

# INFLUENCE OF INTERPERSONAL COMMUNICATION ON PERCEIVED RISK OF LUNG CANCER

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## Introduction

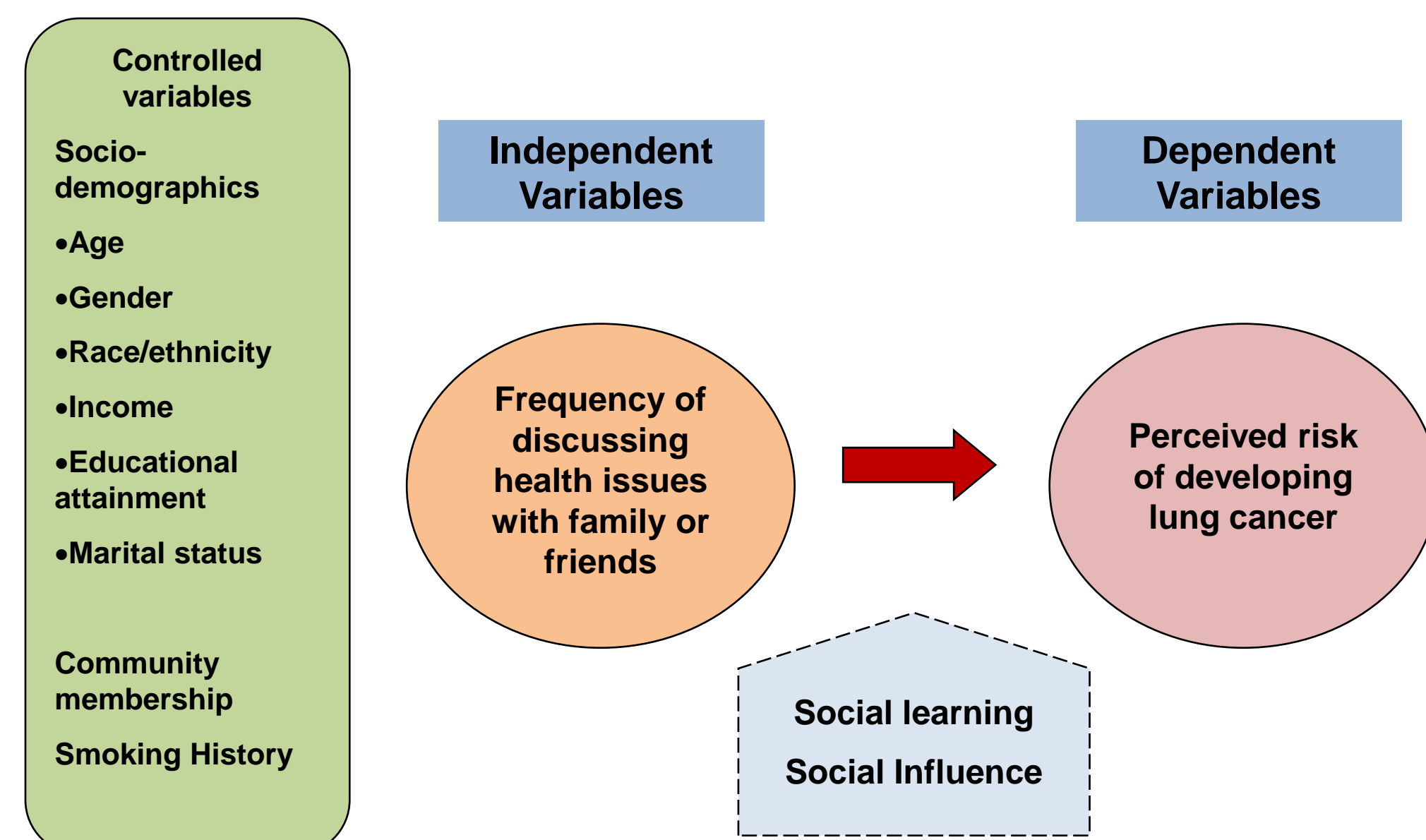
A growing body of literature indicates that an interpersonal approach and community-level interventions are innovative ways to improve the public's awareness and knowledge of cancer and facilitate behavioral change. Research shows that interpersonal communication is a more effective way to change personal beliefs about health risks, while mass-media is effective at raising awareness or knowledge about health issues. A previous study on skin cancer concluded that those who discussed skin cancer with others were more likely to have a higher perceived risk of skin cancer (Morton & Duck, 2001). Social learning theory and social influence theory support this empirical evidence. Generally, perceived risk is considered to be one of the key determinants of preventive health behavior. Further application of this claim would garner more scientific knowledge on the utility of interpersonal communication in behavioral change. An improved understanding of the risk perception process is fairly important to better predict health behavior based on the level of perceived risk.

