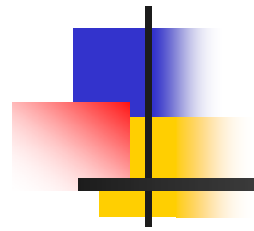


Differences between mail and telephone interviewing modes for collection of Kessler's scale for Nonspecific Psychological Distress.



David Cantor
Brett McBride
Katherine Kaufmann

Westat

FedCasic, March 18, 2010



Issues discussed in this presentation

- Are there mode effects related to Kessler's K6 scale for nonspecific psychological distress (NPD)?
 - Modes examined:
 - paper self-administered,
 - interviewer administered telephone
 - in-person interviewer administered
- Do effects differ by population groups?
- How are relationships with K6 affected?



Self-Administered K-6

The following questions ask about how you have been feeling during the **past 30 days**. For each question, please circle the number that best describes how often you had this feeling.

Q1. During the past 30 days, about how often did you feel ...	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a. ...nervous?	1	2	3	4	5
b. ...hopeless?	1	2	3	4	5
c. ...restless or fidgety?	1	2	3	4	5
d. ...so depressed that nothing could cheer you up?	1	2	3	4	5
e. ...that everything was an effort?	1	2	3	4	5
f. ...worthless?	1	2	3	4	5

taken from website for National Co-Morbidity Study, April 26, 2009, at <http://www.hcp.med.harvard.edu/ncs/ftplib/k6/K6+self%20admin-3-05-%20FINAL.pdf>



K-6 is used on many surveys

- In the US
 - National Health Interview Survey
 - National Survey of Drug Abuse and Health
 - Medical Panel Survey
 - National Co-Morbidity Study
- Outside the US
 - Australia
 - Canada
 - Others....



Question: Is K-6 subject to Social Desirability Bias?

- Impression vs self-deception (Paulhaus, 2003)
- It can be difficult to predict which items will be subject to social desirability bias
 - Depends on judgment of individual respondent
 - Depends on the respondent's need for social approval



Social Desirability Bias leads to mode effects

- Self vs Interviewer-administered questionnaires (Tourangeau and Smith, 1996)
- Are there different effects across telephone and in-person surveys?
 - Telephone is generally like in-person (de Leeuw, 2005)
 - Some exceptions where telephone has been found to exhibit less SD bias
- Prior research related mental health items (Ravens-Sieberer, et al, 2008)



Analytic Approach: Mail vs Telephone

- Health Information National Trends Survey III
 - Sponsor: National Cancer Institute
 - Topic: Methods to get health information, especially about cancer
 - Population: Adults 18+ in the US
- Dual Frame, dual mode survey
 - Mail survey using national sample of addresses
 - Random digit dial survey of households with a landline telephone number
- Compare K-6 items for mail and telephone



HINTS III Results

Mail Component

- Frame: USPS addresses
- Response rate: 31%
- n of completes = 3582
- Coverage – civilian non-institutional

Telephone

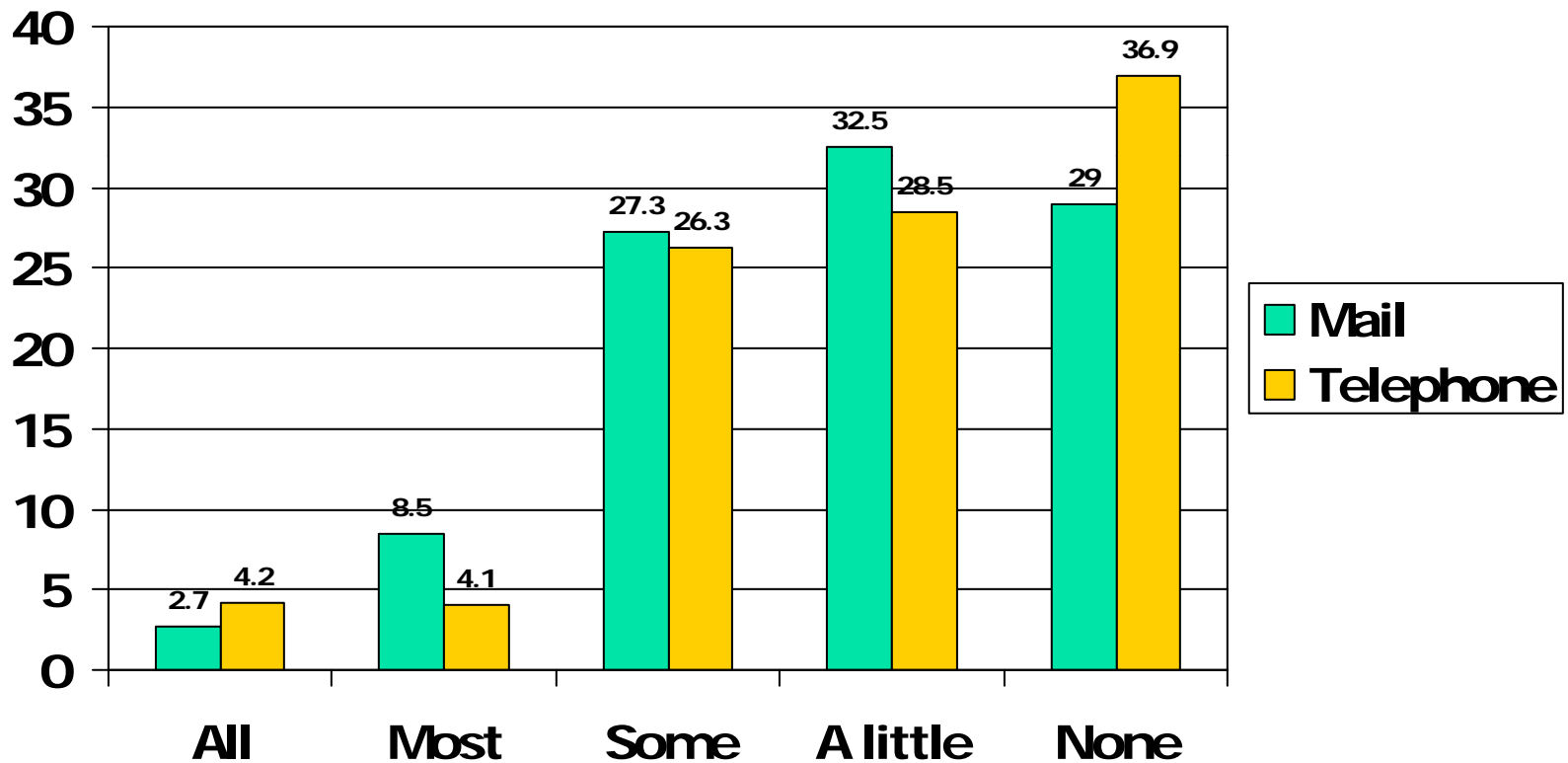
- Frame: Random Digit Dial
- Response Rate: 24%
- n of completes = 4081
- Coverage – civilian non-institutional with a landline telephone



HINTS III Adjustments

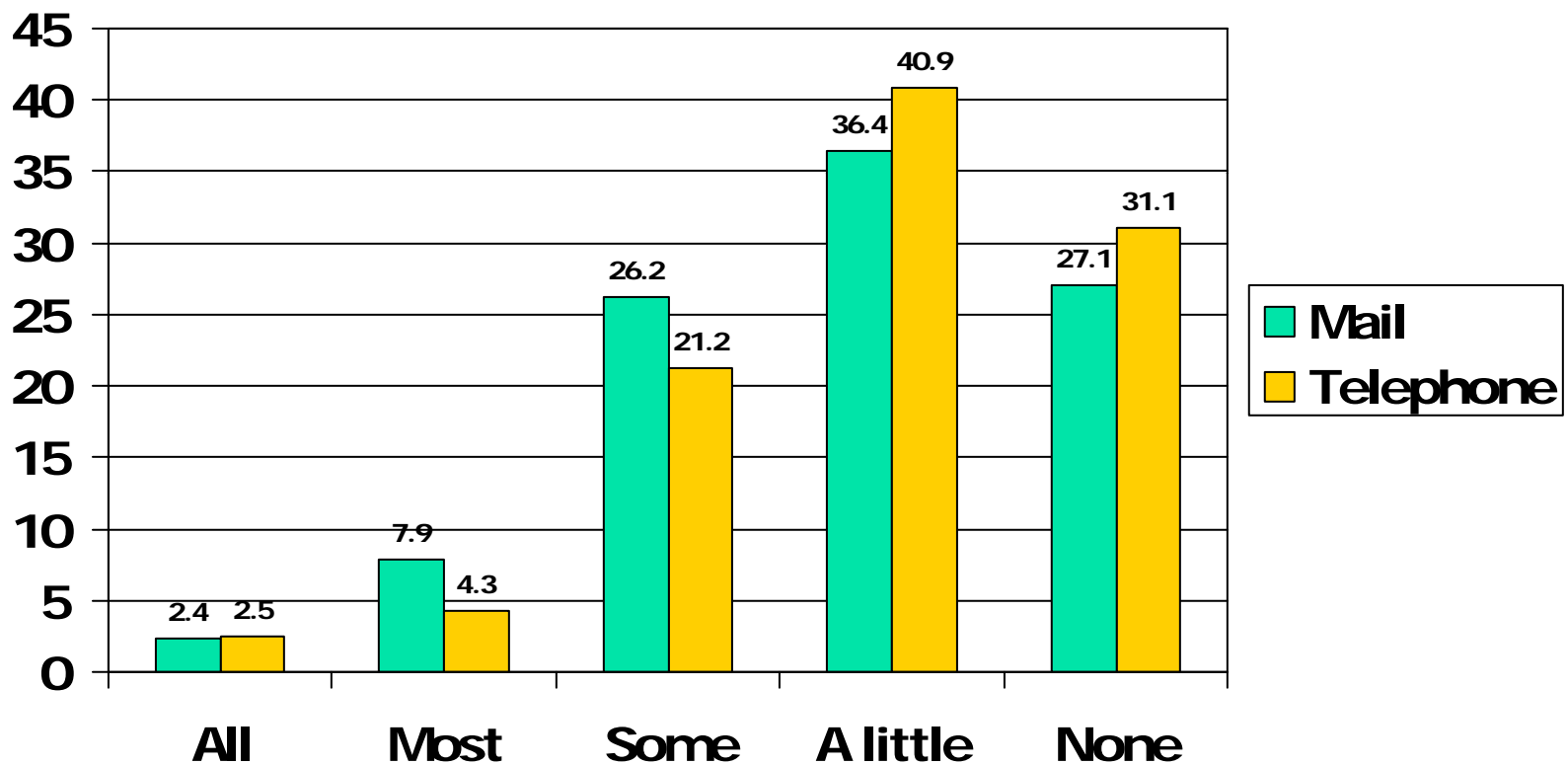
- Both mail and RDD under-represent particular groups (Han and Cantor, 2007)
 - young adults, males, low education
 - healthy adults
- Weights computed for each mode with adjustments for
 - age, race, education, income
 - cancer status and health insurance status

Comparison of Mail vs Telephone: Feel restless or fidgety?



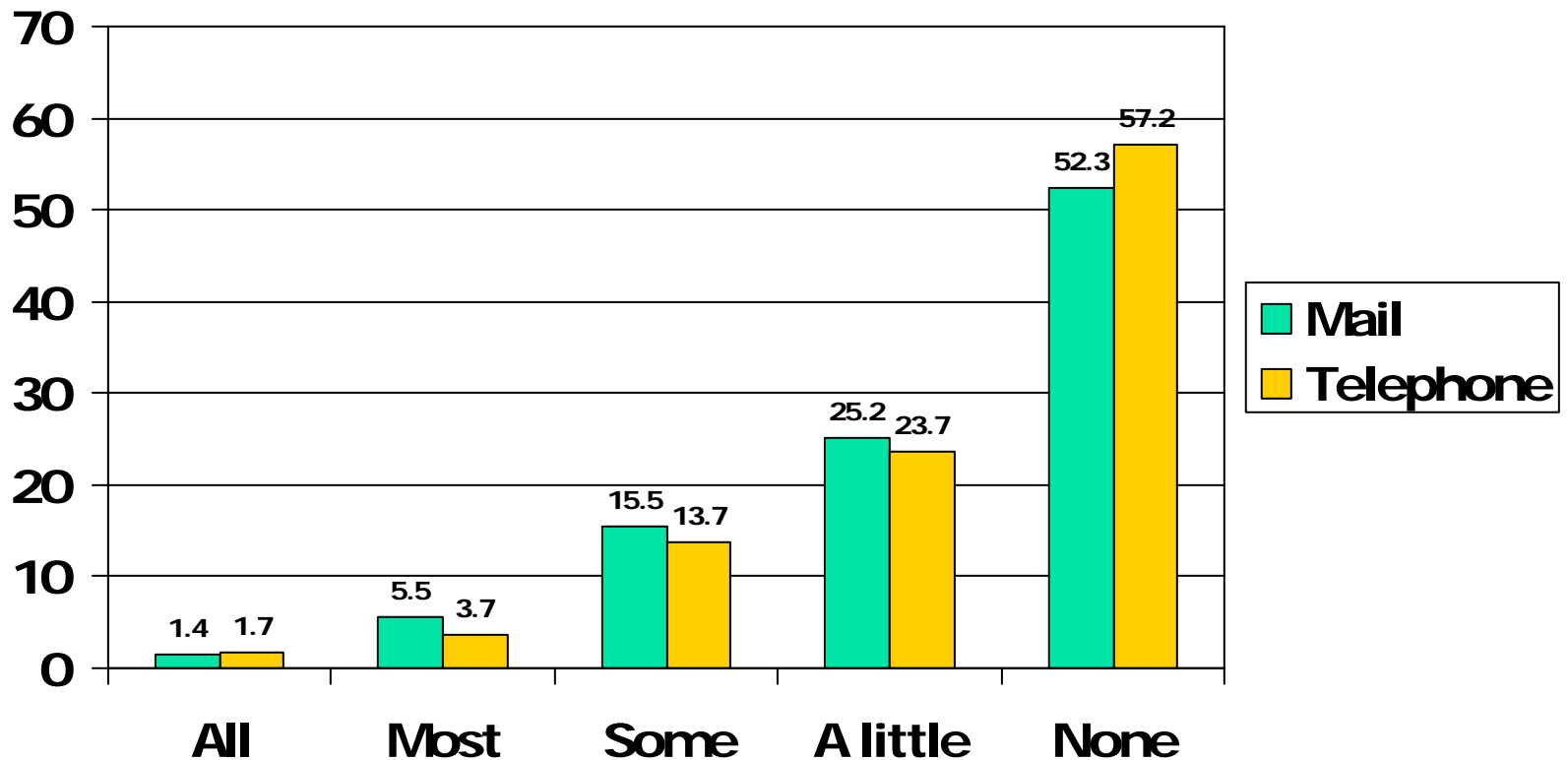
All, Most, A little, None significant at $p < .01$

Comparison of Mail vs Telephone: Feel nervous?



