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Lay Interpersonal Sources for Health Information Relate to Beliefs About the Modifiability of Cancer Risk

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Abstract

Objective—Causal beliefs about cancer may influence preventive behaviors and medical care. We examined the relationship between beliefs about causation for lung, colon, and skin cancer and the use of lay interpersonal sources of health information (community organizations, family, friends).

Methods—Data from a nationally representative sample of 5,119 adult respondents to the 2005 Health Information National Trends Survey were analyzed.

Results—About 40% of respondents reported that community organizations provided them with health information, while 15% discussed health information “very frequently” with their family or friends. In multivariate models, individuals who never spoke with family or friends about health were more likely to believe that colon cancer risk is not modifiable; those provided with health information by community organizations were less likely to believe that skin cancer risk is not modifiable. Speaking with family or friends about health was also associated with endorsing the belief that skin cancer is caused by behavior or lifestyle.

Conclusion—These findings showed that lay interpersonal health information sources are associated with beliefs about the modifiability of colon and skin cancer risk. Future research is needed to investigate whether and how such information sources might influence decisions about engaging in preventive behaviors.

Keywords

cancer prevention; cancer beliefs; information sources

Introduction

Various messages about cancer causation and prevention are being communicated to the public by different media, and may serve to shape public awareness of risk factors for common cancers or inform decisions about health behaviors and medical care [1,2]. Some prior research has examined the general public's beliefs about factors that cause common cancers, such as breast, cervical, colorectal, lung, prostate, and skin cancers. Overall, these studies have shown that individuals tend to cite multiple causes for developing cancer, including lifestyle, diet and other personal behaviors, genetics, environmental exposures,

and stress [3-7]. In addition, those with a family history of a common disease have often reported feeling personally vulnerable to developing the disease [8,9].

It is possible that attributing risk for diseases such as cancer to factors that are not modifiable (e.g., genetics) could lead to fatalistic beliefs among individuals, which might in turn reduce motivation to change lifestyle or health behaviors. A recent study using data from the 2003 Health Information National Trends Survey found that fatalistic beliefs about cancer prevention were related to a decline in preventive behaviors, such as exercising, eating a healthy diet, and not smoking [10]. There is therefore a need to understand the extent to which individuals perceive causes of cancer as within their control or attributable to genetic or other factors that are not modifiable.

The majority of research on causal beliefs about cancer has been conducted with cancer patients, survivors, and high-risk individuals, and therefore may not be applicable to how individuals at average risk create mental models of cancer causation. In addition, individuals who are healthy or have an average risk for developing cancer may differ from higher-risk individuals in terms of access to health information or information seeking styles. For example, Dutta-Bergman (2004) reported that individuals who are health-conscious and committed to healthy activities are likely to seek health information from “active” communication channels, such as interpersonal sources, the Internet and print resources. In comparison, individuals who are not health-oriented, as well as those who do not speak about health with family and friends, are likely to look to more “passive” sources of health information, including television and radio [11]. Such variation in sources of health information could influence individuals' causal beliefs about cancer.

To date, research on sources of information about cancer has mainly focused on healthcare providers, the Internet, and print, radio and television media [12-15]. There are relatively few studies that report on how individuals use health information provided by informal sources, such as friends, relatives, or community groups. Such lay interpersonal sources could be particularly important for individuals with limited access to online resources or those who are less likely to seek health information online, such as individuals with fewer years of education and lower income levels [13,14]. Traditionally, resources outside of healthcare providers have been referenced with regards to providing support for treatment options and medical consultations [13,16,17]. However, the role that friends, relatives, and community organizations play in providing general and cancer-specific health information warrants further investigation.

For example, the content and accuracy of information provided by informal sources of health information has not been systematically investigated. In one recent study examining the effects of mass and interpersonal communication on women's breast cancer risk estimates, those women who had discussed the role of genetics in risk of breast cancer with family members were more likely to overestimate genetic risk than those who sought information from media sources [18]. Overall, since health messages likely vary by type of source, and interpersonal sources can encompass a broad category of groups ranging from informal groups to professional organizations, the content and type of health information provided by interpersonal sources, and the effect of this information on cancer-related beliefs, merits further exploration.

