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Isolated and Skeptical: Social Engagement and Trust in Information Sources Among Smokers

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Abstract

Our study compared indicators of social engagement and trust among current, former, and never smokers. Multinomial regression analyses of data from the 2005 U.S. Health Information National Trends Survey ($n=5586$) were conducted to identify independent associations between social engagement, trust in health information sources, and smoking status. Never smokers (odds ratio (OR)=2.08) and former smokers (OR=2.48) were significantly more likely to belong to community organizations than current smokers. Never (OR=4.59) and former smokers (OR=1.96) were more likely than current smokers to attend religious services. Never smokers (OR=1.38) were significantly more likely than current smokers to use the Internet. Former smokers (OR=1.41) were more likely than current smokers to be married. Compared to current smokers, never smokers were significantly more likely to trust health care professionals (OR=1.52) and less likely to trust the Internet (OR=0.59) for health information. Current smokers are less socially engaged and less trusting of information resources than non-smokers.

Keywords

Smoking; Social engagement; Health

Introduction

Tobacco Burden

An estimated 438,000 people in the United States die each year from smoking or exposure to secondhand smoke, while an additional 8.6 million people suffer tobacco-related illness [1]. Tobacco use exacts an enormous economic burden to society with an estimated \$96 billion dollars in annual healthcare expenditures attributable to smoking [2]. Despite overwhelming evidence of individual and societal harm due to smoking, approximately 45 million adults in the U.S. currently smoke cigarettes [3]. Current clinical guidelines recommend attention to social support as part of smoking cessation counseling efforts [3].

Social Engagement, Trust, and Health

Social engagement, opportunities for social support, and trust among community members are gaining traction in public health research as important determinants of health behaviors and health outcomes [4–6]. Individual level measures of these constructs are part of a constellation of variables associated with social engagement and may be associated with certain health behaviors and outcomes.

Since the late 1800s when Durkheim [7] demonstrated that the lowest rates of suicide occurred in societies with the highest degrees of social integration, researchers have studied the extent to which community level social influences are associated with health behaviors and health outcomes. Several large prospective cohort studies describing the impact of individual level measures of social engagement on behavioral risk factors and their resultant disease outcomes indicate that people who are isolated are at increased risk of dying prematurely [8].

Social engagement has been postulated to influence health behavior through information exchange, instrumental support, behavioral modeling, and affection [8]. At the individual level, ties to community groups have been shown to contribute to better recall of health messages in the media [9]. Several recent studies have documented the impact of social ties on obesity and smoking cessation [10, 11]. Other studies have documented protective effects of social engagement on individual behavior and well-being [12–16].

Project Aims

We examined social engagement, trust, and smoking status, hypothesizing that former and never smokers would have higher levels of social engagement and trust than current smokers. This study adds to previous literature documenting social marginalization and low levels of social trust among smokers [11, 17] through examination of several dimensions of social engagement and trust in specific sources of health information. We examined differences in participation in community organizations, availability of family and neighborhood support, and participation in religious services between current, former, and non-smokers. Differences in contact with the medical system and marital status were assessed as further markers of social support. We also assessed differences in trust in health information from health care providers, friends, and various media channels to identify potential opportunities for cessation outreach for smokers.

Materials and Methods

Data Collection, Response Rates, and Sample

Data are from the 2005 Health Information National Trends Survey (HINTS 2005). The HINTS is among the first national databases to capture levels of social engagement and trust in various sources of health information in the U.S. population. HINTS 2005 employed a list-assisted, random digit dial of all telephone exchanges in the U.S. The survey was administered to a representative sample of U. S. households wherein one adult per household was selected for extended interview ($n=5,586$). The final response rate for the screener was 34.01%, and the final response rate for extended interview was 61.25%. Greater details about the sample and design are reported elsewhere (<http://www.cancercontrol.cancer.gov/hints>).

Sociodemographic Characteristics

Sociodemographic characteristics examined in our analyses included gender, age, race/ethnicity, education, and income (Table 1). Ethnicity and race were assessed following the Office of Management and Budget standards [18].

Smoking Status

Respondents were asked “Have you smoked at least 100 cigarettes in your life?” Respondents who smoked at least 100 cigarettes were asked “Do you now smoke cigarettes... every day, some days, or not at all.” Respondents who reported having smoked at least 100 cigarettes during their lifetime and currently smoking “every” or “some” days were categorized as “current smokers.” Respondents who smoked at least 100 cigarettes during their lifetime, but who indicated that they currently did not smoke were categorized as “former smokers.” Respondents who had not smoked at least 100 cigarettes during their lifetime were categorized as “never smokers.”

