

KNOWLEDGE DEFICIT OR DEFENSIVE PROCESSING? EXAMINING EXPLANATIONS FOR REPORTING “I DON’T KNOW” TO RISK PERCEPTION QUESTIONS

Heather Orom¹

Jennifer L. Hay²

Erika A. Waters³

Marc T. Kiviniemi¹

Bettina F. Drake³

¹University at Buffalo, School of Public Health and Health Professions

²Memorial Sloan Kettering Cancer Center, Department of Psychiatry and Behavioral Sciences

³Washington University at St. Louis School of Medicine, Surgery

Background



- Perceived susceptibility/risk for illness is a construct common to most health behavior theories and thus a proposed motivational precursor to health behavior change (Janz & Becker, 1984; H. Leventhal et al., 2003; Vernon, 1999; Weinstein, 1988)

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- Use of a “don’t know” category (DK responding) on perceived risk questions is routinely treated as missing data
 - However, DK responding may reflect risk communication and informational needs or motivationally-driven responding
 - We examined these two competing hypotheses for DK responding through a series of analyses with two datasets

Research Question

- Why do people respond “don’t know” when asked their perceived risk for colon cancer?
 - ▣ Lack of knowledge?
 - low health literacy/numeracy and low exposure to health messaging should result in low health knowledge (Viswanath et al., 2006)
 - Expect greater DK responding to be associated with less health information seeking, lower colon cancer knowledge, lower numeracy
 - ▣ Defensive processing?
 - Responding DK may be a way of avoiding thinking about threatened thoughts about cancer risk (McQueen, Vernon & Swank, 2012)
 - Expect greater DK responding to be associated with higher cancer worry, perceived lack of cancer controllability, avoiding screening due to fear

Previous Findings

Don't Know Responding Higher in Disenfranchised Populations

In the 2005 NHIS, greater odds of responding don't know to comparative colon cancer risk question associated with characteristics also associated with lower health literacy and knowledge:

- Being an immigrant
- Lower educational attainment
- Black race
- Older age

In the smaller HINTS 2005 and clinic-based sample effects were in a similar direction although only two out of eight of these effects were statistically significant.

Waters, E. A., Hay, J. H., Orom, H., Kiviniemi, M. T., & Drake, B. F. (2012). "Don't know" responses to risk perception measures: Implications for underserved populations. (under review)

Method



- Used data from 2 sources
 - ▣ Health Information National Trends Survey (HINTS) 2005 ($N=1937$)
 - Nationally representative sample of non-institutionalized adults ≥ 18
 - Telephone/Internet survey conducted by WESTAT for NCI
 - Included 1/3 of sample who were asked questions about colon cancer risk
 - ▣ A sample recruited from safety net hospital's ambulatory care clinic in Queens, NYC ($N=769$)
 - predominantly immigrant, low SES

Demographic and Health Status Characteristics of the Two Samples

	HINTS 2005 (N=1782)	Clinic (N=769)
	(%) or $\bar{M}$ (SE)	(%) or $\bar{M}$ (SE)
Age	$\bar{M}=45.5$ (SE=0.6)	$\bar{M}=56.4$ (SE=0.4)
Female	52.0%	55.9%
Race		
White	80.7%	5.9%
Black	11.0%	52.1%
Asian	2.6%	16.5%
Other	5.7%	25.5%
Hispanic	13.1%	9.1%
Foreign Born	15.3%	79.5%
Years in U.S.	$\bar{M}=19.3$ (SE=1.26)	$\bar{M}=16.3$ (SE=0.48)
Marital Status		
Married/cohabitating	63.5%	47.4%
Never married	20.9%	26.5%
Divorced/separated	9.4%	17.9%
Widowed	6.2%	8.2%
Education		
Less than HS	15.7%	37.4%
High school or GED	27.7%	30.2%
Some college or more	56.6%	32.3%
Household Income ≤ 29 K/<25K	26.1%	76.8%
Family History of Colorectal Cancer	9.9%	6.6%

Data Analysis



- Purpose: test the knowledge vs. defensive processing hypotheses by performing series of analyses using different risk constructs and predictors
- Multiple logistic regression analyses adjusting for age, gender, race, Hispanic ethnicity, nativity, marital status, education, insurance status (HINTS only), and family history of colon cancer

Risk Perception Items



Four Different Items:

Comparative Risk (HINTS)

“Compared to the average [man/woman] your age, would you say that you are more likely to get colon or rectal cancer, less likely, or about as likely?”