Differences in individual characteristics may also contribute to variability in how people obtain and process health information from various sources. Individuals' mental models of cancer risk may vary by gender, race, education and income level [1,2,8,10,19]. For example, individuals with lower educational attainment and income levels have been shown to be less likely than those with higher education or income to cite strategies to reduce

cancer risk and tend to hold fatalistic beliefs about cancer prevention [1,2,10]. It is possible that differences in individuals' mental models may be due, at least in part, to differences in sources of health information. More specifically, because individuals with limited education and income face barriers in gaining access to and understanding certain sources of health information, such as online health information [13,14,20-22], they might receive information about cancer causes from different sources than individuals with higher education or income. Prior studies have also reported that individuals with lower educational levels tend to rely on healthcare providers as their main source of information [23,24]. Patterns of variation in the public's causal beliefs and sources of information about cancer by demographic characteristics therefore merit further research.

The analyses presented here examined how the use of lay interpersonal sources of health information (i.e., friends, family and community organizations) relates to causal beliefs about common cancers, based on data from the 2005 Health Information National Trends Survey (HINTS), a cross-sectional survey of a nationally representative sample of the U.S. adult population [25]. We focused specifically on beliefs related to risk for colon, skin, and lung cancer. A secondary aim of the analysis was to investigate whether causal beliefs for cancer and use of interpersonal sources of health information varied by educational level.

Methods

Data Source

The data for these analyses were obtained from the 2005 HINTS, a biennial survey of U.S. adults, which assesses topics such as personal and family cancer history, cancer knowledge and information seeking, cancer communication and health behaviors [25,26]. Data for this HINTS wave were collected from February through August 2005. The survey was administered by trained interviewers to a representative sample of American households drawn from all telephone exchanges in the U.S.; Black and Hispanic households were oversampled. One adult (age 18 or older) was selected from each household to participate in the survey. Response rates were 34% at the household screening level (i.e., the initial contact with the household used for sampling purposes) and 61% at the sampled person interview level (i.e., completion of the interview by the sampled household member). Every sampled adult who completed a questionnaire was assigned a set of replicate sampling weights [27]. In total, 5,586 adults completed interviews; due to the small number of Spanish-speaking respondents, the present analysis included only those who completed the interview in English (n=5,119). This study was approved by the National Institutes of Health Office of Human Subjects Research.

Measures

Dependent Variables

Beliefs about cancer causation: Respondents' beliefs regarding whether colon, skin, and lung cancer risk is related to modifiable causes were assessed with the following items for each of the 3 cancer types: 1) "There's not much you can do to lower your chances of getting cancer" (agree/disagree) and 2) "Cancer is most often caused by a person's behavior or lifestyle" (agree/disagree). Respondents were randomly selected to answer each pair of beliefs items so that approximately one-third answered the skin cancer items, one-third the lung cancer items, and one-third the colon cancer pair of items. Those who had previously been diagnosed with a cancer were excluded from answering items specific to that cancer.

Independent Variables

Lay interpersonal sources of health information: The survey assessed whether or not respondents had used two types of lay interpersonal sources to obtain health information.

One item asked respondents whether any community organizations (e.g., church, sports leagues, self-help groups, service clubs, professional organizations), provided them with information on health (yes/no). For the second variable, we combined two items: one question asked respondents whether they have friends or family members that they talk to about their health (yes/no) and the second question asked how often. Respondents were categorized as never, not very frequently, somewhat frequently and very frequently based on their answers to these two items.

Covariates

Personal and family history: Items assessed self-reported health (excellent/very good, or good/fair/poor) and whether or not respondents had a personal or family history of skin, lung, or colon cancer.

Health care coverage: Respondents were asked to report whether or not they had any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare (yes/no).

Media exposure: Individuals reported whether or not they had ever used the Internet (yes/no). Respondents also reported how many hours per week they watched television, listened to the radio or used the Internet; these items were treated as continuous variables.

Media sources of health information: Sets of items assessed the frequency with which respondents obtained health information from the newspaper, local news or Internet (never, less than once per week, or once or more per week).

Sociodemographics: Respondents were asked to report their race/ethnicity, annual household income, education, marital status, age and sex.