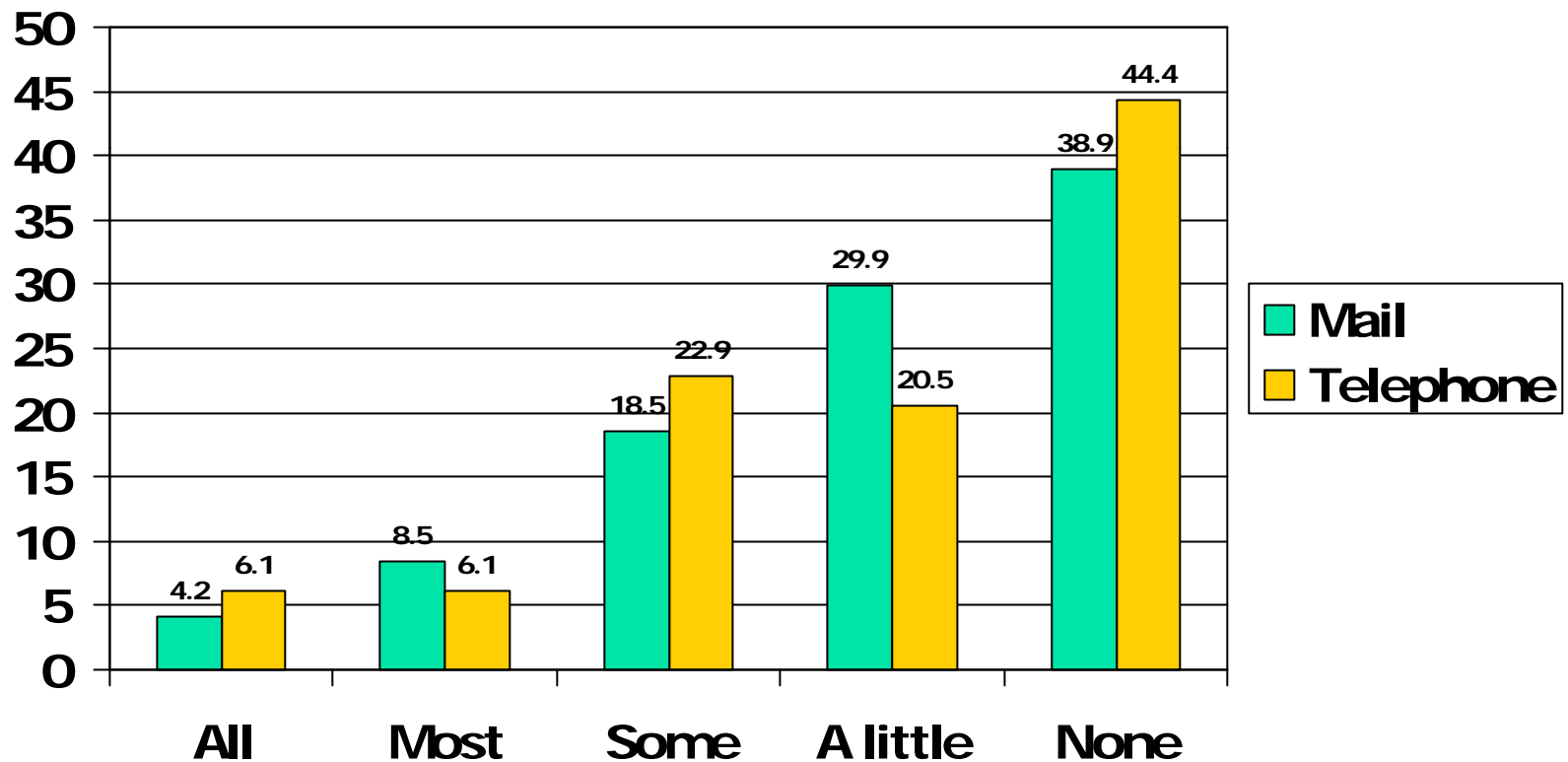
Most, Some, A little and None significant at $p < .01$

Comparison of Mail vs Telephone: Feel so sad that nothing could cheer you up?



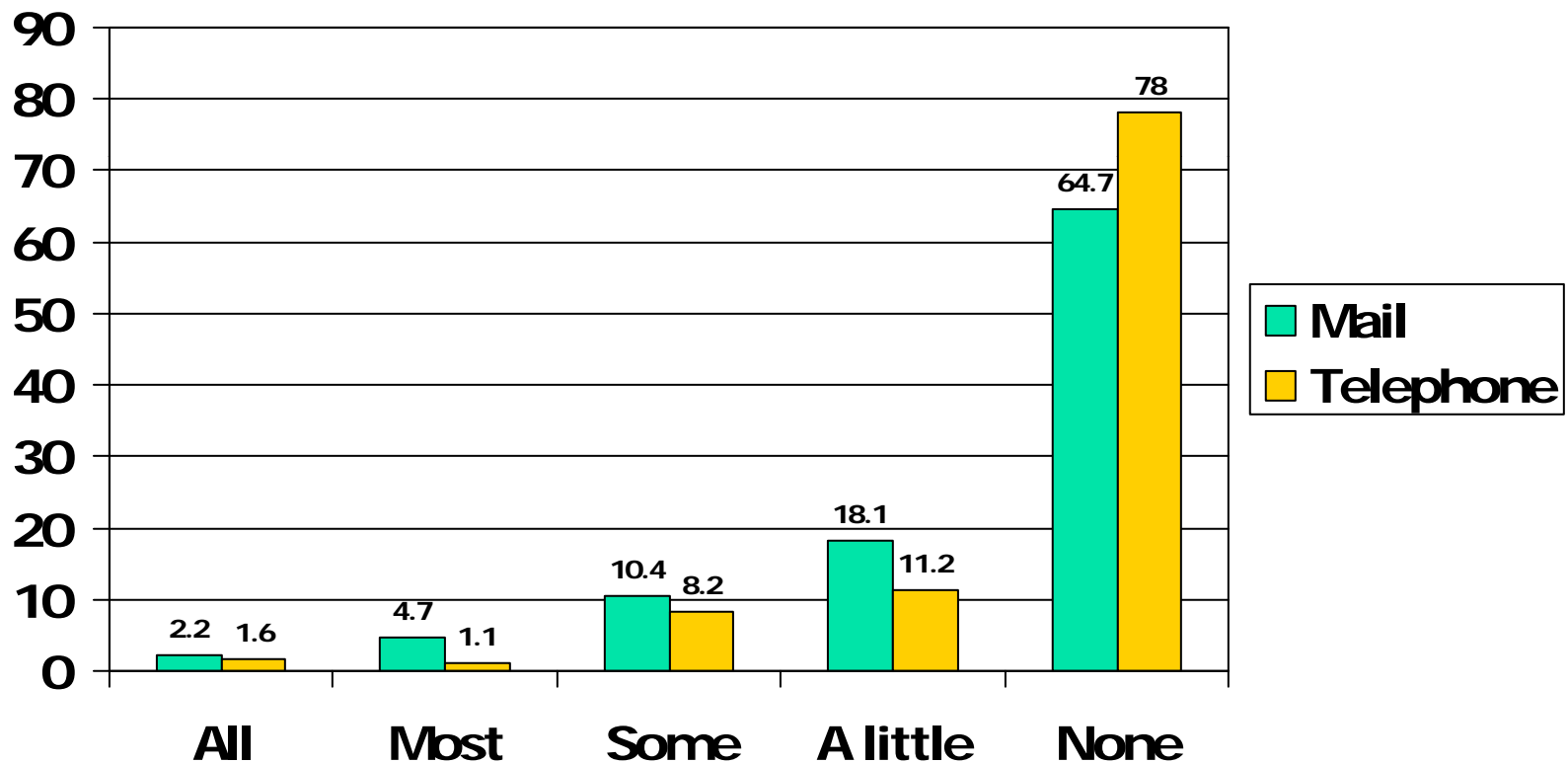
Most, None significant at $p < .05$

Comparison of Mail vs Telephone: Feel everything was an effort?



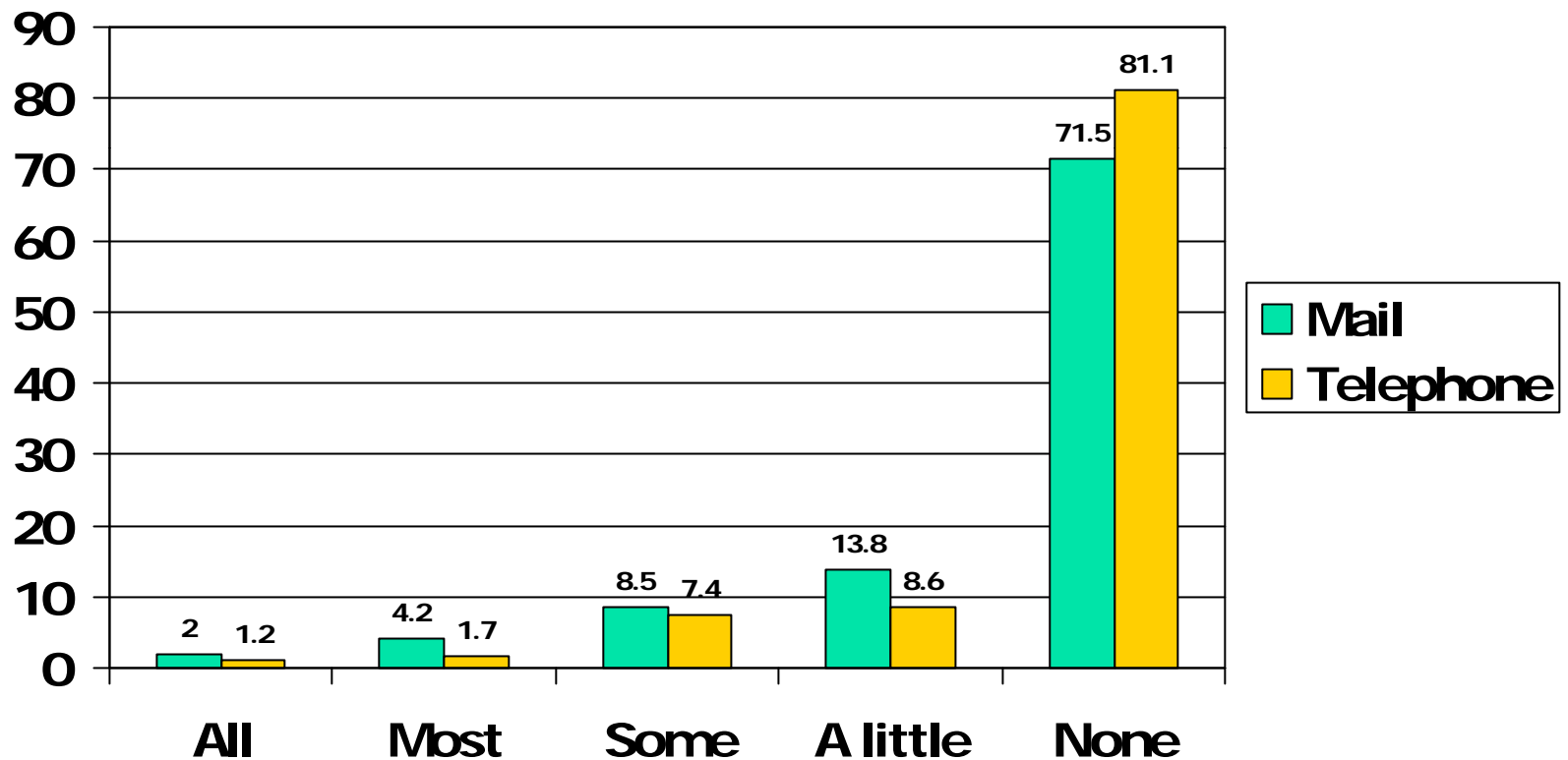
All, Most, Some, A little, None significant at $p < .01$

Comparison of Mail vs Telephone: Feel hopeless?