Social Engagement and Trust

To test our hypothesis that current smokers possess lower levels of social engagement and trust than former and never smokers, several HINTS items were included to assess social engagement, opportunities for social support, and trust in sources of health information. Items assessing membership in community organizations, attendance at religious services, use of online support groups, other measures of social support, and trust in health or medical information from health care providers, friends, and various media channels are shown in Table 2.

Analyses

To account for the complex survey design of HINTS 2005, analyses were conducted using SAS-Callable SUDAAN version 9.0; all estimates were weighted to be representative of the U.S. population. Descriptive analyses, including frequencies, percentages, and means for relevant variables were conducted. Bivariate associations were assessed using chi-square tests of independence. Two multinomial regression analyses were conducted to identify independent associations of social networks, opportunities for social support, and trust with

smoking status, controlling for sociodemographic variables. All variables significantly associated with smoking status in the bivariate chi-square analyses were included in the final multinomial regression models using a forced entry method of variable selection. Tests of statistical significance were estimated at the $p<0.05$ level.

Results

Cross-tabulation with chi-square revealed significant differences for each of the sociodemographic variables by smoking status (Table 1). A higher percentage of current and former smokers were male compared to never smokers. Former smokers, as a group, were slightly older than never smokers and current smokers. Generally, current smokers reported lower levels of education and income than former and never smokers. A higher percentage of former smokers reported being non-Hispanic white compared to never and current smokers. Finally, a lower percentage of current smokers were married or living with a partner than never and former smokers.

Table 2 summarizes the cross-tabulation of social engagement and trust items with smoking status. A higher percentage of current smokers (61.4%) did not belong to any community organization compared with former (38.2%) and never smokers (33.9%). More current smokers (28.0%) than former (19.2%) and never smokers (17.9%) did not have family or friends with whom they could talk about their health. The percentage of current smokers (61.4%) who did not have people they could rely on for a ride to a health care provider was higher than for former (38.2%) and never (34.0%) smokers. Current smokers (31.0%) more frequently reported that they never attended religious services than former (21.7%) and never smokers (13.5%). The percentage of current smokers (43.2%) who never go online to use the World Wide Web or to send or receive e-mail was similar to former smokers (42.4%) and higher than never smokers (34.4%). Current smokers (22.4%) more frequently reported that they did not see a health care provider during the past 12 months than former (11.8%) and never smokers (15.4%).

Trust in health care professionals was somewhat lower among current smokers, with 63.1% reporting they trusted information about health or medical topics from health care professionals “a lot,” compared to former smokers (70.9%) and never smokers (67.8%). In terms of mass-mediated sources of health information, magazines and the Internet were the only channels in which trust was differential by smoking status. Trust in magazines (“a lot”) was somewhat lower among current smokers (17.1%) than former (22.9%) and never smokers (19.3%). Current smokers (20.9%) reported trust (“a lot”) in information from the Internet more frequently than never smokers (16.9%) and less frequently than former smokers (21.4%).

Social Engagement

Table 3 summarizes the results of a multinomial regression analysis examining independent associations of social engagement indicators with smoking status. Using a forced entry method of variable inclusion, the regression model includes all sociodemographic variables and social engagement variables that were significantly associated with smoking status in the bivariate analyses. Results indicate differential participation in community organizations

and attendance at religious services by smoking status. Compared with current smokers, never smokers (odds ratio (OR)=1.45) and former smokers (OR=1.59) were more likely to belong to one or two community organizations than to none, and never smokers (OR=2.08) and former smokers (OR=2.48) were more likely than current smokers to belong to three to four community organizations than to none. Compared to current smokers, never smokers were more likely to report attending religious services once or twice a month (OR=1.74) or every week (OR=4.59); former smokers (OR=1.96) were more likely than current smokers to report attending religious services every week. Compared to current smokers, never smokers (OR=1.38) were more likely to report use of the Internet and e-mail. Compared to current smokers, former smokers (OR=1.41) were more likely to report being married or living with a partner.