Analysis

The data were analyzed using SUDAAN 9.0.0, incorporating replicate sampling weights. Descriptive statistics were examined for all variables. Bivariate associations were assessed with chi-square tests for dichotomous variables and t-tests for continuous variables, and multivariate models were created for all significant bivariate associations. Only those respondents who were randomly selected to answer the sets of cancer belief items related to each of the three cancer types were included in the analyses. For multivariate logistic and linear regression models, backwards elimination with forward checking was first used to select a model including those covariates that had associations with the dependent variable of $p < 0.2$ or less. The independent variable was then added to the model to assess significance as $p < 0.05$. Effect modification by education was tested with interaction terms in the multivariate models. Respondents with missing data were excluded.

Results

Description of Sample

Among respondents, the proportions of males and females were nearly equivalent (48% and 52%, respectively), about three-quarters (76%) were white, non-Hispanic, and the mean age was 46 years (range: 18 – 96 years). Most respondents were married (64%). More than half earned greater than \$50,000 per year (52%), although approximately 45% had no education beyond high school (see Table 1). The vast majority had some form of health care coverage (88%), although less than half (43%) considered themselves to be in excellent or very good health. Three-quarters (76%) had a family history of cancer, whereas only 12% reported a personal diagnosis of cancer.

Sources of Health Information

Interpersonal Sources: Fewer than half (40%) of respondents reported that community organizations were a source of health information for them. Approximately 50% said that they somewhat or very frequently discussed health information with their friends or family (see Table 2).

Media Sources—Similar proportions of respondents indicated that they read health sections of the newspaper (43%), watched health segments on the local news (46%), or read health information on the Internet (44%) one or more times per week. Overall, approximately half of respondents (52%) reported using the Internet to look for information about cancer.

Beliefs About Cancer Causation—More respondents endorsed the belief that there is not much one can do to lower the chances of getting cancer for colon cancer (20%) than for lung (15%) or skin cancer (12%). The majority of respondents agreed that cancer is most often caused by a person's lifestyle or behavior for lung cancer (83%) and skin cancer (70%), but a lower percentage (46%) held this belief for colon cancer (see Table 3).

Correlates of the belief that cancer risk is not modifiable

Colon Cancer—Both lay interpersonal sources of health information that were examined here were significantly correlated with respondents' beliefs about the modifiability of colon cancer risk in multivariate models. As shown in Table 4, multivariate analyses revealed a significant interaction between educational attainment and reporting that community organizations provided health information. More specifically, for respondents who had completed at least some college, those who reported that community organizations had provided health information were less likely to believe that there is not much you can do to lower your chances of getting colon cancer compared to respondents with lower educational attainment who had not reported health information being provided by community organizations (OR: 0.38, CI: 0.19-0.73), controlling for the other variables in the model (see Table 4).

In addition, in multivariate analyses, those individuals who never spoke with family and friends about health were significantly more likely to believe that there is not much one can do to lower the chance of getting colon cancer, compared to those that very frequently discussed health information with their family and friends (OR: 2.47, 95% CI: 1.16 – 5.29), controlling for the other variables in the model (see Table 5).

Skin Cancer—Reporting that community organizations provided health information was also significantly associated with beliefs about the modifiability of skin cancer risk. In a multivariate model, those who had received health information from community organizations were less likely to believe that there is not much you can do to lower the chances of skin cancer (OR: 0.44, 95% CI: 0.21 – 0.94). In this model, having a lower level of education was a significant positive correlate of endorsing this belief (OR: 1.94, 95% CI: 1.03 – 3.65) (see Table 6).

Lung Cancer—Use of lay interpersonal sources of health information was not related to the belief that there is not much one can do to lower the chance of getting lung cancer in these analyses.

Correlates of the belief in behavioral causes of cancer

Skin cancer—As shown in Table 7, having lay interpersonal sources of information was significantly associated with belief in lifestyle or behavioral causes of skin cancer.

Individuals reporting speaking somewhat frequently with friends and family about health information were more likely to agree with this belief than those who spoke very frequently (OR: 2.24, 95% CI: 1.40 – 3.59), controlling for the other variables in the model. In this model, those with no education beyond high school were less likely to agree that skin cancer is caused by a person's behavior (OR: 0.58, 95% CI: 0.39-0.86) than those with higher educational attainment.

Colon and lung cancer—Lay interpersonal sources were not significantly related to endorsing behavioral causal beliefs for colon or lung cancer in these multivariate models.