Most, A little, None significant at $p < .001$

Comparison of Mail vs Telephone: Feel worthless?



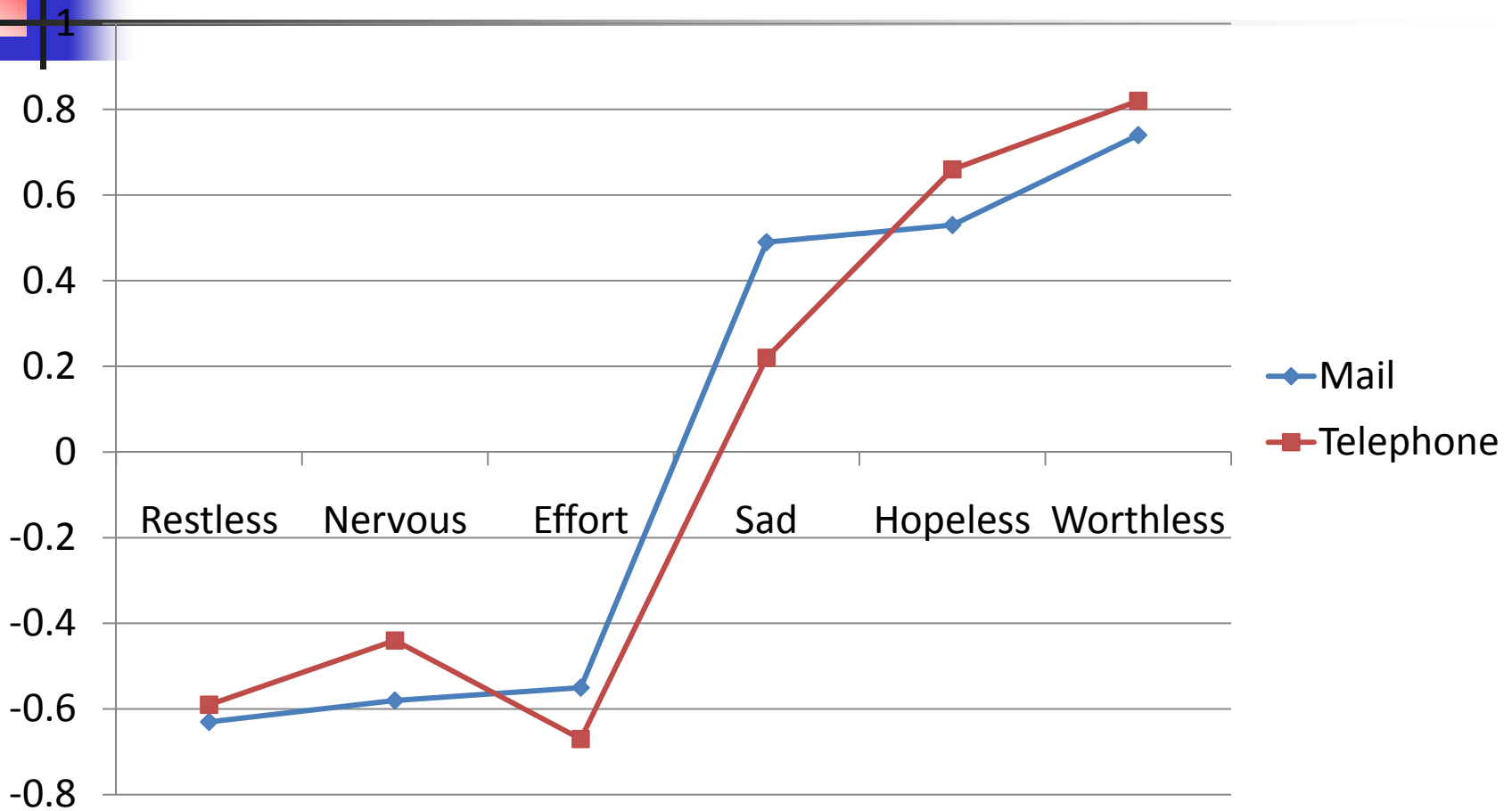
Most, A little, None significant at $p < .01$



Item Response Theory: Relationship Among the Items

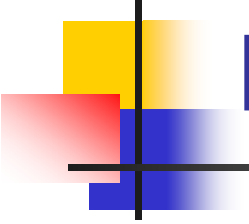
- Which emotions are reported most frequently?
 - Least frequent may be the most subject to social desirability
 - Least frequent indicative of most severe behavior (?)
- Are the scales similar with respect to frequency (IRT = item difficulty)?

Relationship of Items by Mode: IRT "Difficulties"



Relationship of Items by Mode: IRT "Difficulties"

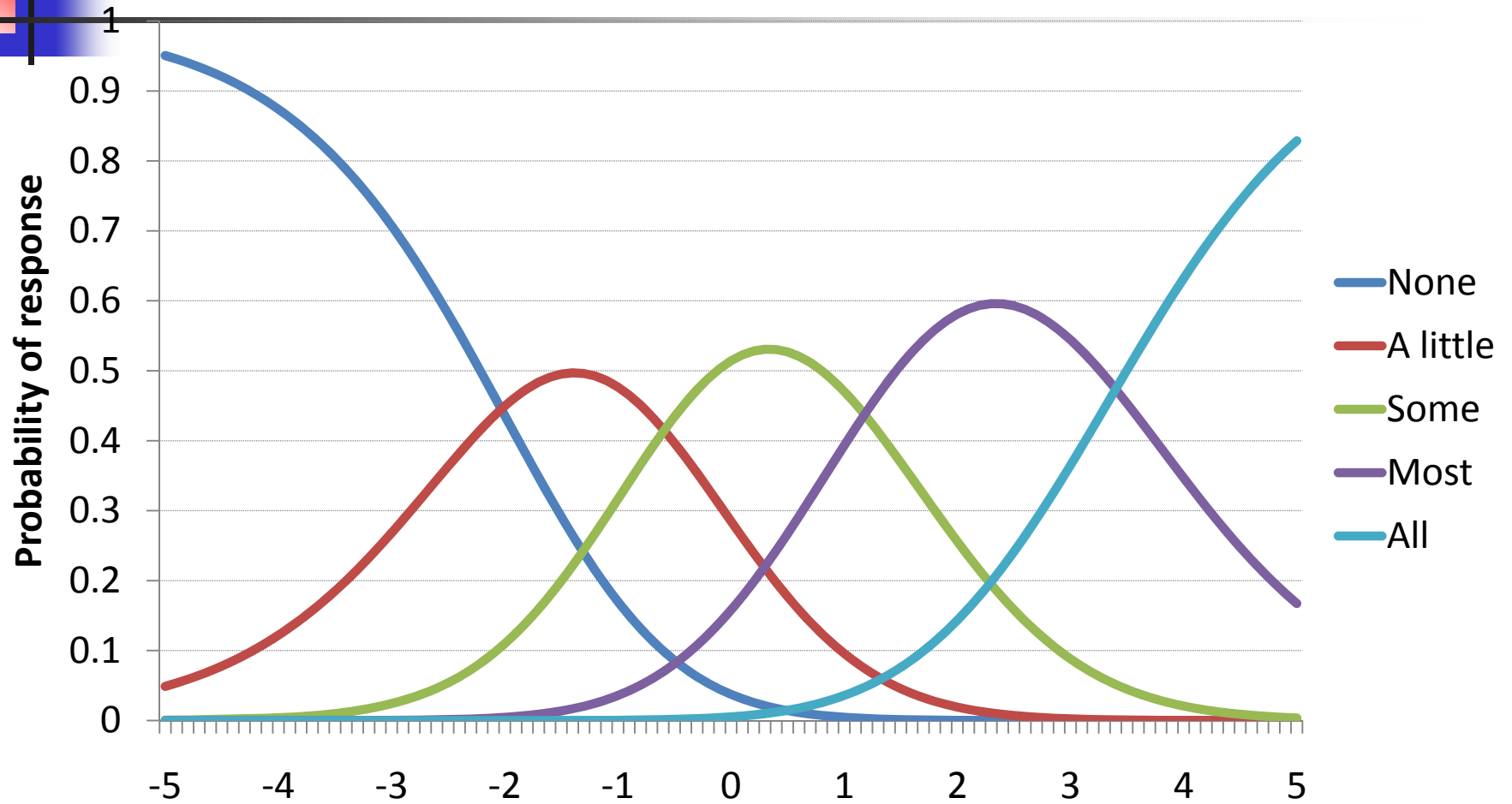




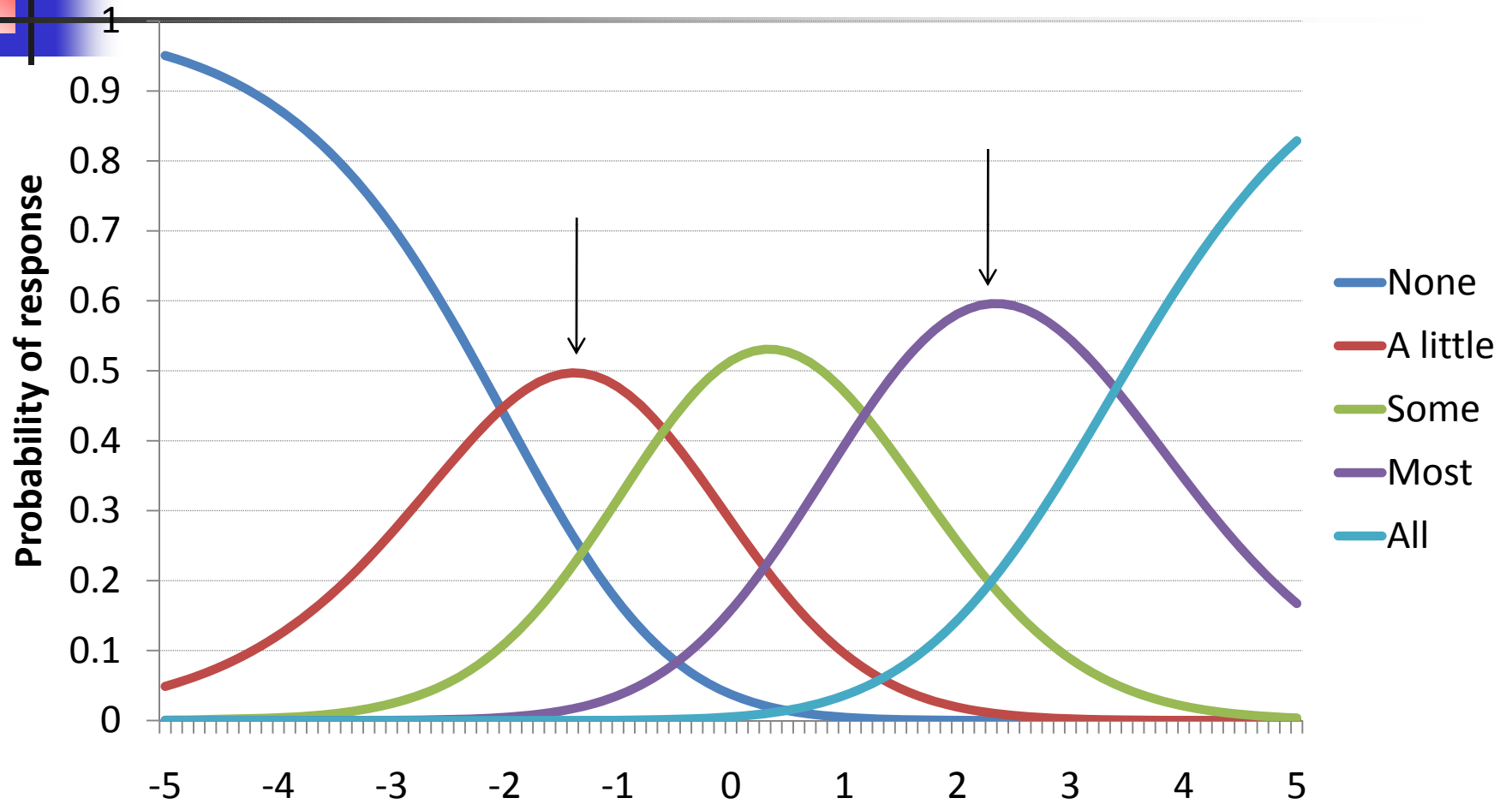
Item Response Theory: How do the scales work?

