

# Effect of Sampling Design and Data Collection Method on Prevalence Rates, Associations, and Estimates of Change over Time

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# Outline

- Mode as an influence on coverage, nonresponse, and measurement error
- Analytic methods
- Examples
  - Estimates of means
  - Associations
  - Trends
- Some suggestions on when differences should be expected
- Discussion

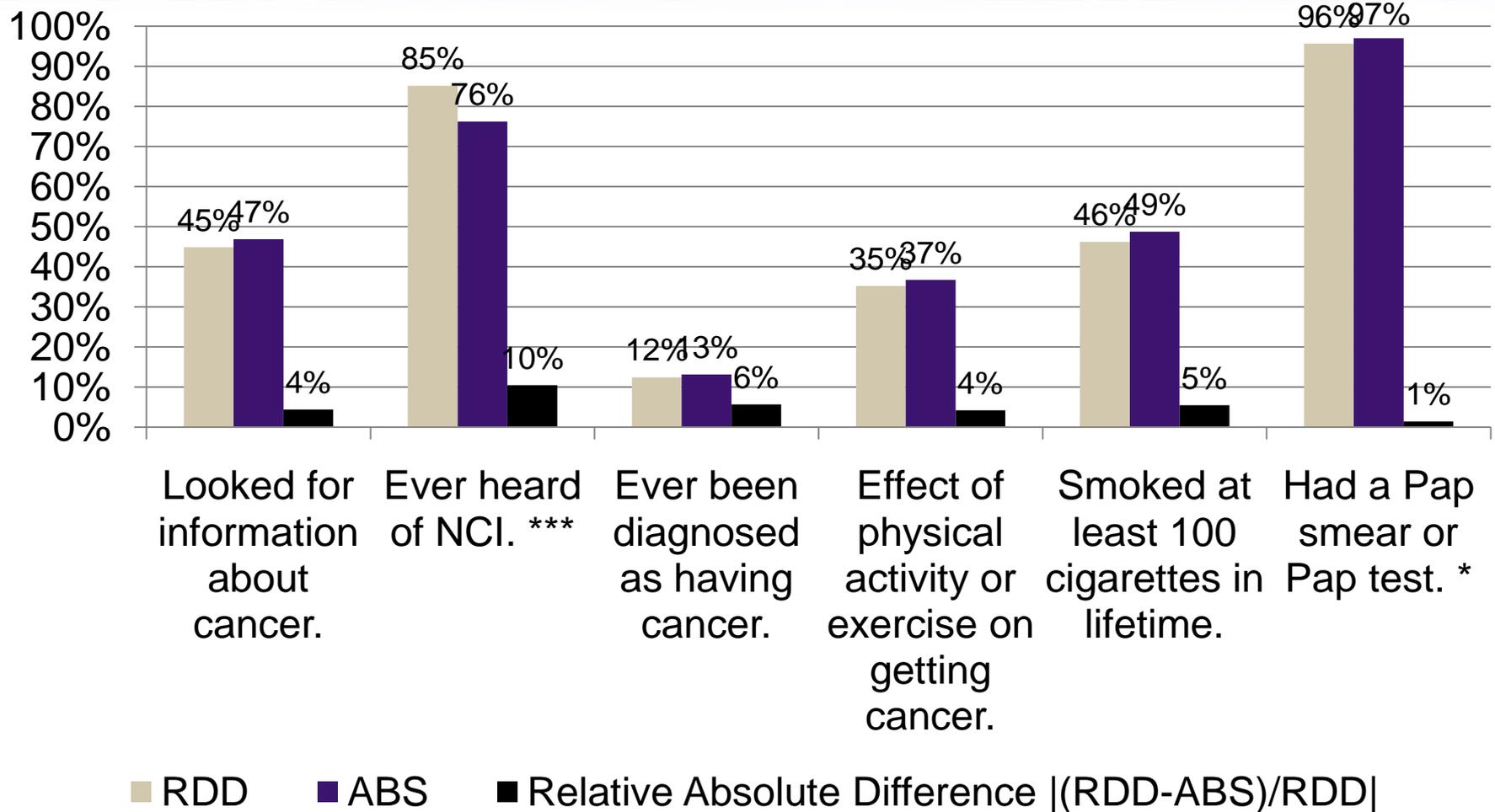
# Telephone RDD and mail ABS: Differences from Mode and Frame