## Objective

The objective of the study is to analyze the influence of interpersonal communication on the level of perceived risk of developing lung cancer when socioeconomic variables are controlled.

1. Is the perceived risk of getting lung cancer associated with socio-demographic variables, such as age, gender, marital status, education level, race/ethnicity, and household income?
2. Does the perceived risk of getting lung cancer differ with the frequency of discussing health issues with family members or friends, when socio-demographic variables are controlled?

## Conceptual Framework



## HINTS\* 2005 Mental Model

- HINTS 2005 used a probability-based sampling method, drawn from random digit dialing telephone numbers.
- The final sample consisted of total of 5,564 individuals.
- Respondents were interviewed by telephone or internet.
- 1,872 respondents were randomly assigned to the mental model questionnaire section for lung cancer.

## Sample Characteristics

- 66.6% of the respondents were female.
- 55.7% of the respondents were above 50 years old.
- 74.2% of the respondents were non-Hispanic whites.
- 55.2% of the respondents were married or cohabiting.
- 59.6% of the respondents had at least some college education.
- 45.1% of the respondents reported an annual household income of \$50,000 or less per year.
- 45.4% of the respondents belonged to one or two community organizations.
- 79.3% of the respondents discussed their health issues with either friends or family members.

\* HINTS: Health Information National Trends Survey

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## Analysis

- Bivariate analysis was done to test the association between socio-demographic variables and the perceived risk of developing lung cancer.
- An initial multiple logistic regression model was built with frequency of discussing health issues with friends or family members, gender, age group, race/ethnicity, annual household income, marital status, education, membership to community organizations, and trust in health information from mass-media.
- After a test for multicollinearity, likelihood ratio tests, and forward / backward selections of covariates, marital status, gender, and trust in health information from mass-media were excluded from the final model, and history of smoking was added due to a strong confounding.

## Results

### Bivariate Analysis: Socio-demographic Variables and Perceived Risk

- There were statistically significant associations with some socio-demographic variables.
- Older, more educated, higher income and married respondents were less likely to perceive the risk of developing lung cancer.
- Risk perception was higher among African American, American Indian, Alaska Native and mixed individuals.
- Membership in community organizations had an inverse association with perceived risk.
- Respondents with a history of smoking had a significantly higher perceived risk.

Gender (n= 1,765)	High (%)	Low (%)	P value
Male	11.4	88.6	0.268
Female	9.7	90.3	
Age group (n = 1,761)	High (%)	Low (%)	P value
18-34	14.3	85.7	<0.01**
35-49	11.3	88.7	
50-64	10.2	89.8	
65-74	9.6	90.4	
75+	6.0	97.2	
Race/ethnicity	High (%)	Low (%)	P value
Hispanic	7.3	92.7	<0.01**
Non-hispanic White	9.6	90.4	
Non-hispanic Black or African American	12.7	87.3	
Non-hispanic American Indian or Alaska Native	21.2	78.8	
Non-hispanic Asian, Native Hawaiian or other Pacific Islander	5.9	94.1	
Non-hispanic multiple races mentioned	32.4	67.7	
Annual household income (n = 1,496)	High (%)	Low (%)	P value
< \$25,000	16.2	83.8	<0.01**
\$25,000 to < \$35,000	9.2	90.8	
\$35,000 to < \$50,000	13.0	87.0	
\$50,000 to < \$75,000	10.5	89.5	
>= \$75,000	5.2	94.8	
Marital status (n= 1,721)	High (%)	Low (%)	P value
Married or cohabiting	8.2	91.8	<0.01**
Divorced, widowed, separated or never been married	13.0	87.0	
Educational achievement (n=1,726)	High (%)	Low (%)	P value
Less than high school	14.0	86.0	<0.01**
High school graduate	13.7	86.3	
Some college	10.6	89.4	
College graduate	5.9	94.1	
Membership in community organization (n = 1,765)	High (%)	Low (%)	P value
None	14.2	85.9	<0.01**
1 to 2	9.0	91.0	
3 to 5	5.3	94.7	
6 above	9.7	90.3	
Health information provided by community organization (n = 1,100)	High (%)	Low (%)	P value
Yes	7.4	92.6	0.482
No	8.6	91.4	
Discuss health information with friends or family (n =1,729)	High (%)	Low (%)	P value
Yes	9.8	90.2	0.212
No	12.2	87.8	
Frequency of discussing health issues with friends or family (n = 1,722)	High (%)	Low (%)	P value
Very frequently	11.5	88.5	<0.01**
Somewhat frequently	12.0	88.0	
Not very frequently	6.4	93.6	
Never	12.2	87.8	
Have you ever smoked at least 100 cigarettes in your entire life? (n=1,765)	High (%)	Low (%)	P value
Yes	19.01	80.99	<0.01**
No	2.18	97.82	

