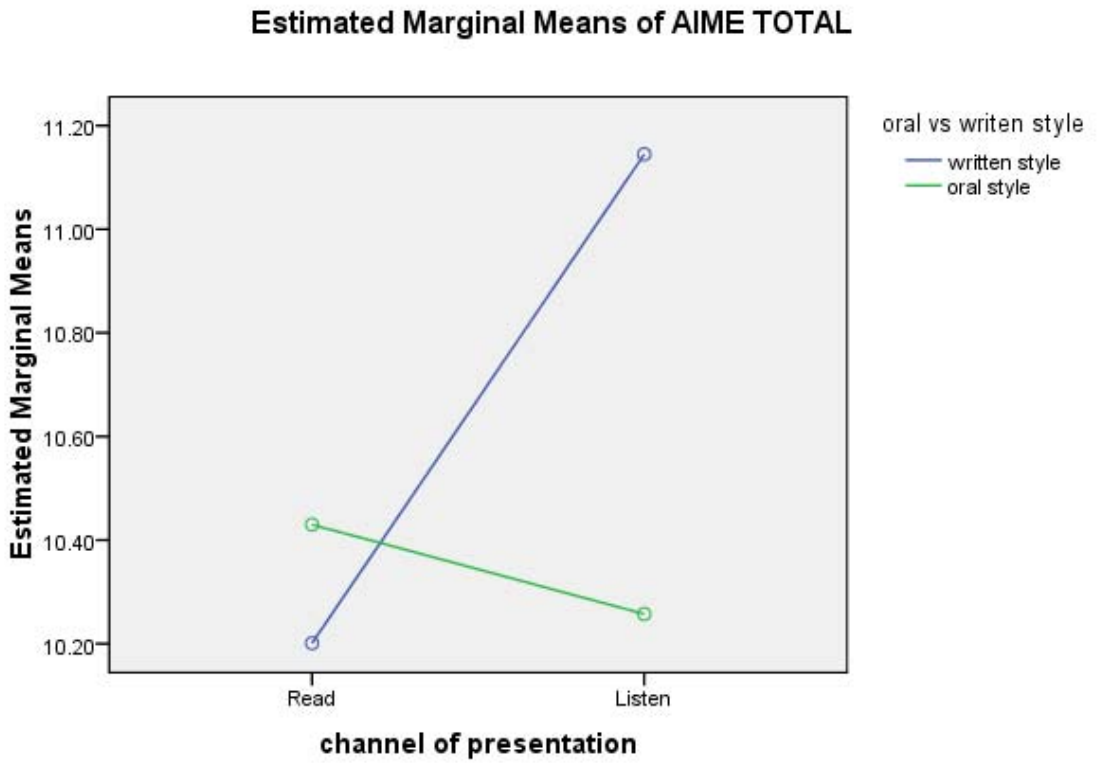
Covariates appearing in the model are evaluated at the following values: Heart surgery familiar = 3.02

Finding: Oral-based style easier to comprehend than writing-based style, regardless of channel of presentation



Covariates appearing in the model are evaluated at the following values: Heart surgery familiar = 3.02

Finding: Oral-based style requires equal effort in reading and in listening; but written-based style requires more effort when listening



Covariates appearing in the model are evaluated at the following values: Heart surgery familiar = 3.02

General Conclusions

- Interpersonal interaction—with lay persons as well as with health providers—is central to health literacy
- Propensity to actively seek health information in interaction is measurable
- Listening to orally presented health information often constrains comprehension.
- In such oral interaction, listenable language facilitates uptake of health information.