- Address-Based Frame
  - Improved coverage when compared to a landline RDD
- Mail method of administration
  - Cooperation decisions that are influenced by literacy, and topic interest or topic involvement
- Absence of interviewer administration
  - The interviewer as a motivating agent
  - The interviewer as a social presence

# Methods

- Variables (Behavioral and Factual)
- Weighting
  - Selection & Nonresponse
  - Poststratification
- Analysis
  - Proportions
    - Means
    - Absolute Relative Difference ( $|(\text{RDD}-\text{ABS})/\text{RDD}|$ )
  - Associations
  - Trends

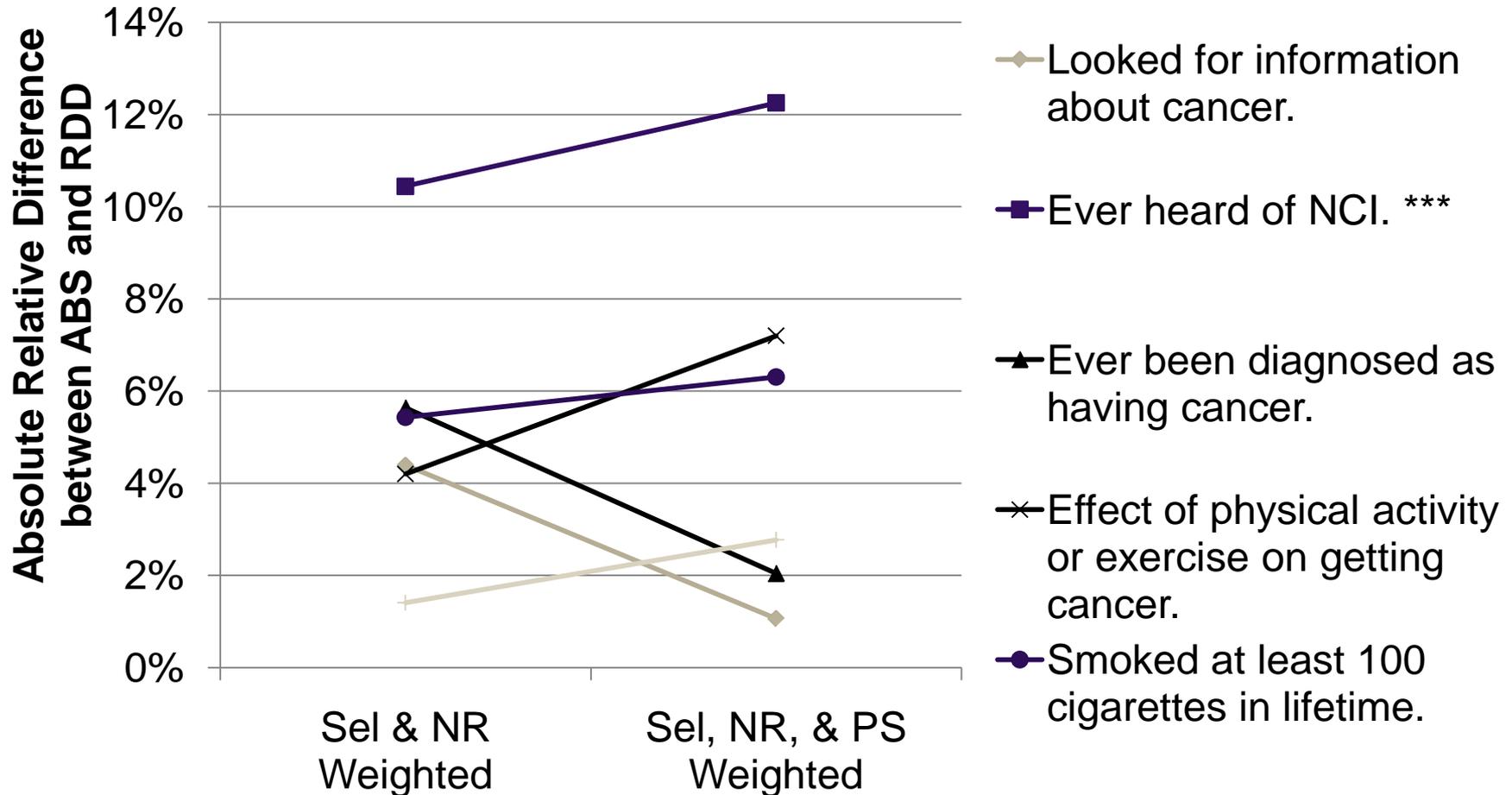
# Differences in Means Using Selection and Nonresponse Weight Adjustments