- Does the interpretation of response categories differ by mode?
 - How do respondents use the 5-point scales for the items
 - Endpoints vs middle of scales
 - “None” vs other categories
- IRT evaluates whether points on the scale are used in a consistent way across items with different levels of difficulty

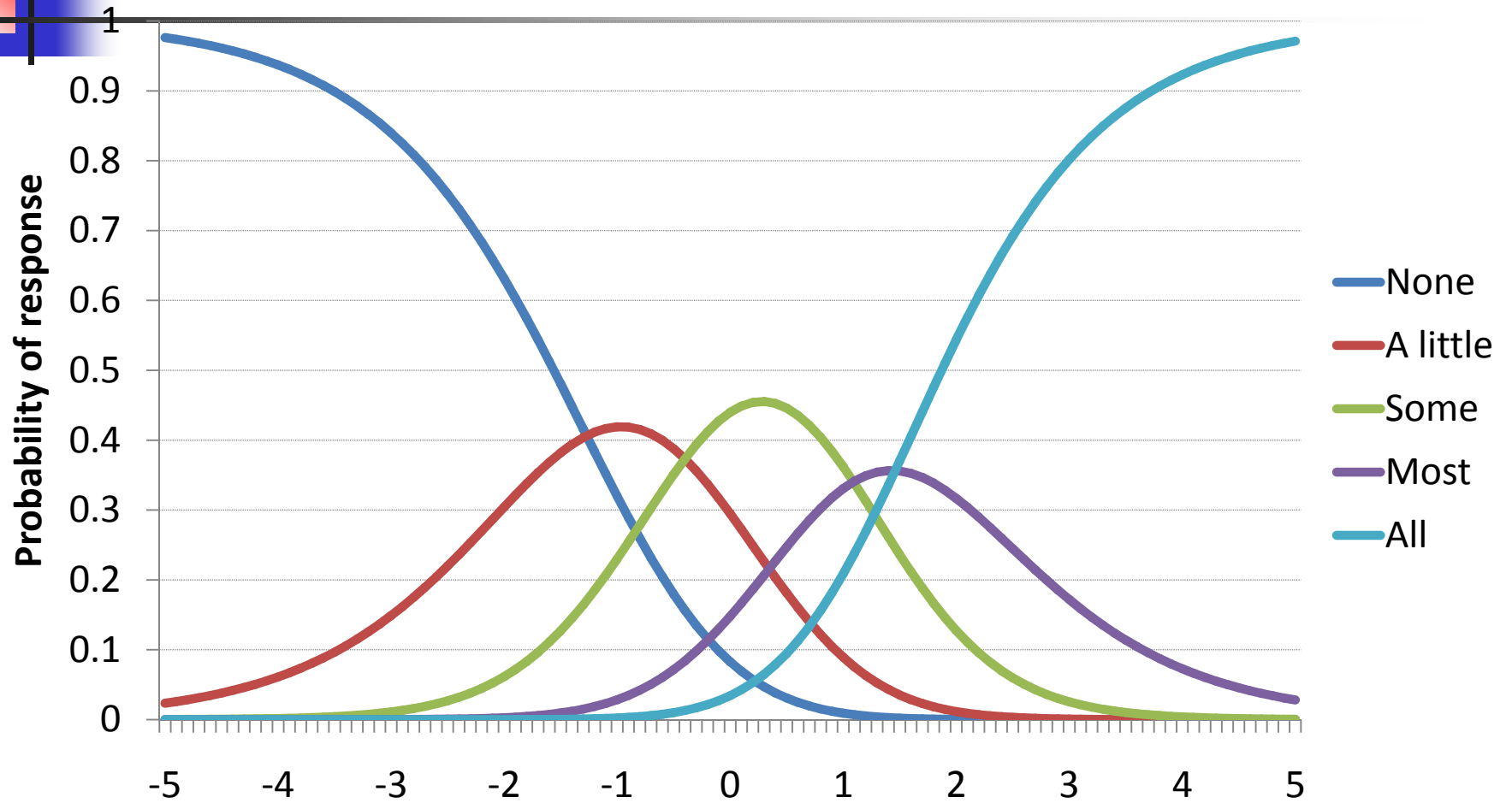
ICC Graph: "Sad" Question in Mail Mode



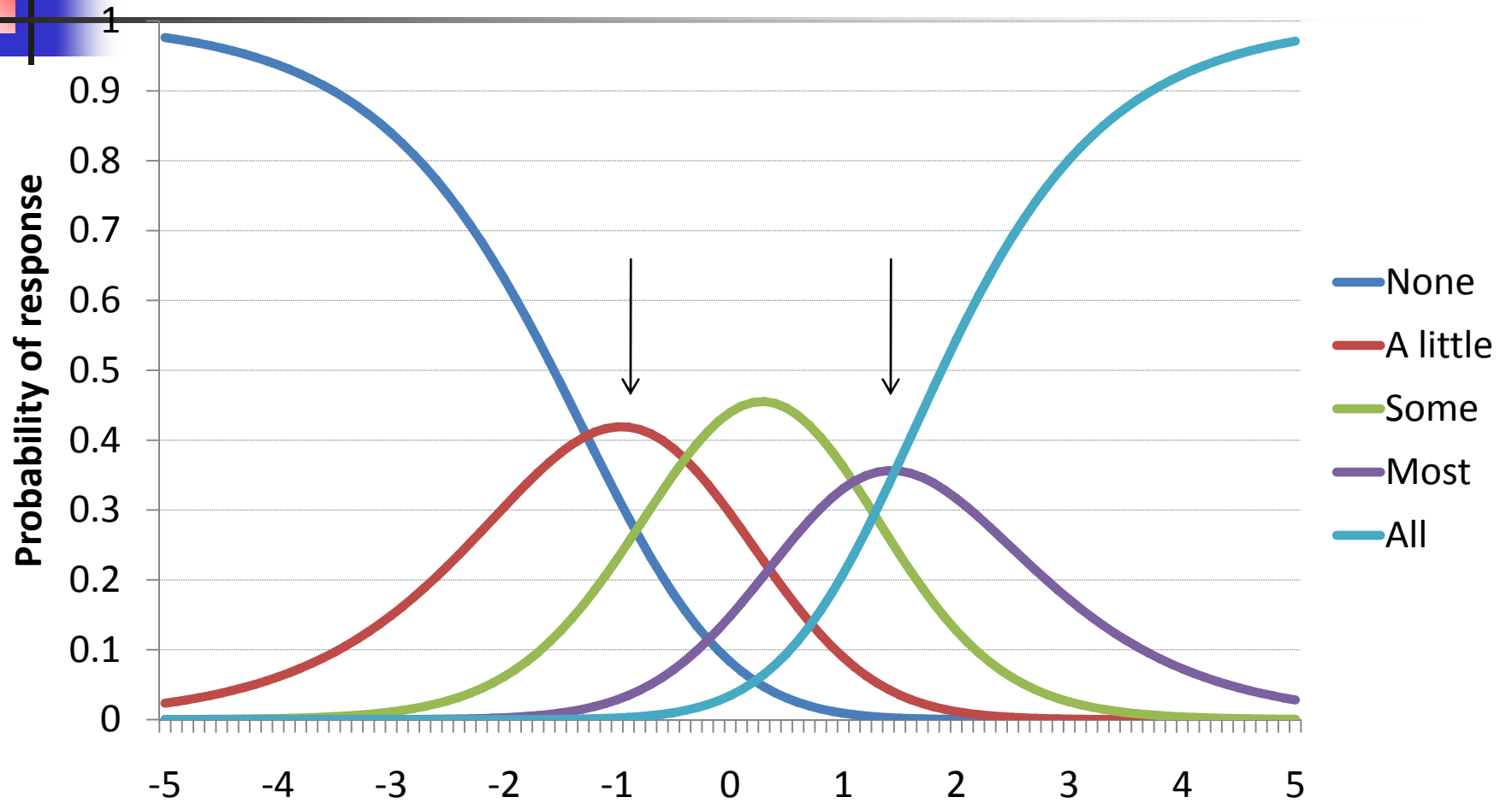
ICC Graph: "Sad" Question in Mail Mode



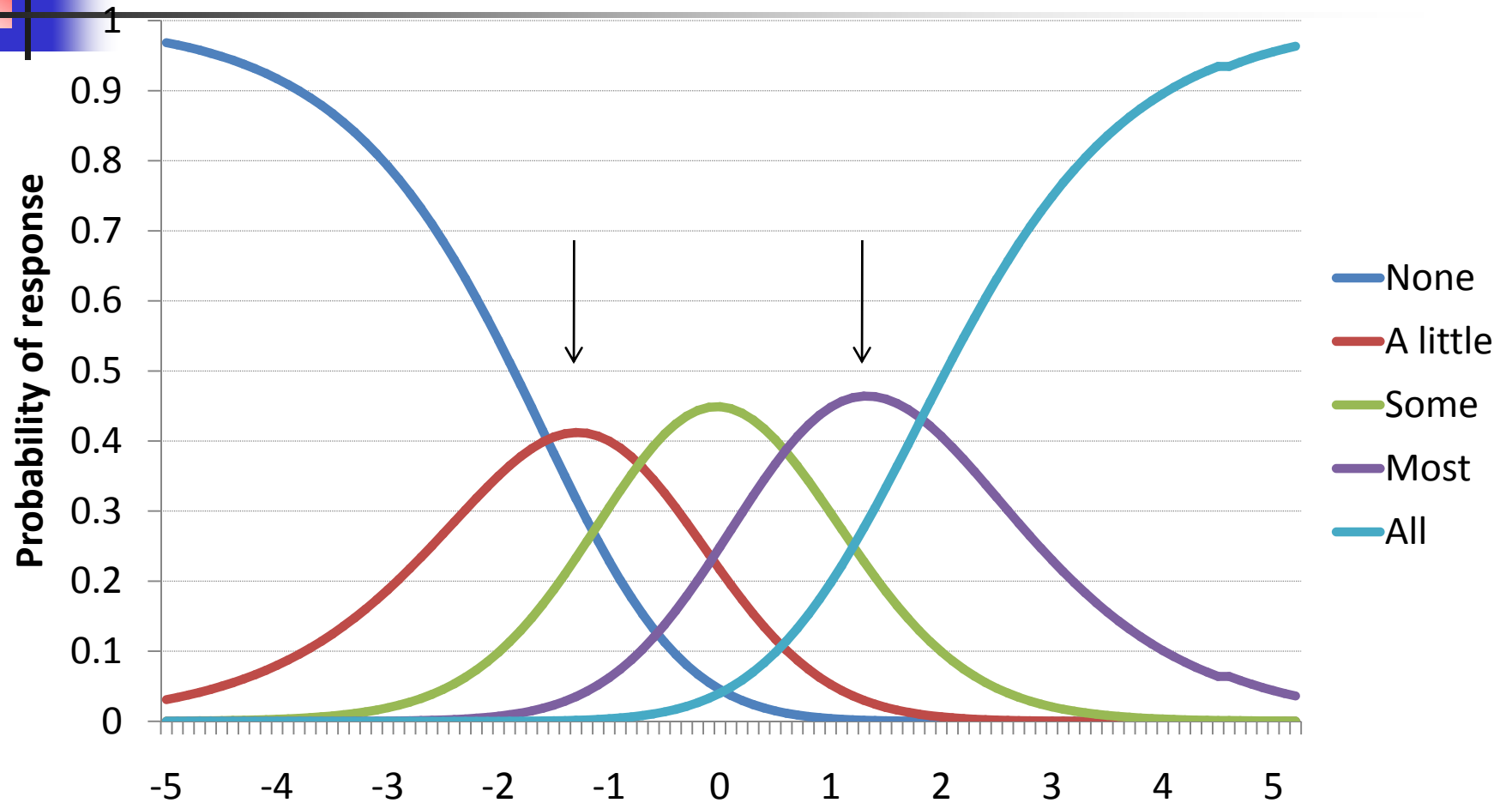
ICC Graph: "Sad" Question in RDD Mode