Absolute Risk (HINTS)

“How likely do you think it is that you will develop colon cancer in the future? (Very low ..Very high)

Likelihood (Clinic)

“Do you think you are likely to get colorectal cancer or unlikely to get it? (Likely, Unlikely, No idea)

Chance (Clinic)

“What is the chance you will develop colorectal cancer in the future? (No chance ... Certain to happen, No idea)

Prevalence of Don't Know Responding



- Without DK response option
 - ▣ HINTS comparative risk: 7.5%
 - ▣ HINTS absolute risk: 8.7%
- With DK response option
 - ▣ Clinic likelihood: 69.3% responded “no idea”
 - ▣ Clinic chance 49.1% responded “no idea”

Number of Tests



- Across the 2 data sets
 - ▣ Knowledge: 6 predictors X 2 outcomes = 12 tests
 - ▣ Defensive Processing: 4 predictors X 2 outcomes = 8 tests

Predictors

Knowledge Hypothesis

- Knowledge of colon cancer screening
- Sought cancer information in the past
- Read the health section of the newspaper
- Looked for health information on the internet
- Cancer information-seeking self-efficacy
- Numeracy

Defensive Processing Hypothesis

- Worry about developing cancer
- Avoiding screening because of fear
- Low perceived control over cancer

Tests of Defensive Processing Hypothesis

Sample	Predictor	Outcome	AOR (95% CI)	P-value
HINTS	Avoiding screening due to fear	Comparative	1.16 (0.61, 2.19)	.65
		Absolute	0.81 (0.40, 1.63)	.55
HINTS	Worry about getting colon cancer	Comparative	0.60 (0.37, 0.99)	.04
		Absolute	0.98 (0.69, 1.39)	.91
CLINIC	Worry about getting colon cancer	Likelihood	0.98 (0.68, 1.42)	.92
		Chance	0.96 (0.68, 1.36)	.82
CLINIC	Perceived cancer controllability	Likelihood	0.77 (0.53, 1.12)	.17
		Chance	0.94 (0.67, 1.33)	.74

Tests of Knowledge Hypothesis

Sample	Predictor	Outcome (risk measure)	AOR (95% CI)	P-value
HINTS	Knowledge of screening	Comparative	2.23 (1.34, 3.70)	.002
		Absolute	1.68 (0.99, 2.84)	.05
HINTS	Reading health section newspaper	Comparative	1.96 (1.24, 3.09)	.004
		Absolute	2.09 (1.30, 3.35)	.02
HINTS	Sought health info on internet	Comparative	2.52 (1.14, 5.54)	.02
		Absolute	1.57 (0.70, 3.53)	.27
HINTS	Sought cancer info	Comparative	1.77 (1.05, 2.96)	.03
		Absolute	1.32 (0.81, 2.14)	.26
HINTS	Self-efficacy for seeking cancer info	Comparative	1.37 (0.99, 1.90)	.06
		Absolute	1.28 (0.97, 1.69)	.08
CLINIC	Numeracy	Likelihood	0.82 (0.67, 0.99)	.04
		Chance	0.85 (0.71, 1.02)	.09

Summary



- No confirmation of defensive processing hypothesis by any of the 8 tests
 - ▣ 7/8 tests of the defensive processing hypothesis yielded non-significant results HINTS
 - ▣ For 1 test, greater worry was associated with **lower** odds of responding don't know

- 7/12 tests confirmed the knowledge hypothesis ($P < .05$), with 3 more suggestive ($P < .10$)

Conclusions



- Consistent across two large datasets, our findings indicate that low health knowledge rather than defensive processes are associated with DK responding

- DK responding to illness risk perception items may be very meaningful:
 - May identify a population with low cancer knowledge
 - More likely to be disenfranchised (low health literacy, low SES, minority race/ethnicity, immigrant status)
 - Including, rather than excluding these individuals in intervention development may be important for reducing health disparities

Implications and Future Directions



- The rate of DK responding varied depending on response format: develop approach for identifying true uncertainty in risk perception
- Identify alternative explanations for DK responding
- Explore implications for health behavior theory: a non-trivial percentage of people may neither hold perceived risk cognitions nor appraise their risk when prompted
- Further work to examine strategies to address the informational needs of this important group of responders

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