\* Significantly different using selection and nonresponse weight at .05 level

\*\*\* Significantly different using selection and nonresponse weight at .001 level

# Effect of Poststratification



\* Significantly different using selection and nonresponse weight at .05 level

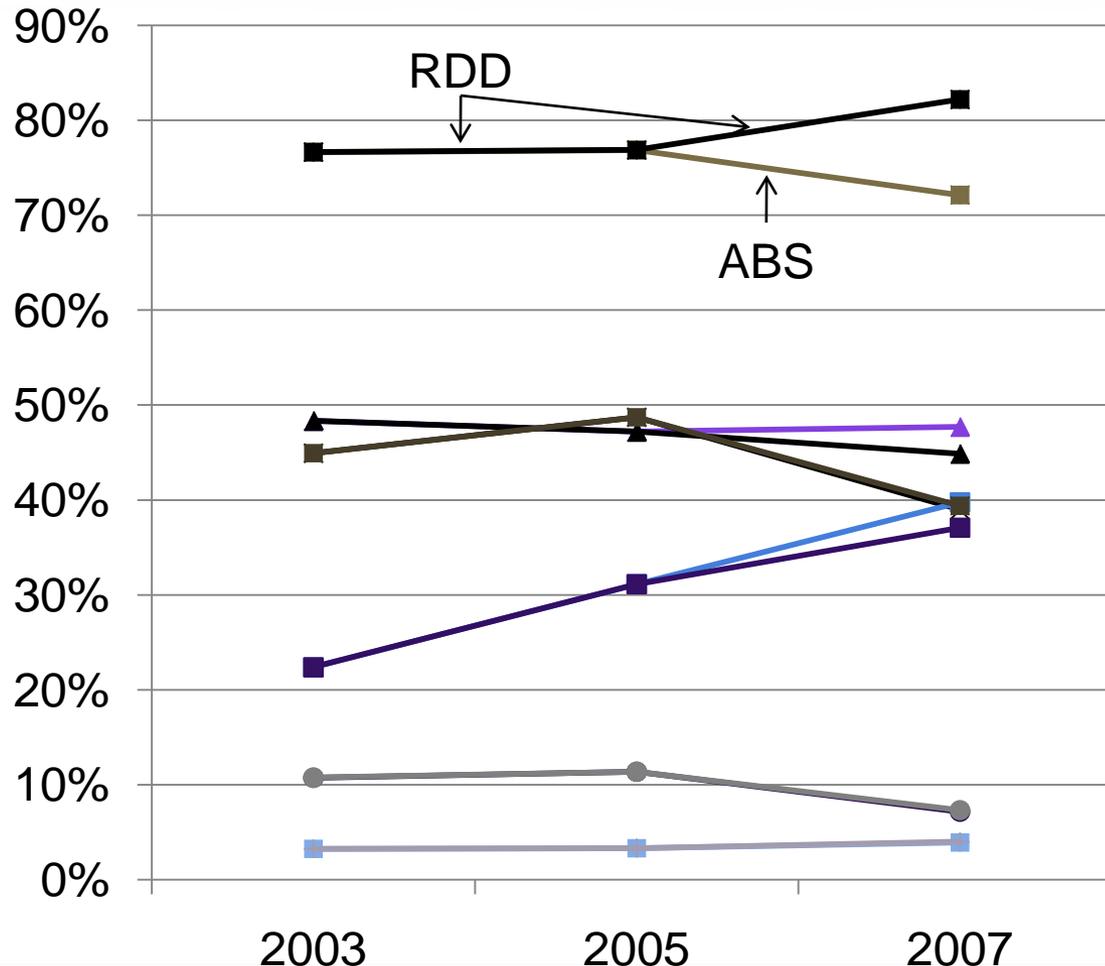
\*\*\* Significantly different using selection and nonresponse weight at .001 level

# Associations (Poststratified Correlations)

- Have you ever looked at information about cancer from any source?