Discussion

The findings presented here suggest that a substantial subgroup of U.S. adults receives health information through lay interpersonal sources. In these analyses, approximately 40% of respondents reported that community organizations such as churches, sports leagues, self-help groups, service clubs, or professional organizations provided them with information about health. Of note, only 16% of respondents indicated that they talked to their family or friends “very frequently” about health, although an additional 35% reported doing so “somewhat frequently.” The role of family or friends in seeking medical information has typically been described as providing support in making decisions about treatment options and requests for second opinions [21,28]. However, there is some evidence that family and friends are cited by patients as important sources of medical information [17,29,30]. Our results support this finding – those individuals that “never” discussed health with family and friends were more than twice as likely to believe that there is not much a person can do to lower the chance of getting colon cancer than individuals that spoke “very frequently” with family and friends about health. These results therefore indicate that use of lay interpersonal sources for health information could play a role in how a person develops causal attributions for disease. Importantly, however, individuals' beliefs about cancer causation may also influence what sources they choose to interact with to seek health information. Therefore, longitudinal data are necessary to examine more fully how individuals process health information provided by interpersonal sources and whether their beliefs in turn affect their subsequent interaction with these sources.

We had hypothesized that beliefs among individuals with lower educational attainment would be associated with the use of lay interpersonal sources for health information, due to prior research showing less use of other information resources such as the Internet among this group. However, we found that, for individuals with lower educational attainment, the provision of health information by community organizations was not significantly related to beliefs about the modifiability of colon cancer risk, while for individuals with higher education levels, provision of health information by community organizations was significantly related to a lower likelihood of believing that the causes of colon cancer are not modifiable. One possible reason for this finding may be that individuals with lower educational attainment may be less able to understand and use health information from these organizations if it is provided in print; prior research has shown that individuals with less education may have more limited understanding of cancer control messages and print informational materials [12,31]. Interestingly, no similar interaction effects between provision of health information by community organizations and educational level were observed in relation to people's beliefs about skin and lung cancer risk. This result suggests that the availability and/or type of materials provided by community organizations may differ by cancer type. Given that community organizations differ widely, from professional organizations to more informal organizations such as sports teams, these findings certainly highlight the need for further exploration of the content and format of health messages provided by different types of community organizations.

The data presented here also inform our overall understanding of how members of the general public conceptualize cancer risk. Fewer than 20% of respondents believed that there is not much one can do to lower the chance of getting cancer for all three cancer types, thereby suggesting that the majority of individuals do view risk of these common cancers as modifiable. These findings are consistent with prior research showing that approximately one-quarter of surveyed populations believe that there is not much people can do to prevent cancer [10,32]. In contrast, in this study, the proportion of respondents who reported believing that behavior or lifestyle is the major cause of cancer varied greatly across cancer types. More than half reported that factors other than behavior or lifestyle are the major causes of colon cancer, while this was true for only 30% of respondents for skin cancer and 18% for lung cancer. It is possible that these individuals may believe that inherited factors such as genes are the major cause of colon cancer, which could have implications for their willingness to engage in preventive and screening behaviors. Because beliefs about disease causation are thought to influence health behaviors [33-35], it will be important in future studies to assess the extent to which individuals believe different factors (e.g., genes, behavior, chance) cause common diseases such as colon cancer and whether these beliefs then have an effect on behaviors. In addition, for the present analyses we could only examine beliefs about causation for three cancers that are fairly preventable. It is therefore important to note that beliefs about the causes of cancer may differ for other types of cancers that are less preventable, and this is another important area for future research.

It is possible that the variability in beliefs by cancer type found in this study could be due to differences in public exposure to educational initiatives, such as media campaigns promoting awareness of smoking as a lung cancer risk factor [36] or sun exposure as a skin cancer risk factor [37], while perhaps the multiple behavioral causes of colon cancer might not yet have been as clearly communicated to the public. These findings therefore suggest a need for public health messages focused on primary prevention for colon cancer through health behavior change. Given that the associations between informal sources and beliefs about cancer causation varied by cancer type in this study, it will be important to further investigate how the availability and content of health messages for specific cancer types differ among the spectrum of possible health information sources, including both media and interpersonal sources.