ICC Graph: "Sad" Question in RDD Mode

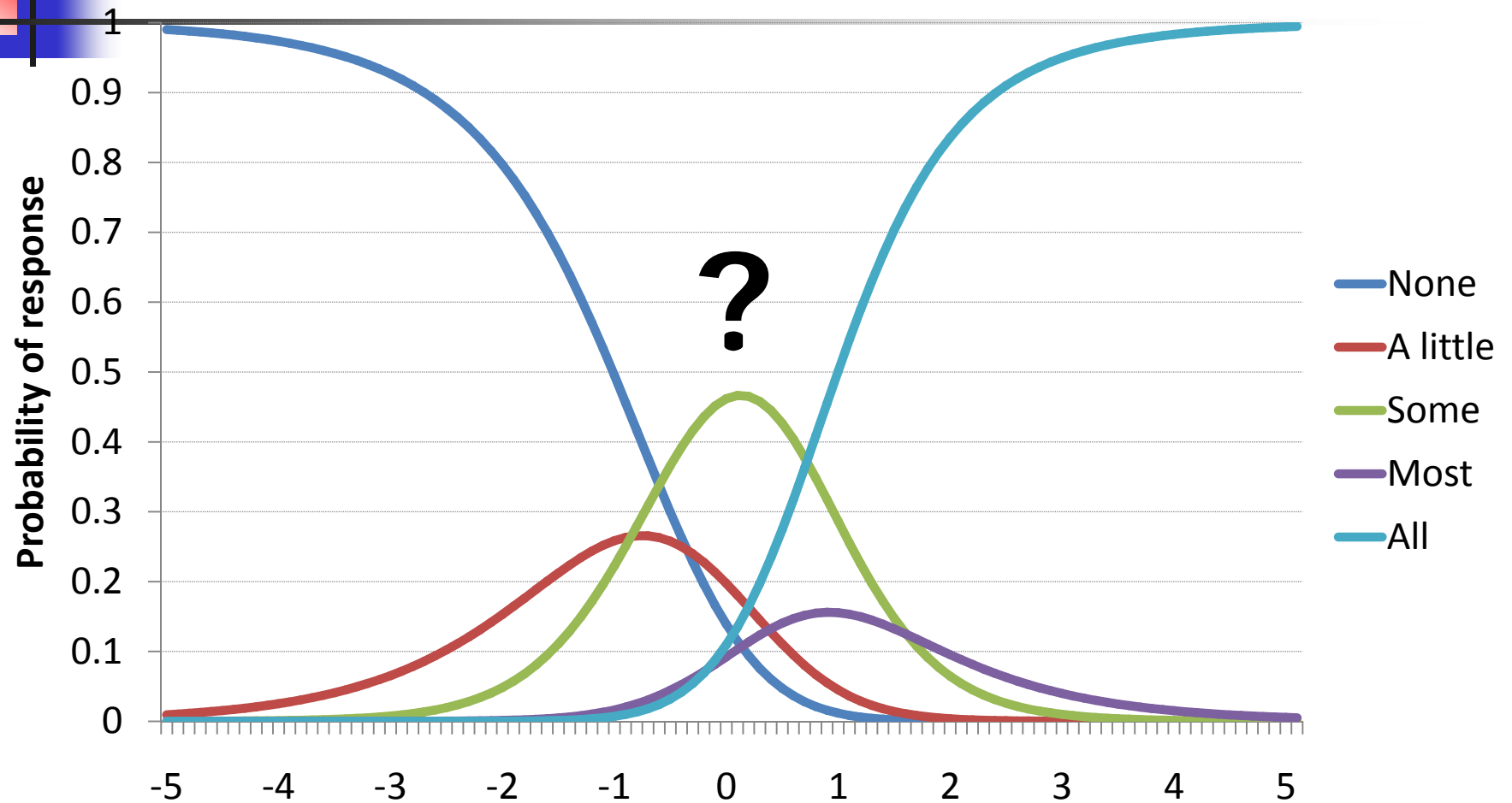


ICC Graph: "Hopeless" Question in Mail Mode



ICC Graph:

"Hopeless" Question in RDD Mode

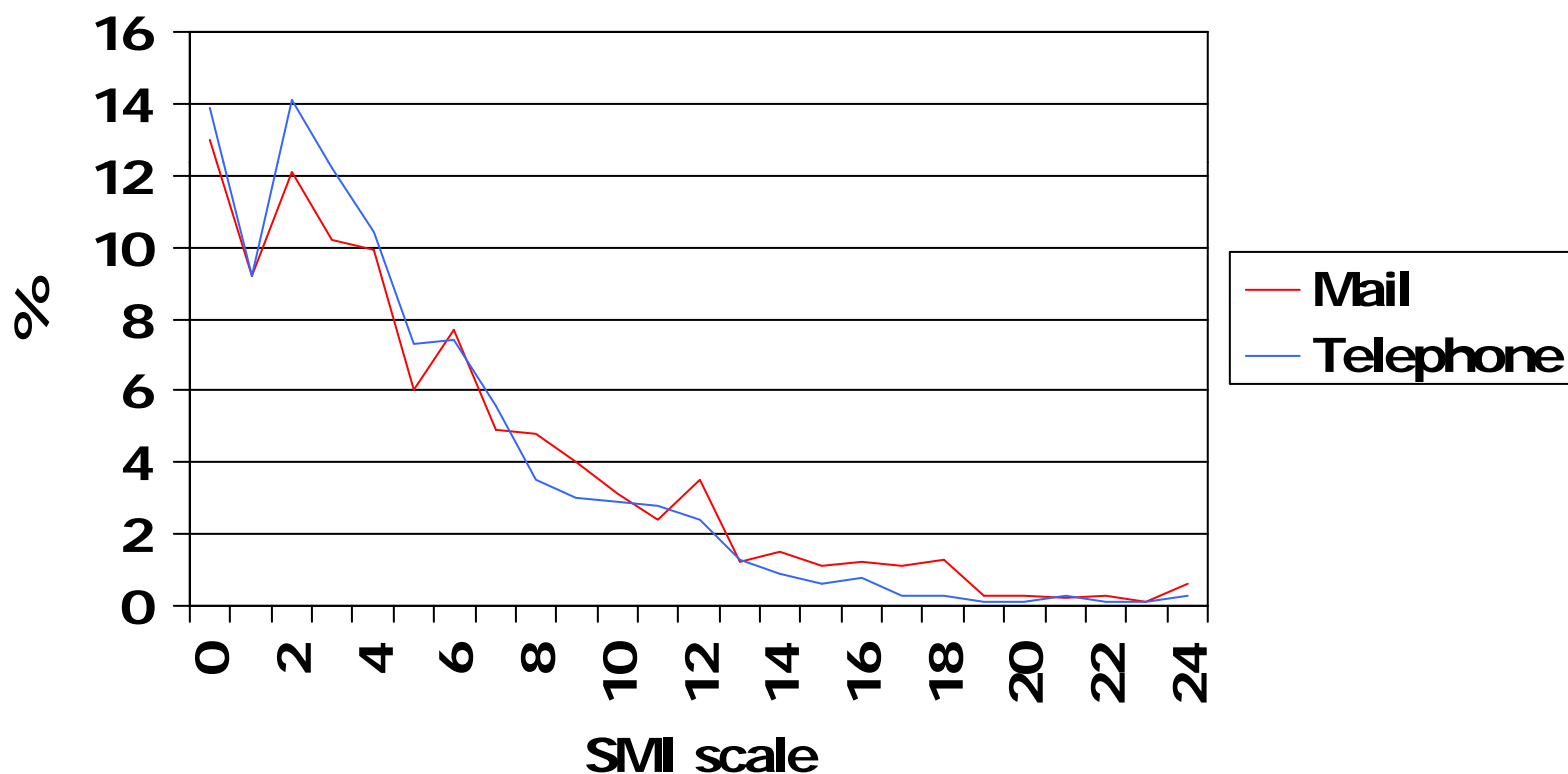




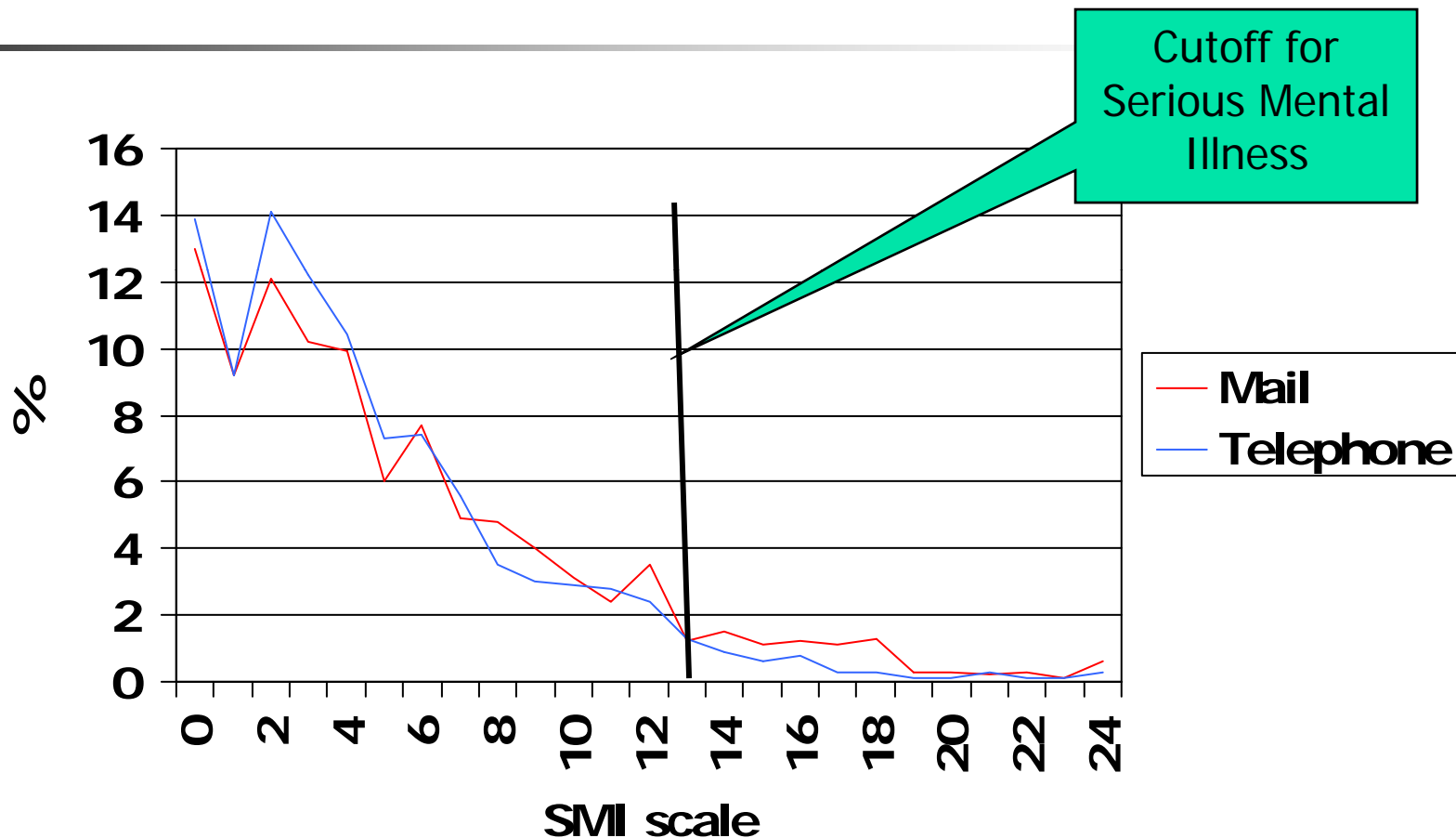
Scale Measuring Serious Mental Illness (SMI)

- Add up all items
 - 0 = never....4=all of the time
 - Scale ranges from 0 to 24
- 13 is cutoff for classifying as SMI (Kessler, et al 2003)
- Mail is significantly higher than telephone on percent with SMI (9.1% vs 5.2%; $p < .0001$)