	<u>RDD</u>	<u>ABS</u>
Ever diagnosed with cancer:	.070	.169
Believe physical activity to decrease chance of cancer:	-.058	-.125

# Trends over Time

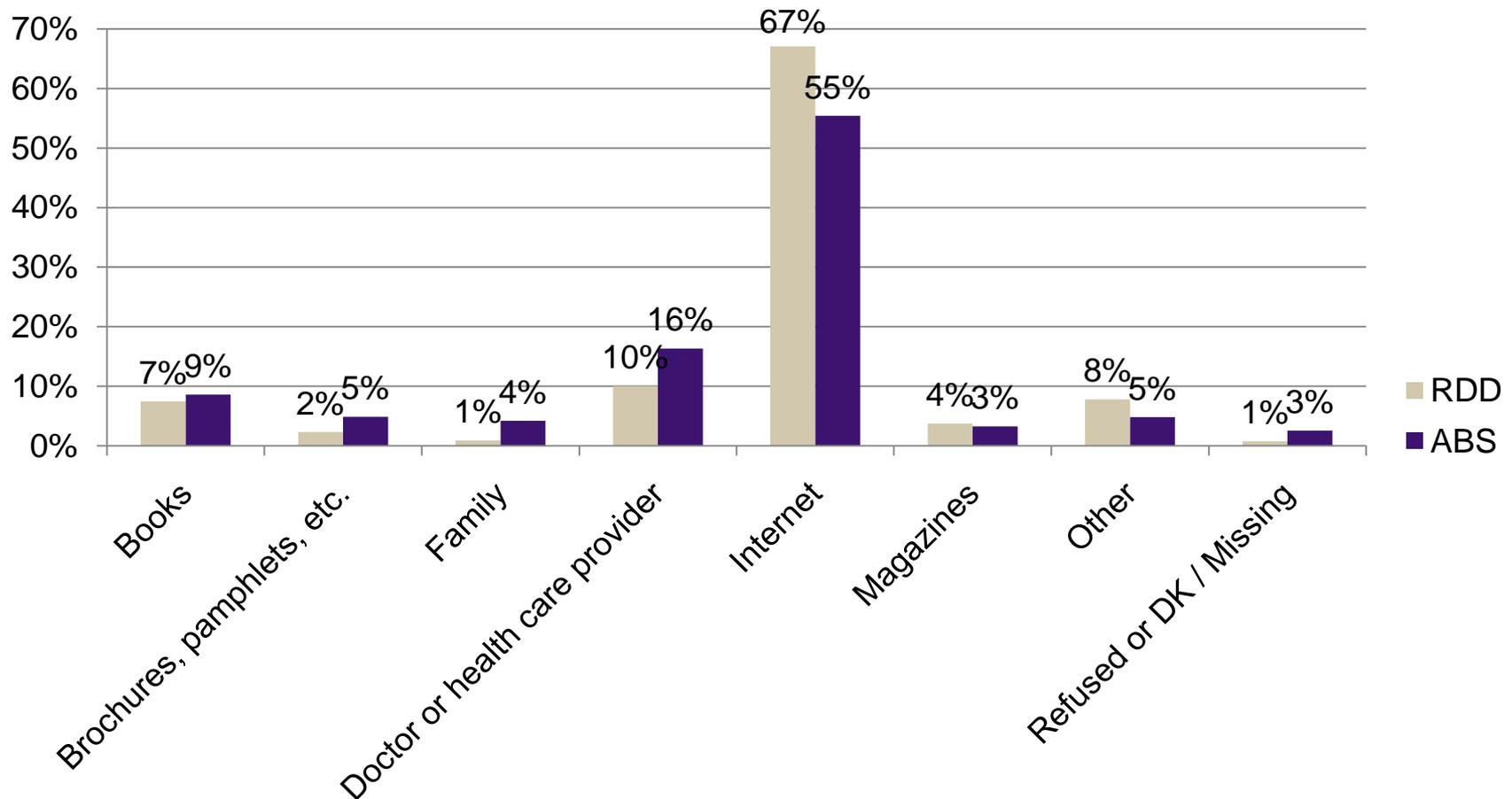


- Ever heard of the National Cancer Institute.
- ▲ Ever been diagnosed as having cancer.
- ✕ Had a Pap smear or Pap test.
- Looked for information about cancer.
- Smoked at least 100 cigarettes in lifetime.
- Effect of physical activity or exercise on getting cancer.