Trust

Table 3 summarizes the multinomial regression results examining independent associations between smoking status and measures of trust in health information sources. Using a forced entry method of variable inclusion, the regression model includes all sociodemographic variables and trust in health information variables that were significantly associated with smoking status in the bivariate analyses. No significant differences were found for trust in health information from family or friends, newspapers, radio, or television. Trust in health information by smoking status appear to be differential for information received from a doctor or other health care professional, and in magazines and on the Internet. Former smokers are no more or less likely than current smokers to trust information about health or medical topics from a health care professional; however, never smokers (OR=1.52) are significantly more likely than current smokers to trust health information from this source. Former smokers (OR=1.79) are significantly more likely to trust health information in magazines than are current smokers, and never smokers (OR=0.59) are significantly less likely than current smokers to trust health information from the Internet.

Discussion

Clinical guidelines recommend attention to social support as part of smoking cessation counseling efforts [3]. Our results speak to an unequally distributed deficit in social engagement wherein current smokers appear to be less socially engaged than individuals who never smoked and those who have successfully quit. Consistent with evidence of increasing social marginalization and lower levels of social trust among smokers [11, 17], the observed results characterize current smokers as less engaged in community organizations than non-smokers and indicate that current smokers possess lower levels of trust in certain sources of health information, including health care providers.

While membership in social networks has previously been found to be associated with knowledge of messages regarding prevention [9, 19], the current analysis found no associations of talking with friends or family members about health with smoking behavior, which may indicate that knowledge of the harms of smoking are already well-known [20]. Regarding instrumental support, the current analysis found no relationship between smoking and one measure of instrumental support, living near people who could provide a ride to a

health care provider. While the current analysis provides no measure of behavioral modeling or affection, social relationships may provide individuals with a meaningful life and a desire to preserve their own health, helping them to avoid the use of tobacco [21]. In addition, attendance at religious functions, in particular, could provide exposure to anti-tobacco norms [22].

The observed differences in trust for information received from various sources by smoking status are consistent with previous findings [23]. Previous research has shown that current smokers are less likely to engage with the health care system [24] thereby limiting smokers' access to an important source of cessation support. Compared to never smokers, current smokers in our study were less likely to trust health information from health care professionals and more likely to trust information from the Internet suggesting that Web-assisted tobacco interventions may be an important source of cessation information and social support for smokers. Indeed, emerging research suggests that Web-assisted tobacco interventions are effective at helping smokers to quit [25–28].

Limitations and Future Research

While our results reveal associations among smoking status and social engagement, HINTS 2005 data are cross-sectional and therefore the direction of effect cannot be established, and caution must be taken not to over-interpret observed associations. While social engagement and trust may affect smoking initiation and cessation, the reverse causal relationship is also plausible, where a person's smoking status may lead to less social engagement and distrust. Thus, we have taken care to interpret our findings in the context of evidence from previous research.

Conducting a secondary data analysis to explore associations between smoking status and social engagement limited our choice of measures to those included in the HINTS survey. Social engagement and trust are complex, multifaceted constructs that are difficult to capture through national surveys. Although the resultant use of single item measures may have increased our error variance and attenuated our effects, the consistent pattern of observed social isolation among current smokers suggests this may be a minor concern.

Although response rates for HINTS 2005 are comparable to other random digit dial surveys, the general decline in response rates to random digit dial surveys represents another limitation [29]. Low response rates can result in unmeasured systematic differences between responders and non-responders and may limit the generalizability of the results [30]. While it cannot be determined from these data whether any systematic differences exist between responders and non-responders, the scientific rigor of HINTS is comparable with other federal surveillance mechanisms, and psychometric reviews suggest that population estimates of self-reported behavior, knowledge, and attitudes have not been dramatically distorted by falling response rates [31].

Further research to understand the ways in which social engagement and trust contribute to smoking uptake and cessation are encouraged. Research is needed to assess temporal relationships among social engagement, trust, and smoking status. In particular, longitudinal research to track patterns of social engagement and trust over time to discern associations

with smoking behavior is encouraged to more clearly discern causal connections. Efforts to understand the role of new media and the Internet as potential avenues both for social connection and social isolation are also recommended. Greater understanding of the ways in which social engagement supports healthy behavior will pave the way for creating more effective public health interventions to promote smoking cessation and reduce tobacco burden.