Distribution of SMI scale by mode of interview



Distribution of SMI scale by mode of interview

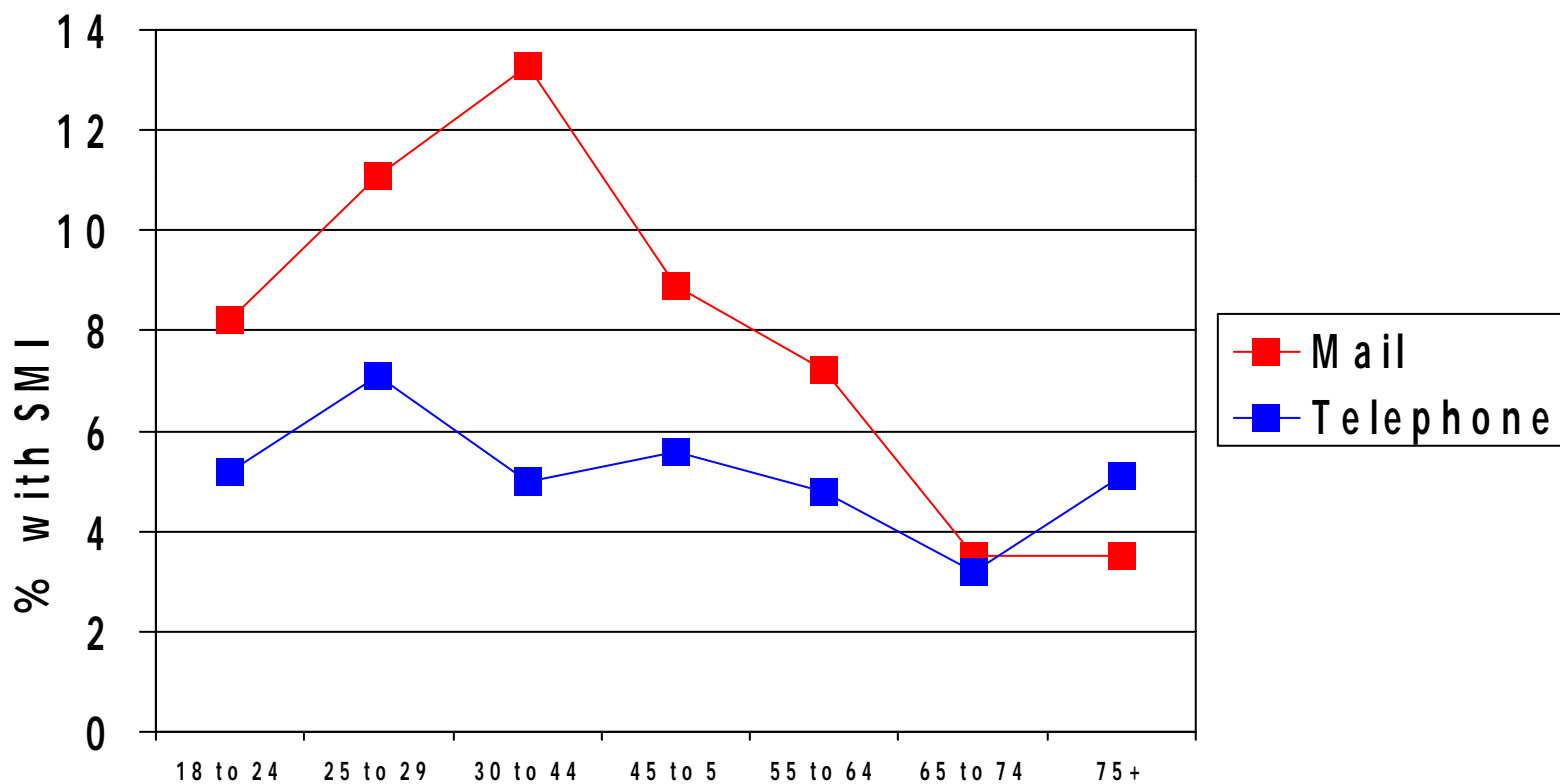




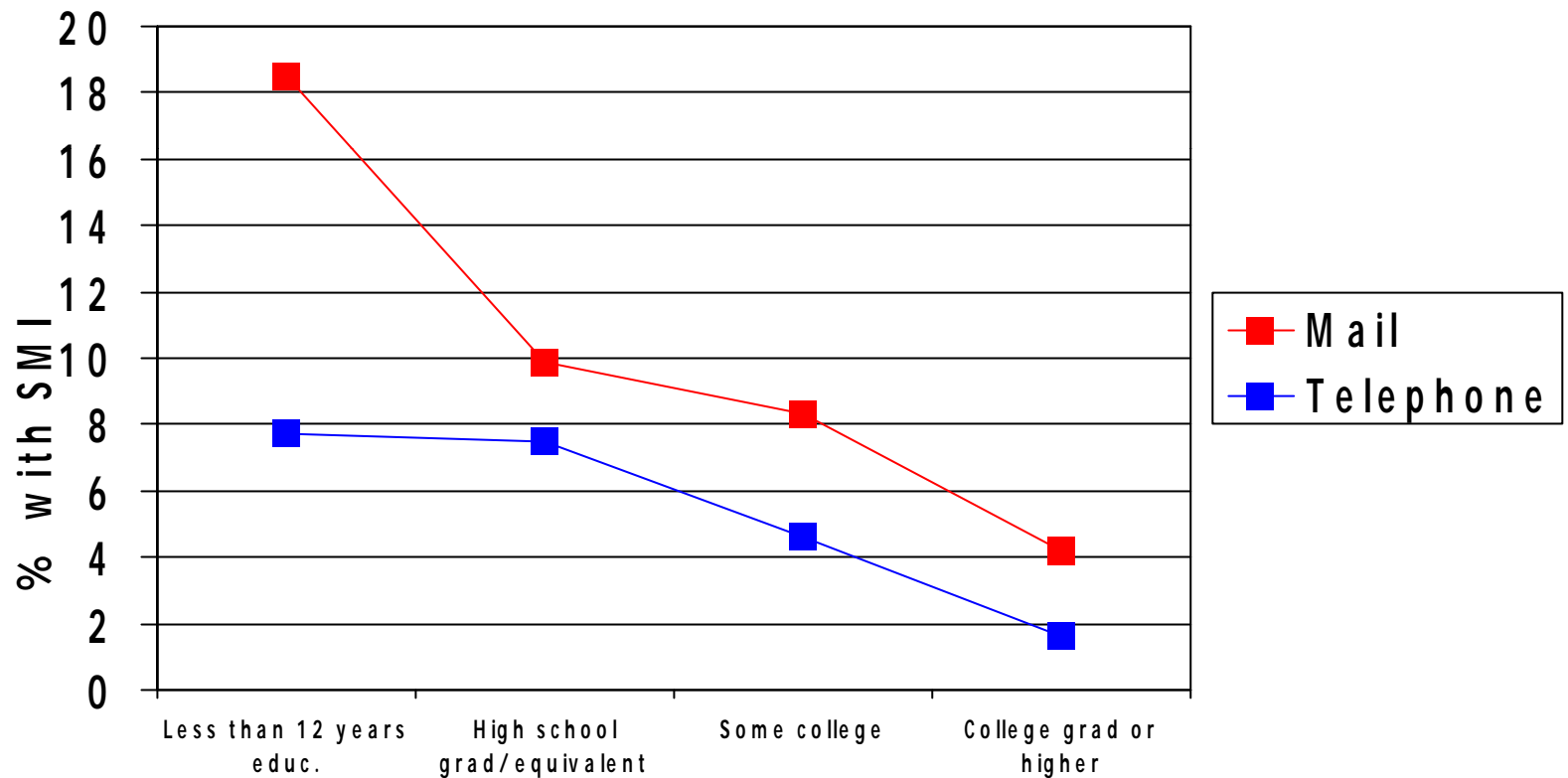
Differences by Demographics?

- Is the relationship between SMI and demographic characteristics different by mode of interview?
 - Age
 - Education
 - Income
 - Race & Ethnicity

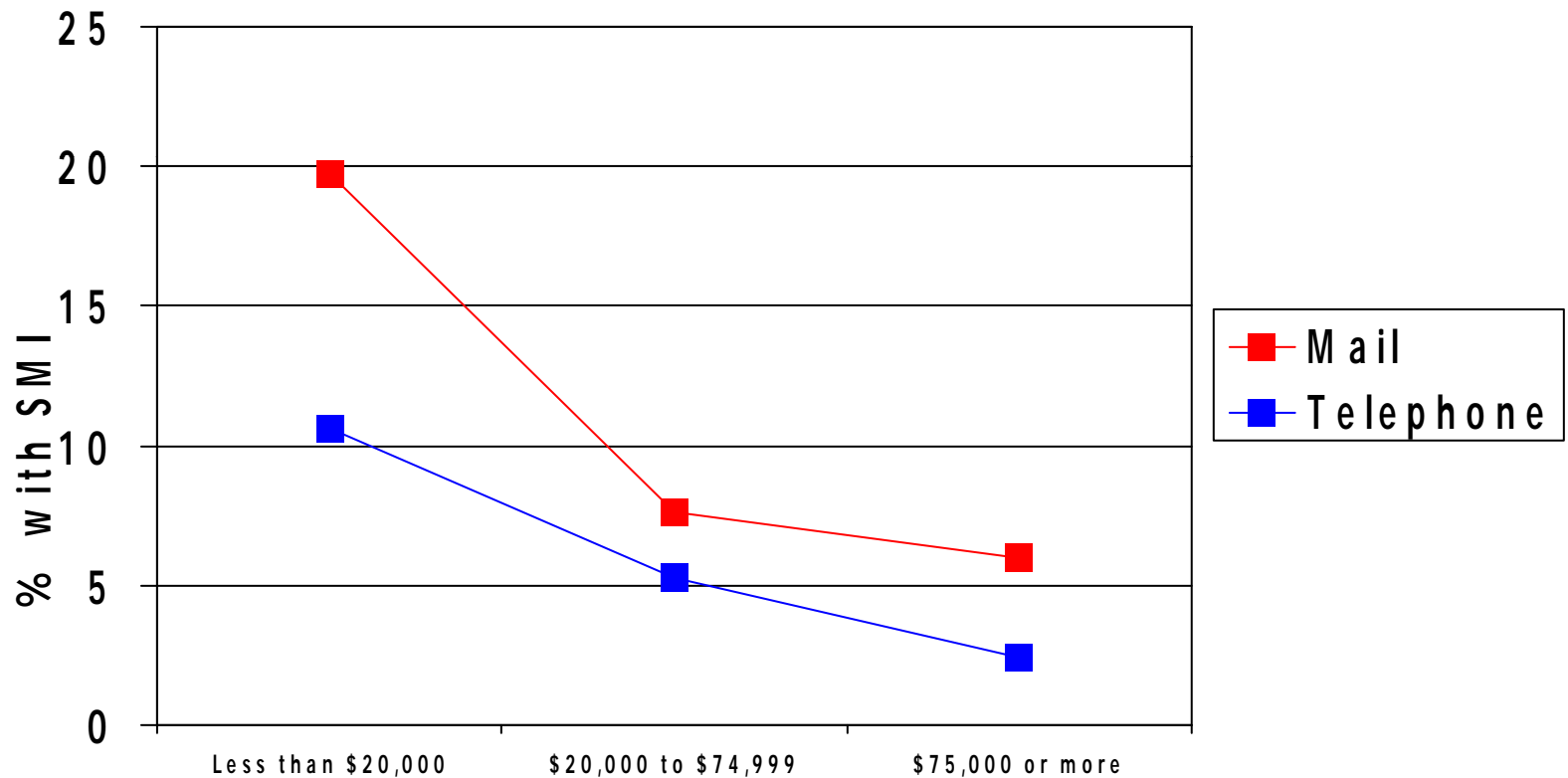
% with Serious Mental Illness by Age and Mode of Interview



% with Serious Mental Illness by Education and Mode of Interview



% with Serious Mental Illness by Income and Mode of Interview



Do Mode Effects Differ by Population Group?

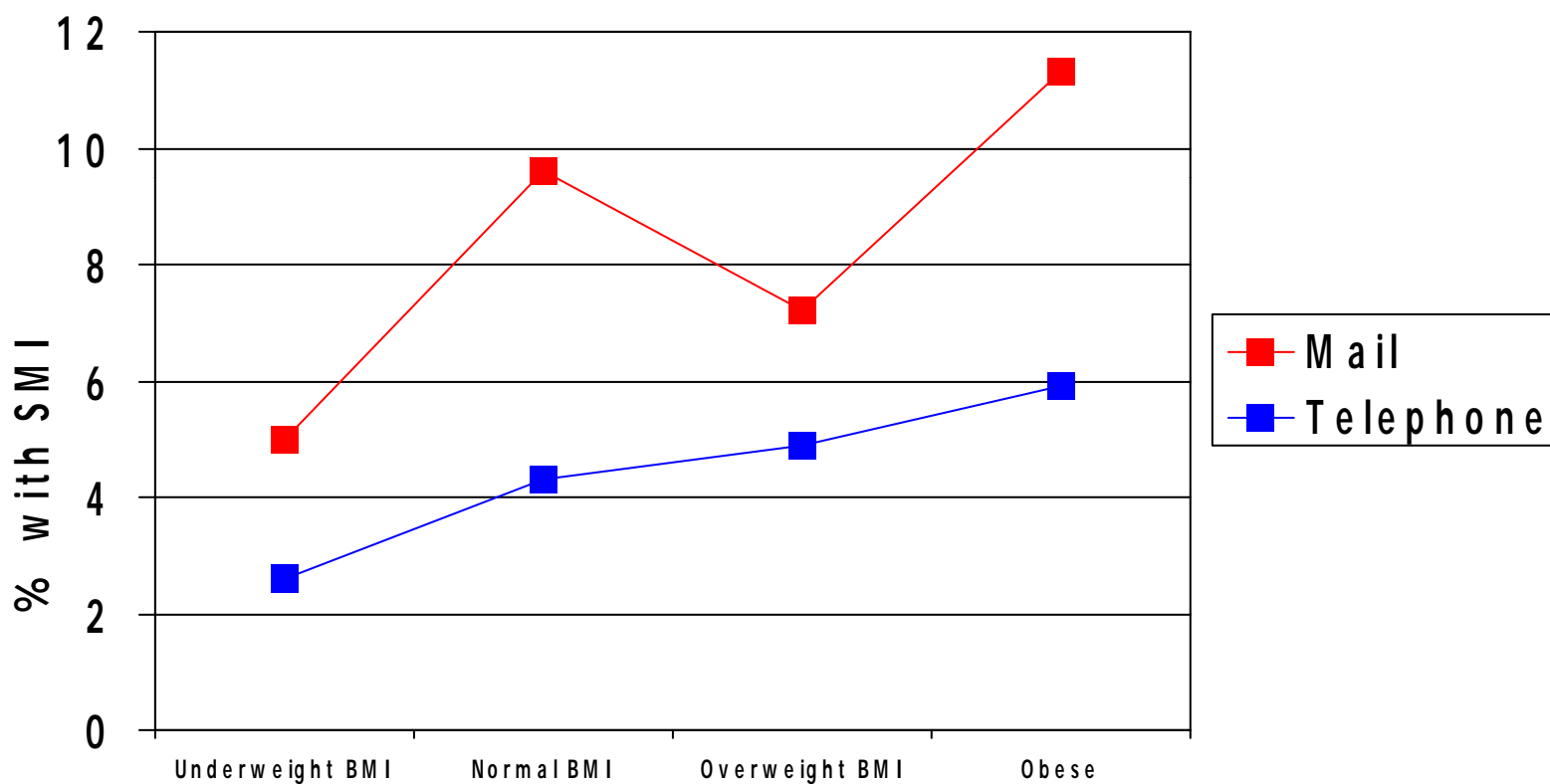
Age	Yes
Gender	No
Education	?
Income	No
Race	No
Hispanic	No



Does Relationship between SMI and Health Status Differ by Mode?