There are several limitations to consider when interpreting the results of this study. HINTS 2005 was a cross-sectional survey, so we are unable to determine the directionality of observed associations. Future studies that use longitudinal approaches could assess whether health information received from interpersonal sources directly influences causal beliefs about disease and downstream variables such as health behaviors, or if instead causal beliefs about cancer influence preference for sources of health information. Another limitation of the study is that the response rate was 34% at the household screening level [27], and although this is consistent with what has been observed for other cross-sectional, random digit dial surveys [38], respondents might differ from non-respondents on assessed variables. We were limited to items assessing only some causal beliefs about three relatively preventable cancers, and the items had closed-ended, dichotomous response options, which might not fully capture respondents' causal attributions of disease [39]. Similarly, more comprehensive measures of usage of different media would help to examine patterns of use of various sources of health information, as well as to investigate how individuals combine usage of lay interpersonal sources and other health information sources. In this survey, data was not available on the types of community organizations that provided health information to an individual. It is likely that organizations considered by respondents vary greatly in scope and focus, as well as the types of health information they provide. Therefore, the findings reported here could vary by the type of community organization, as well as the

level of involvement those surveyed had in interacting with the organization and provided health information.

Despite these limitations, there are multiple benefits to using the HINTS survey data. The large, nationally representative sample not only gives an overview of the general public's causal beliefs about cancer and use of lay interpersonal sources of health information, but also allows for the comparison of subgroups of individuals (e.g., by education). This study is one of the first to assess causal beliefs about common cancers among individuals at average risk in the context of use of lay interpersonal information sources.

The findings from our study reveal that discussions of health information with family and friends and provision of this information by community organizations are associated with beliefs about the causes of cancer, particularly for colon and skin cancer. Future research is needed to examine whether and how the use of interpersonal resources has a direct causal influence on one's beliefs about the modifiability of cancer risk. People's mental models of the causes of cancer may change over time, and are likely to be influenced by a variety of health information sources [40]. Individuals may obtain health information through a variety of mechanisms, including exposure to health messages, accessing health information offered to them, or actively seeking information from selected sources. In addition, individuals will differentially evaluate or act on the information that they receive. It will be important to further elucidate how people's processing of messages from different health information sources influences their causal beliefs and informs the decisions they make about health behaviors for cancer prevention.

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Table 1
Sociodemographic and health care characteristics of respondents (n=5,119)

Characteristic	n (%) ^a
Sex (n = 5119)	
Male	1749 (47.6)
Female	3370 (52.4)
Race/ethnicity (n = 5060)	
White, non-Hispanic	4099 (75.7)
Black, non-Hispanic	438 (10.9)
Hispanic	224 (5.7)
Other	299 (7.8)
Age	
Mean (Range)	45.96 (18 – 96)
Marital status (n = 5098)	
Married or unmarried couple	2928 (63.5)
Divorced/separated/widowed	1476 (16.6)
Never married	694 (19.9)
Income (n = 4348)	
Less than \$25,000	1139 (22.4)
\$25,000-\$49,999	1160 (25.2)
\$50,000 or higher	2049 (52.4)
Education (n = 5099)	
Less than high school	699 (14.9)
High school graduate	1390 (30.3)
Some college	972 (22.6)
College graduate or higher	2038 (32.2)
Have any kind of health care coverage (n = 5103)	4627 (87.6)
Self-reported health (n = 5110)	
Excellent/very good	2301 (42.7)
Good/fair/poor	2809 (57.3)
Family history of cancer (n = 4922)	3847 (75.5)
Colon	632 (11.7)
Skin	297 (5.8)
Lung	992 (21.3)
Personal history of cancer (n = 5112)	835 (12.1)
Colon	54 (0.8)
Skin	93 (1.5)
Lung	14 (0.3)
Media exposure (mean values)	
Average hours of TV watched/week (n = 5010)	20.8
Average hours listened to radio/week (n = 4597)	16.5
Average hours of Internet use/week (n = 3137)	11.3

Characteristic	n (%) ^a
Ever use of Internet (n=5119)	
Yes	3137 (65.9)
No	1977 (34.1)

^aValues incorporate survey sampling weights and are percentages of available cases who responded to the question. Percentage values may not total 100 due to rounding.