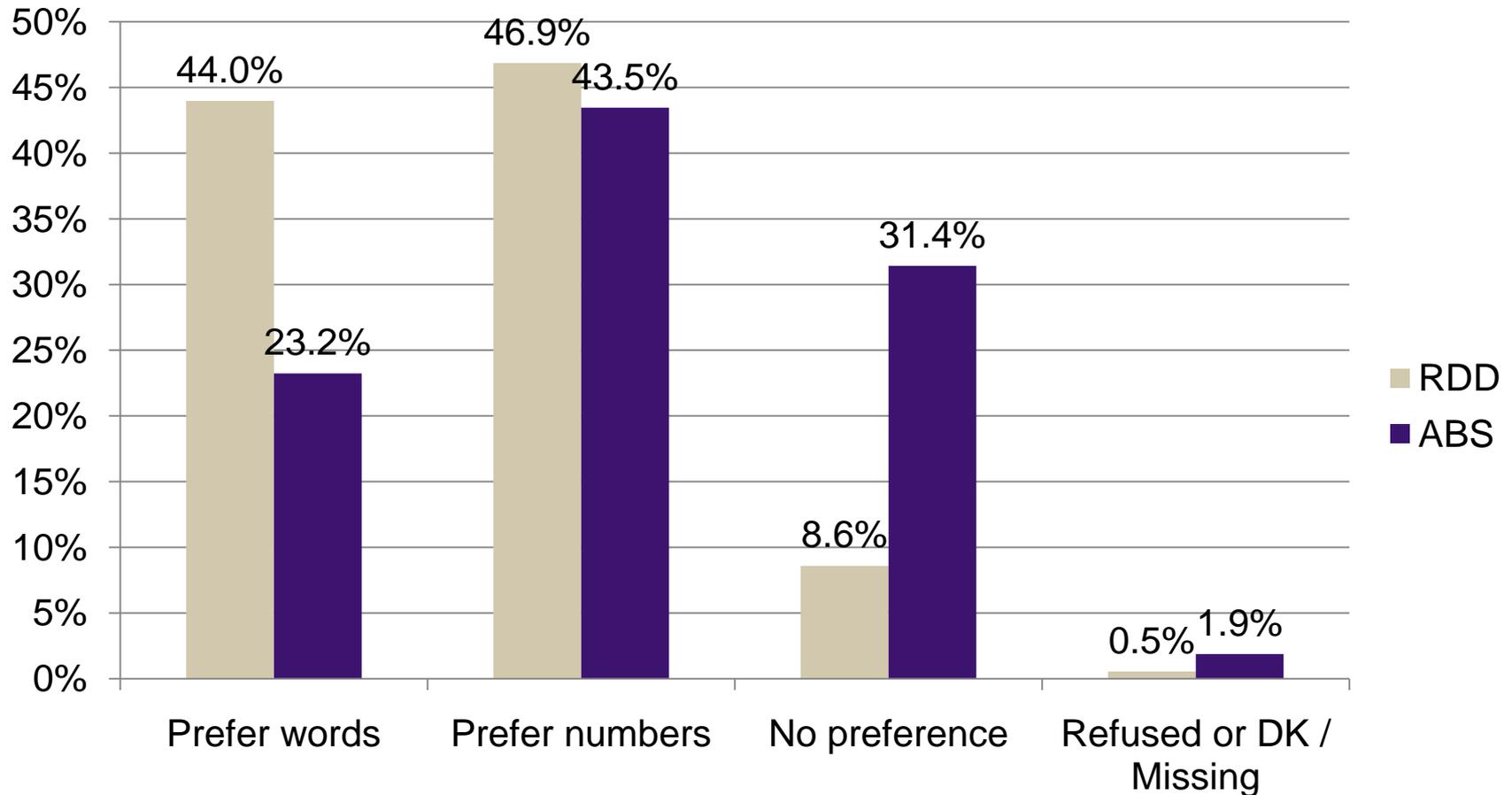
# Some Thoughts on When Differences Should be Expected

- Address-Based Frame
  - Improved coverage when compared to a landline RDD
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# The most recent time you looked for information about health or medical topics, where did you go first?



# When people tell you the chance of something happening do you prefer they use words or numbers?



# Discussion

- Differences between frames and modes extend beyond estimates of means and proportions
- Trends for the selected dichotomous variables seemed relatively unaffected, but in opposite direction when they were different
- Large differences exist when variables are selected based on causes of bias
- Further research is needed on the identification of causes in order to better anticipate and ameliorate unpredictable biases in multi-frame multi-mode designs, and to select an optimum survey design

# Acknowledgments and Contacts

- We thank Richard Moser from NCI and Richard Sigman from Westat for their help with providing additional data
- For questions, contact Andy Peytchev ([apeytchev@rti.org](mailto:apeytchev@rti.org))