Self Health Assessment	No
BMI	Yes
Number of times visited Provider	No
Fear Illness	No
Smoking status	No
Ever had Cancer	No

% with Serious Mental Illness by BMI and Mode of Interview

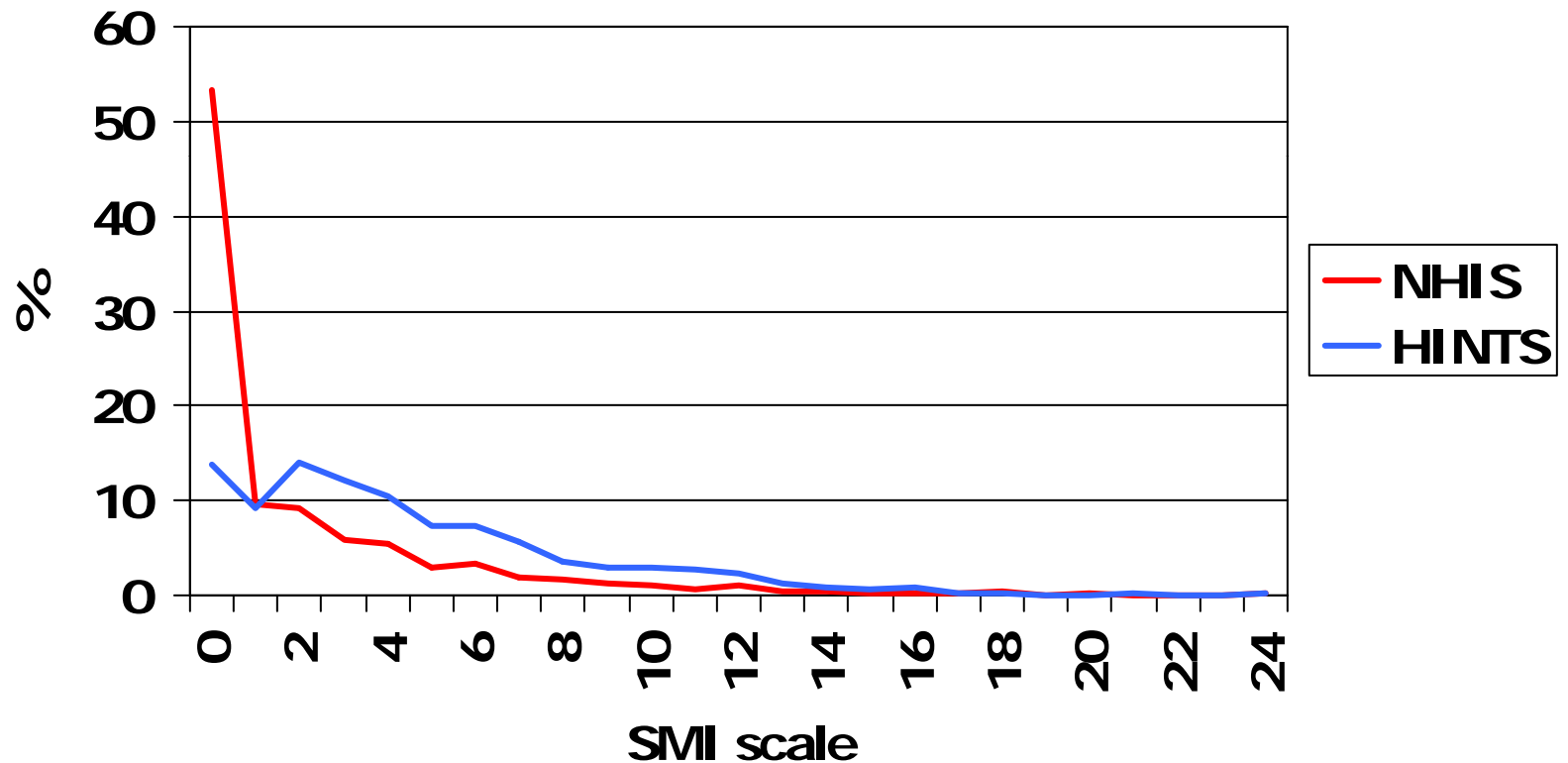




Are Mode Effects Different for In-Person interviews?

- National Health Interview Survey (NHIS)
 - Includes the K-6 for sample of adults
 - Interviewer administered
 - Response Rate is approximately 70%
- NHIS K-6 estimates are significantly lower than HINTS III telephone (2.7% vs 5.2% estimated to have SMI)

Distribution of SMI scale for NHIS and HINTS Telephone





How comparable is NHIS to HINTS?

- Big difference in response rates
 - Non-response error on HINTS overestimates health problems
 - This might lead to higher rates of SMI
- Different questionnaires
 - NHIS includes many measures of physical and mental health
 - Aldworth, et al (2005) found evidence of context effects for the K-6 items



Medical Expenditure Panel Survey

- Paper self-administered questionnaires to adults 18+ in sampled households
- Response rate is approximately 60%
- The SAQ includes questions on other health problems, including selected emotional issues.

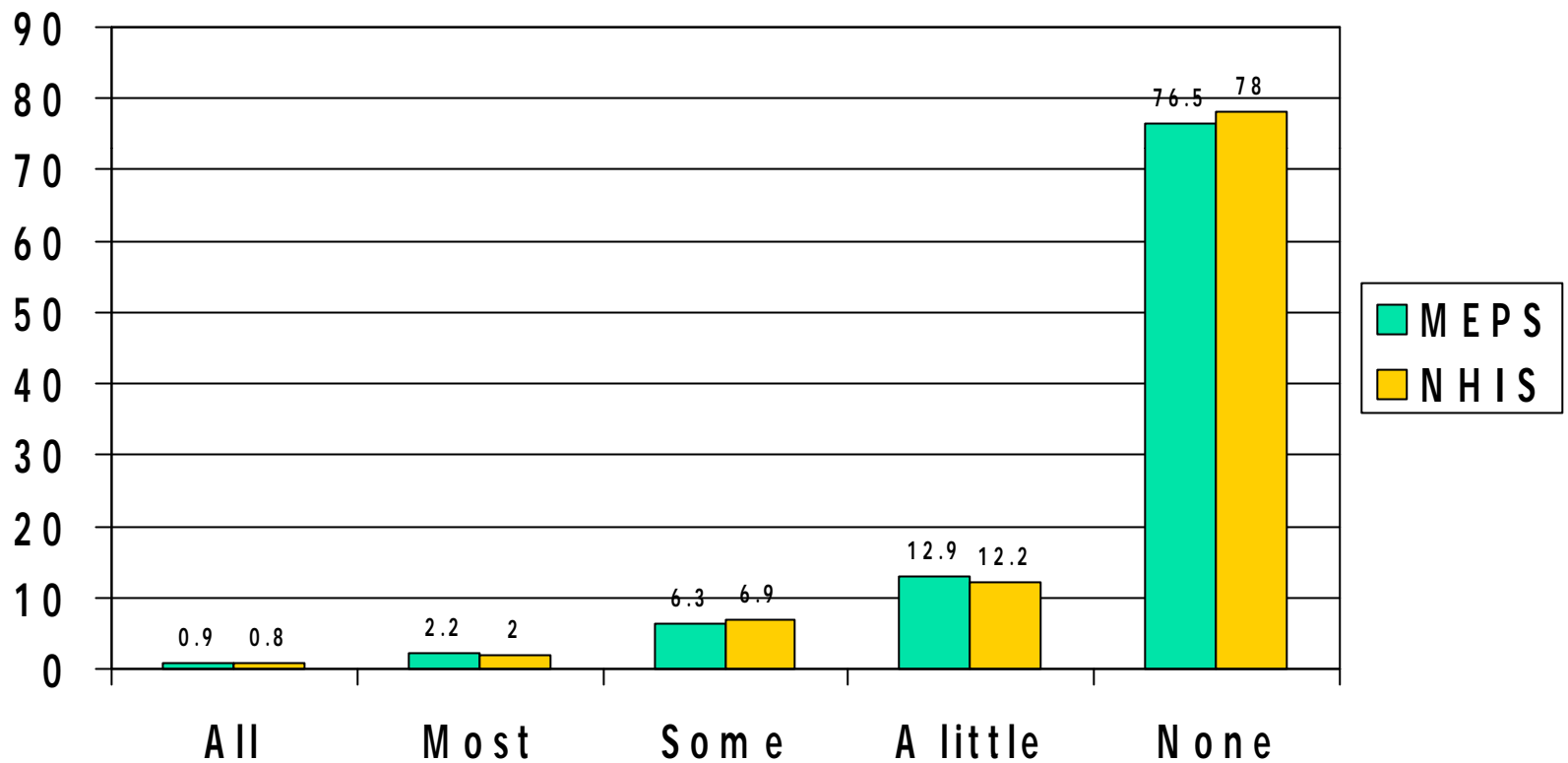


Comparing K-6 Scores

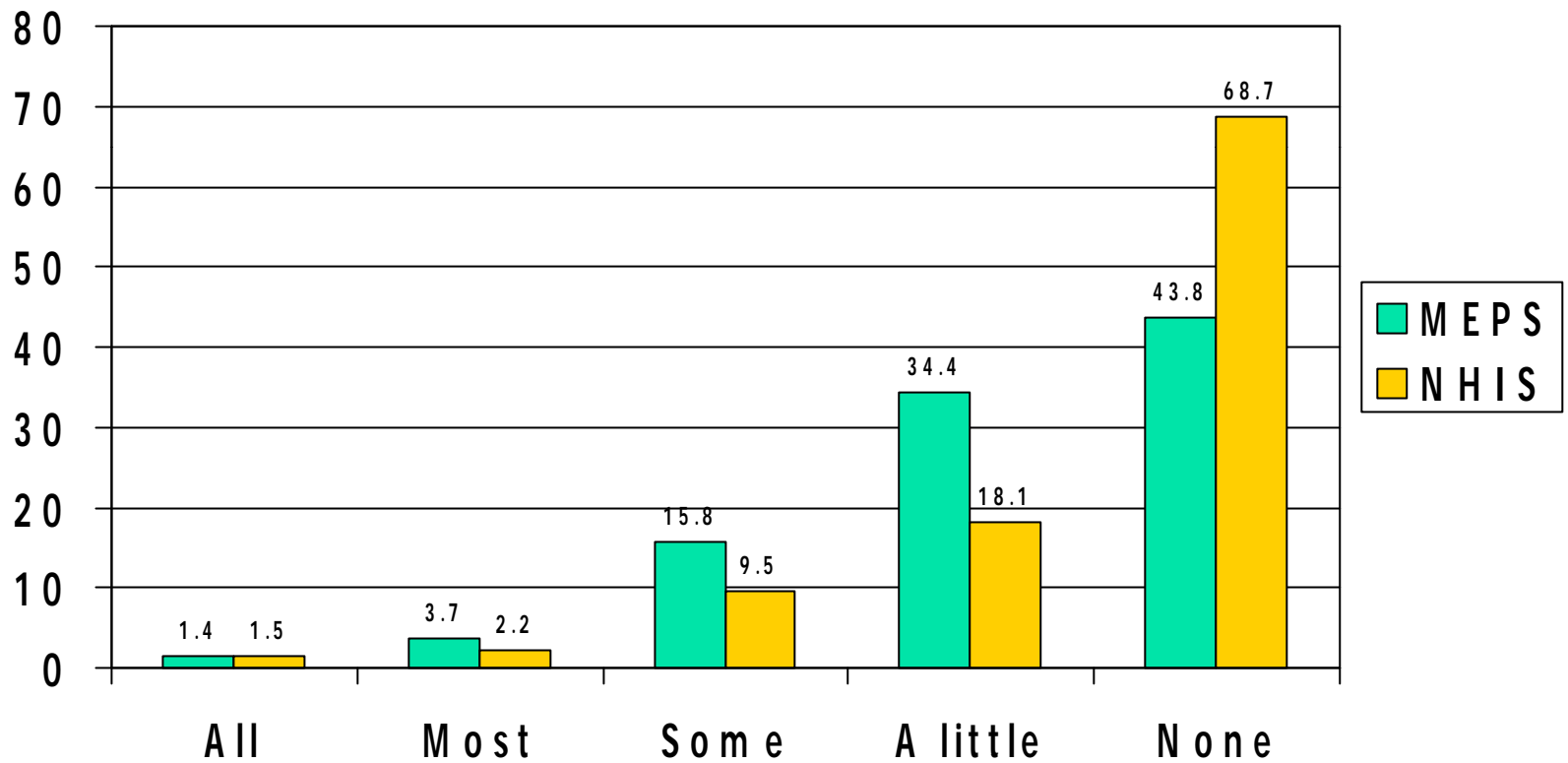
	Medical Expenditure Panel Survey	National Health Interview Survey
Mode	Paper SAQ	Interviewer
Response Rate	70%	60%
Prior Health Questions?	Yes	Yes
K-6 Score	5.2*	2.7