## Results (continued)

### Multiple Regression Analysis for Perceived Risk of Developing Lung Cancer (n= 1,477)

- The frequency of discussing health issues with family or friends was associated with high perceived risk, however there was no clear dose response.
- Factors other than interpersonal communication with close associates became more significant predictors for the perceived risk.

	Wald chi-square	Odds ratio	95% CI
<b>Frequency of discussing health information with friends or family</b>	10.43 *		
Never		1.00	
Not frequently		0.56 (0.31 - 0.99)*	
Somewhat frequently		1.25 (0.76 - 2.04)	
Very frequently		1.04 (0.58 - 1.87)	
<b>Age group</b>	24.5 ***		
18-34		1.00	
35-49		0.77 (0.46 - 1.28)	
50-64		0.54 (0.32 - 0.89)*	
65-74		0.33 (0.18 - 0.62)*	
75+		0.13 (0.05 - 0.35)*	
<b>Race/ethnicity</b>	12.5 *		
Hispanic		1.00	
Non-hispanic white		2.23 (1.02 - 4.87)*	
Non-hispanic Black or African American		2.60 (1.01 - 6.69)*	
Non-hispanic American Indian or Alaska Native		1.84 (0.51 - 6.63)	
Non-hispanic Asian, Native Hawaiian or other Pacific Islander		1.14 (0.12 - 10.48)	
Non-hispanic multiple races		7.46 (2.36 - 23.62)*	
<b>Annual household income</b>	20.48 ***		
< \$25,000		1.00	
\$25,000 to < \$35,000		0.53 (0.26 - 0.96)*	
\$35,000 to < \$50,000		0.68 (0.39 - 1.16)	
\$50,000 to < \$75,000		0.54 (0.32 - 0.92)*	
>= \$75,000		0.26 (0.15 - 0.48)*	
<b>Membership in community organizations</b>	5.61		
None		1.00 (0.59 - 1.29)	
1 to 2		0.87 (0.21 - 0.86)*	
3 to 5		0.43 (0.17 - 4.01)	
6 above		0.83 (0.46 - 1.28)	
<b>History of Smoking</b>	78.29 ***		
Yes		1.00	
No		0.09 (0.05 - 0.15)*	

Note: The respective reference categories for each variable were as follows: never discussed health issues with friends or families, 18 - 34 years old, Hispanic, annual income less than \$25,000, not belonging to any community organizations, and having smoking history. \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

## Discussion & Implications

- Respondents who had frequent or very frequent discussions of health issues with close associates were more likely to have a higher perceived risk for lung cancer than respondents who never discussed health issues, however, the results were not statistically significant, when controlling for socio-demographic variables.
- Interpersonal communication is a potential means to increase perceived risk and to encourage individuals to adopt protective behavior, but this approach may not be effective for high-income or older individuals.
- Mass-communication may be an important means to disseminate accurate information on cancer etiology, the risks of cancer and protective behaviors, and may facilitate greater interpersonal communication among close associates.

## Strength of Study

- This is one of the first exploratory studies to examine the influence of interpersonal communication (frequency) on the level of perceived risk of developing lung cancer using the HINTS data set.

## Limitations of Study

- There are potential problems with reliability of measurement of perceived risk (e.g. 5-point likert scale only).
- The HINTS questionnaire asked about discussions of health issues in general, not specifically cancer.
- Those who had low perceived risk or their close associates with low perceived risk, may not have had accurate knowledge of lung cancer.
- The cross-sectional nature of the data did not allow for a robust mediation analysis.

## Future Direction

- Explore reasons why high-income or older individuals had a lower perceived risk (e.g. due to better health status / access to care, optimistic bias or they lived a full life without developing cancer).
- Limit contents of discussions with close associates strictly to cancer etiology or cancer risks in the questionnaire.
- Replicate a similar study with a comparative risk for developing lung cancer and compare the results with this study.