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Table 1Weighted percentages and chi-square *p* values of sociodemographic variables by smoking status

	Never smoker <i>N</i> =2,877 (52.4%)	Former smoker <i>N</i> =1,599 (29.1%)	Current smoker <i>N</i> =1,015 (18.5%)	<i>p</i> value
Sex				<0.0001
Male	41.8	55.7	53.6	
Female	58.2	44.3	46.4	
Age				<0.0001
18–34	36.5	14.0	38.0	
35–49	29.2	27.3	34.7	
50–64	20.2	30.9	20.3	
65 and older	14.1	27.7	7.0	
Education				<0.0001
Less than high school	12.0	14.3	20.6	
High school graduate	59.5	61.7	68.7	
College graduate	28.5	24.0	10.7	
Race/ethnicity				<0.01
Non-Hispanic white	67.3	75.6	69.7	
Non-Hispanic black	10.8	7.8	10.3	
Hispanic	15.3	9.9	10.9	
Other	6.6	6.6	9.1	
Annual household income (US dollars)				<0.0001
Less than \$25,000	23.6	22.0	35.3	
\$25,000 to less than \$35,000	10.0	12.1	11.9	
\$35,000 to less than \$50,000	12.4	15.4	15.9	
\$50,000 to less than \$75,000	21.3	23.4	19.9	
\$75,000 or more	32.7	27.1	17.0	
Marital status				<0.0001
Married or living with partner	63.9	72.9	53.3	
Not currently married	36.1	27.1	46.7	

Data from the 2005 U.S. Health Information National Trends Survey

Table 2

Weighted percentages and chi-square p values for social engagement and trust by smoking status

HINTS item	Never smoked N=2,877 (52.4%)	Former smoker N=1,599 (29.1%)	Current smoker N=1,015 (18.5%)	Chi-square (df); p value
How many community organizations are you currently a member of? (% none)	33.9	38.2	61.4	25.2 (6); <0.0001
Does/do any of these community organizations provide you with information on health? (% no)	59.5	56.9	62.4	0.96 (2); 0.39
Do you have friends or family members that talk to you about your health? (% no)	17.9	19.2	28.0	9.5 (2); <0.001
How frequently do you talk to these friends or family members about health? (% not very frequently)	38.3	38.9	33.8	1.5 (4); 0.21
How many people live near you whom you can rely on in case you need a ride to visit your health care provider? (% none)	34.0	38.2	61.4	3.3 (6); <0.01
Not including funerals and weddings, how often do you attend religious services? (% never)	13.5	21.7	31.0	45.4 (6); <0.0001
Do you ever go online to use the Internet, World Wide Web, or send/receive e-mail? (% no)	34.4	42.4	43.2	10.6 (2); <0.001
During the past 12 months, not counting times you went to an emergency room,...did you go to a doctor, nurse, or other health care provider to get care for yourself? (% no)	15.4	11.8	22.4	11.9 (2); <0.001
During the past 12 months, have you participated in an online support group for people with similar health or medical issues (% no)	97.2	97.6	98.5	3.2 (2); <0.05
How much would you trust information about health or medical topics...				
...from a doctor or other health care professional (% "a lot")	67.8	70.9	63.1	5.4 (2); <0.01
...from family or friends (% "a lot")	22.4	21.9	25.4	1.4 (2); 0.26
...in newspapers (% "a lot")	19.1	21.6	16.0	2.8 (2); 0.07
...in magazines (% "a lot")	19.3	22.9	17.1	3.6 (2); <0.05
...on the radio (% responding "a lot")	12.2	13.0	11.4	0.24 (2); 0.79
...on the Internet (% "a lot") ^a	16.9	22.6	20.9	3.5 (2); <0.05
...on television (% "a lot")	19.5	21.4	23.4	1.7 (2); 0.19

Data from the 2005 U.S. Health Information National Trends Survey

^aThis question was only asked of respondents who responded "Yes" to the following item: "Do you ever go online to use the Internet or World Wide Web, or to send and receive e-mail?"

Table 3

Multinomial regression showing differences in social engagement and trust by smoking status, controlling for sociodemographic variables