*Different from NHIS at $p < .001$

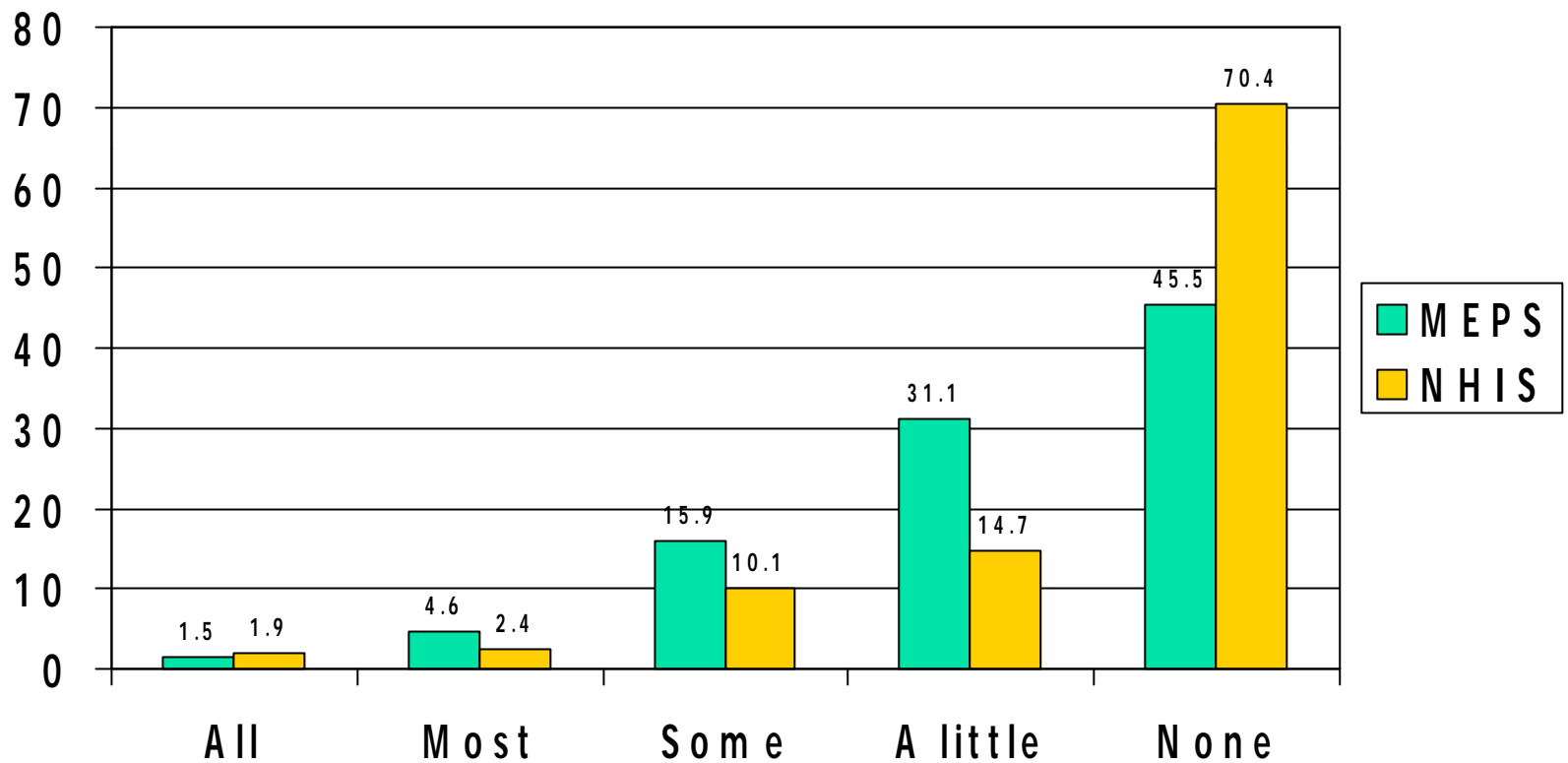
Comparison of MEPS vs NHIS: Feel so sad that nothing could cheer you up?



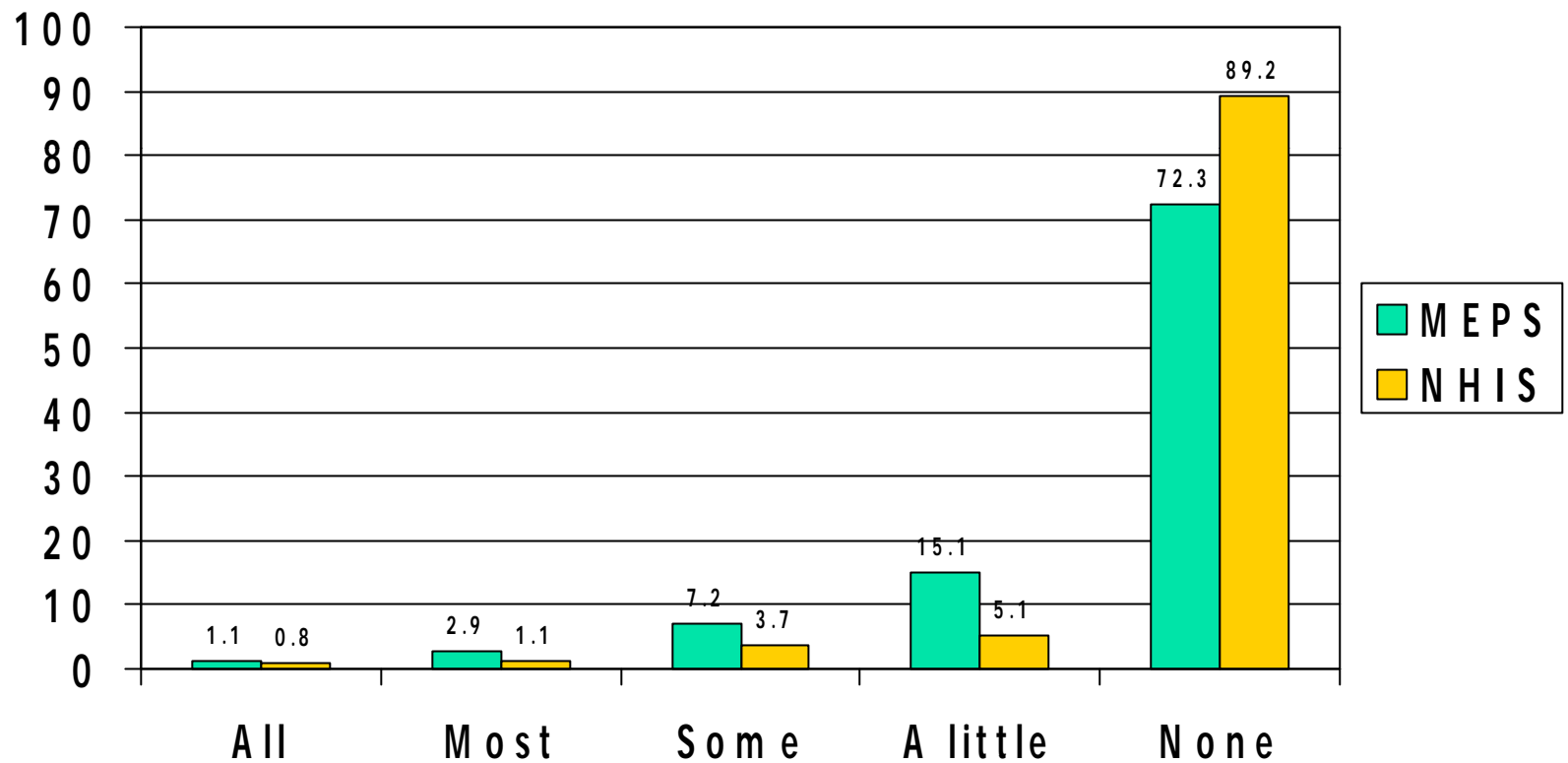
Comparison of MEPS vs NHIS: Feel nervous?



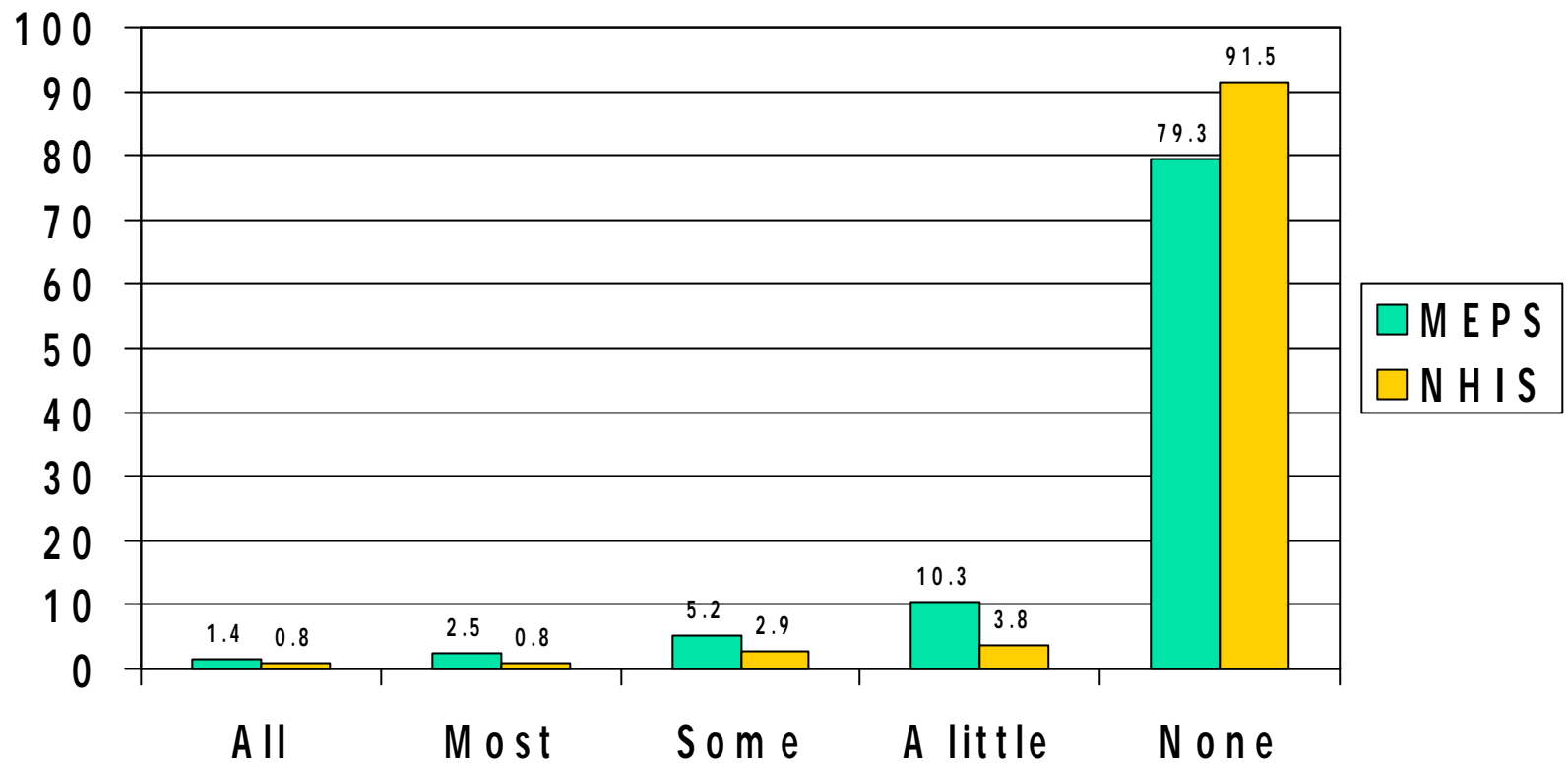
Comparison of MEPS vs NHIS: Feel restless or fidgety?



Comparison of MEPS vs NHIS: Feel hopeless?



Comparison of MEPS vs NHIS: Feel worthless?





Conclusions

- Estimates of SMI are significantly higher for self-administered questionnaires
 - Mail survey vs telephone
 - In-person interview vs paper SAQ
- For mail vs telephone: Mail survey response scales have better psychometric properties



Conclusions – continued

- Relationship between SMI and other variables are not dramatically different, except for:
 - Younger respondents report disproportionately lower rates on telephone
 - R's with high BMI report disproportionately lower rates on the telephone



Caveats

- Comparisons do not entirely control for differential non-response and coverage:
 - HINTS mail vs HINTS telephone
 - Comparison HINTS to NHIS and MEPS
- Some comparisons do not account for different questionnaires
 - HINTS vs MEPS vs. NHIS

Thank-you

Davidcantor@westat.com