Table 2
Sources of health information for respondents

Information Source (in last 12 months)	n (%) ^a
<i>Interpersonal Sources</i>	
Community organizations provide health information (n=3303)	
Yes	1326 (40.4)
No	1977 (59.6)
Respondent talks to family and friends about health (n=5119)	
Never	866 (20.1)
Not very frequently	1571 (29.7)
Somewhat frequently	1852 (34.6)
Very frequently	815 (15.6)
<i>Media Sources</i>	
Newspaper health sections (n=4541)	
Do not read	1100 (30.0)
Read less than once per week	1186 (27.6)
Read once or more per week	2255 (42.5)
Local news health segments (n=4943)	
Do not watch	1192 (26.8)
Watch less than once per week	1251 (26.9)
Watch once or more per week	2500 (46.3)
Internet health information (n=3032)	
Do not use	988 (33.4)
Use less than once per week	703 (22.8)
Use once or more per week	1341 (43.8)
Use Internet to look for information about cancer (n=5119)	
Yes	2809 (52.2)
No	2296 (47.8)

^aValues incorporate survey sampling weights and are percentages of available cases who responded to the question. Percentage values may not total 100 due to rounding.

Table 3
Beliefs about causation of colon, skin and lung cancer

Characteristic	n (% of respondents) ^a
Belief that there is not much you can do to lower chances of getting cancer (by cancer type)	
Colon cancer (n = 1704)	338 (19.8)
Skin cancer (n = 1476)	187 (12.2)
Lung cancer (n = 1680)	264 (14.7)
Belief that cancer is most often caused by a person's lifestyle or behavior (by cancer type)	
Colon cancer (n = 1595)	713 (45.6)
Skin cancer (n = 1426)	1043 (69.8)
Lung cancer (n = 1373)	1373 (82.9)

^aPercentage values may not total 100 due to rounding. Values are percentages of available cases who responded to question and incorporate survey sampling weights.

Table 4
Correlates of the belief that there is not much you can do to lower chances of getting colon cancer (n=1065)

Parameter	OR (95% CI)
Interaction of community organizations providing health information and educational attainment	
Community organizations provide health info, high education ^a	0.38 (0.19 - 0.73)
Community organizations provide health info, low education	1.16 (0.53 - 2.55)
Community organizations do not provide health info, high education	1.01 (0.47 - 2.17)
Community organizations do not provide health info, low education	1.0 -----
Ever use the Internet	
Yes	0.43 (0.21 - 0.89)
No	1.0 -----
Average hours of TV watched per week	1.02 (1.00 - 1.04)

^aHigh education = some college or more

Low education = high school degree or less

Table 5
Correlates of the belief that there is not much you can do to lower chances of getting colon cancer (n=1462)

Parameter	OR (95% CI)
Speak with family and friends about health information	
Never	2.47 (1.16 – 5.29)
Not very frequently	1.01 (0.50 – 2.05)
Somewhat frequently	1.29 (0.66 – 2.52)
Very frequently	1.0 -----
Ever use the Internet	
Yes	0.57 (0.32 – 1.00)
No	1.0 -----
Personal history of cancer	
Yes	0.65 (0.37 – 1.14)
No	1.0 -----
Family history of cancer	
Yes	0.69 (0.42 – 1.15)
No	1.0 -----
Self-reported health	
Excellent/very good	0.75 (0.50 – 1.04)
Good/fair/poor	1.0 -----
Age	1.02 (1.00 – 1.03)
Average hours of TV watched per week	1.02 (1.00 – 1.03)
Average hours of radio listened to per week	1.01 (1.00 – 1.02)

Table 6
Correlates of the belief that there is not much you can do to lower chances of getting skin cancer (n=911)

Parameter	OR (95% CI)
Community organizations provide health information	
Yes	0.44 (0.21 – 0.94)
No	1.0 -----
Ever use the Internet	
Yes	0.54 (0.22 – 1.34)
No	1.0 -----
Education	
Less than/completed high school	1.94 (1.03 – 3.65)
Some college/college or higher	1.0 -----
Average hours of TV watched per week	1.02 (1.00 – 1.04)

Table 7
Correlates of the belief that skin cancer is most often caused by a person's lifestyle or behavior (n=1410)

Parameter	OR (95% CI)
Speak with family and friends about health information	
Never	1.60 (0.93 – 2.75)
Not very frequently	1.26 (0.69 – 2.31)
Somewhat frequently	2.24 (1.40 – 3.59)
Very frequently	1.0 -----
Ever use the Internet	
Yes	1.52 (0.94 – 2.45)
No	1.0 -----
Education	
Less than/completed high school	0.58 (0.39 – 0.86)
Some college/college or higher	1.0 -----
Age	1.02 (1.01 – 1.03)