Social engagement	Never smoker vs. current smoker	Former smoker vs. current smoker
	OR (95% CI)	OR (95% CI)
How many community organizations are you currently a member of?		
None	ref	ref
1–2	1.45 (1.01–2.09)	1.59 (1.15–2.19)
3–4	2.08 (1.15–3.77)	2.48 (1.45–4.22)
5 or more	1.06 (0.51–2.19)	1.16 (0.55–2.42)
Do you have friends or family members that you talk to about your health?		
No	ref	ref
Yes	1.26 (0.93–1.70)	1.23 (0.83–1.81)
Not including funerals and weddings, how often do you attend religious services?		
None	ref	ref
A few times a year	1.31 (0.93–1.84)	0.99 (0.65–1.50)
Once or twice a month	1.74 (1.15–2.63)	0.94 (0.60–1.46)
Every week	4.59 (2.98–7.08)	1.96 (1.24–3.09)
How many people live near you whom you can rely on in case you need a ride to visit your health care provider?		
None	ref	ref
1–2	1.10 (0.65–1.85)	0.81 (0.48–1.34)
3–4	1.12 (0.68–1.84)	0.77 (0.43–1.37)
5 or more	1.10 (0.69–1.75)	1.03 (0.63–1.69)
Do you ever go on-line to use the Internet, World Wide Web, or send/receive e-mail?		
No	ref	ref
Yes	1.38 (1.02–1.85)	1.31 (0.91–1.87)
Saw a health care provider during the last year		
No	ref	ref
Yes	1.16 (0.79–1.71)	1.23 (0.78–1.96)
Marital status		
Not currently married	ref	ref
Married or living with partner	1.18 (0.91–1.52)	1.41 (1.05–1.88)
Sex		
Male	ref	ref
Female	1.43 (1.07–1.91)	0.83 (0.63–1.11)
Age		
18–34	ref	ref
35–49	0.69 (0.52–0.91)	1.46 (0.93–2.29)
50–64	0.91 (0.66–1.25)	3.37 (2.30–4.92)
65 and older	2.43 (1.60–3.69)	11.14 (7.24–17.15)
Education		
Less than high school	ref	ref

Social engagement	Never smoker vs. current smoker	Former smoker vs. current smoker
High school graduate	1.54 (1.04–2.29)	1.16 (0.73–1.84)
College graduate	3.73 (2.33–5.97)	2.01 (1.12–3.61)
Race/ethnicity		
Non-Hispanic white	ref	ref
Non-Hispanic black	1.45 (0.95–2.22)	1.28 (0.76–2.14)
Hispanic	3.13 (2.00–4.90)	2.31 (1.41–3.77)
Other	1.17 (0.69–1.98)	1.24 (0.61–2.53)
Household income (US dollars)		
Less than \$25,000	ref	ref
\$25,000 to less than \$35,000	1.16 (0.82–1.65)	1.30 (0.83–2.05)
\$35,000 to less than \$50,000	0.99 (0.66–1.51)	1.35 (0.80–2.29)
\$50,000 to less than \$75,000	1.22 (0.84–1.80)	1.47 (1.02–2.13)
\$75,000 or more	2.24 (1.56–3.21)	2.18 (1.56–3.05)
TRUST	Never smoker vs. current smoker	Former smoker vs. current smoker
	OR (95% CI)	OR (95% CI)
Trust information about health or medical topics from a doctor or other health care professional		
A little, some, or not all	ref	ref
A lot	1.52 (1.09–2.12)	1.26 (0.84–1.91)
Trust information about health or medical topics in magazines		
A little, some, or not all	ref	ref
A lot	1.29 (0.84–1.96)	1.79 (1.10–2.92)
Trust information about health or medical topics on the Internet		
A little, some, or not all	ref	ref
A lot	0.59 (0.41–0.87)	0.85 (0.55–1.30)
Sex		
Male	ref	ref
Female	1.21 (0.85–1.72)	0.88 (0.59–1.30)
Age		
18–34	ref	ref
35–49	0.75 (0.50–1.11)	1.56 (0.97–2.50)
50–64	1.18 (0.74–1.87)	4.14 (2.55–6.71)
65 and older	2.93 (1.55–5.56)	16.64 (8.34–33.19)
Education		
Less than high school	ref	ref
High school graduate	2.58 (1.19–5.60)	1.63 (0.72–3.66)
College graduate	6.82 (3.18–14.64)	3.52 (1.48–8.34)
Race/ethnicity		
Non-Hispanic white	ref	ref
Non-Hispanic black	2.10 (1.00–4.41)	0.90 (0.50–1.62)
Hispanic	2.51 (1.30–4.87)	2.10 (0.94–4.71)
Other	1.02 (0.55–1.89)	0.99 (0.41–2.43)
Household income		

Social engagement	Never smoker vs. current smoker	Former smoker vs. current smoker
Less than \$25,000	ref	ref
\$25,000 to less than \$35,000	0.96 (0.52–1.76)	1.06 (0.52–2.17)
\$35,000 to less than \$50,000	1.26 (0.69–2.31)	1.50 (0.70–3.25)
\$50,000 to less than \$75,000	1.47 (0.93–2.31)	1.76 (1.02–3.02)
\$75,000 or more	1.90 (1.14–3.18)	2.31 (1.32–4.04)

Data from the 2005 U.S. Health Information National Trends Survey

All significant odds ratios (OR) shown in bold text

CI confidence interval; *ref* reference category