

Characteristics of smokers with intentions to quit, with a focus on occupational status, race/ethnicity, and cognitive behavior

SUNIL MATHUR⁽¹⁾, NEHA SINGH⁽¹⁾

ABSTRACT

BACKGROUND: Cigarette smoking continues to be the leading cause of preventable morbidity and mortality in the United States. Tobacco related mortality has promoted a massive effort to understand and enhance smoking cessation efforts. In this study, we examine the role of different factors on intentions to quit smoking.

METHODS: Data is taken from Health Information National Trends Survey (HINTS) 2012. A total of 2019 national representative samples of U.S adults, meeting our research conditions, were included in this study with 287 current smokers.

RESULTS: Multivariate statistical analysis showed that unemployed participants were five times more likely to have intentions to quit than participants with other occupational statuses were. Participants who were slightly worried about getting cancer (cognitive behavior) were five times more likely to have intention to quit smoking as compared to those who were extremely worried. In addition, Hispanics, non-Hispanic Whites, and non-Hispanic Blacks or African-Americans were 11, 13, and 14 times, respectively, more likely to have intention to quit smoking as compared to other races. Perceived personal risk of cancer, perceived compared risk of cancer, and family history of cancer were not significantly associated with intentions to quit smoking.

CONCLUSIONS: Our study suggests that race, occupational status, and cognitive behavior (worry) are viable intervention targets for smoking cessation interventions. As a key role can be played by unemployment and cognitive behavior along with race in smoking cessation interventions, future work should evaluate the extent to which these factors can play a role in smoking cessation intervention. Smokers should be encouraged to maintain smoke-free environments in their homes and offices by health care providers, leading to the protection of non-smokers, lesser convenience for smoking, decreased cigarette consumption, and fewer smoking cues over time.

Key words: Cigarette Smoking; Intentions to Quit; Race; Occupational Status; Cognitive Behavior

(1) Department of Biostatistics and Epidemiology, Medical College of Georgia, Georgia Regents University

CORRESPONDING AUTHOR: Sunil Mathur, Department of Biostatistics and Epidemiology, Medical College of Georgia, Georgia Regents University 1120 15th Street, AE 1040, Augusta, GA 30912-4900. Email: smathur@gru.edu

*DOI: 10.2427/10910
Accepted on XXX*

INTRODUCTION

Cigarette smoking is the leading cause of preventable deaths in the United States [1, 2] and has led to massive efforts by the scientific community to understand and enhance smoking cessation efforts. Approximately 443,000 U.S. adults die from smoking-related illnesses each year [1, 3], and around 43.8 million people in the United States smoked in 2011 [1]. No matter how much a person has smoked, quitting smoking at any age reduces risk of tobacco related diseases; however, the greatest benefits of quitting are seen among those who smoked only a few cigarettes per day, or smoked for relatively few years [4]. The number of deaths due to smoking related lung cancer has increased over the decades. Despite all efforts, the survival rate of lung cancer is lower (16.3 %) than that of breast (90%) and prostate (99.9 %) cancer [5].

In developed countries like the US, a large proportion of smokers tend to stop smoking and many try to stop more often after “teachable moments,” which are naturally occurring health events thought to promptly change health behaviors [6]. For example, a lung cancer diagnosis of a family member could be a teachable moment for a smoker. Smokers who have a family member with smoking-related cancer have a higher risk of developing cancer than those who do not have a family member with smoking-related cancer [7-9]. About 5% to 10% of all cancers are inherited – resulting directly from gene defects (called mutations) inherited from a parent [10, 11]. Family history can have a major impact on people to make better decisions regarding their health. Not much research has been done in this direction to explore the effect of having a family member with cancer on the health behavior of other family members. Additionally, there is a need to examine whether cancer diagnosis for a family member could serve as a teachable moment [6, 12, 13].

Perceived benefits are positively related and perceived risks are negatively related to quit smoking motivation [14]. Perception of the health risks associated with smoking differs according to smoking status. Both smokers and non-smokers have an optimistic bias about the health outcomes of smoking, although the bias is more pronounced among smokers [15]. People’s perceptions of similarity to others with

whom they compare themselves may affect the extent of the optimistic bias [15, 16]. Although there is public awareness about the link between cigarette smoking and various adverse health outcomes, approximately a quarter of the adult American population still smokes cigarettes [17]. It appears that the public does not understand this link correctly due to both a lack of awareness of the absolute risks involved and individual underestimations of their own personal risk and compared risk [18, 19]. Family history is also a contributing factor in changing health screening behavior [20-22]. A cross-sectional study conducted in Australia showed that approximately one third of individuals with a relative with cancer reported quitting smoking [12]. Individuals with family history of lung cancer and risk perception associated with the lung cancer might be linked with risk reducing behavior leading to smoking cessation [6, 23-25]. However, it is unknown whether family history of lung cancer is associated with contemplating or preparing to quit smoking.

Perceived risk is considered to be one of the factors that are likely to influence the decision to stop a risky behavior in all models of health behavior [26, 27]. A transtheoretical model is helpful in gauging an individual’s intention to change a habit, such as smoking cessation [28, 29]. The stages of change identified are 1) Pre-contemplation, 2) Contemplation, 3) Preparation, 4) Action, 5) Maintenance [30, 31]. Every individual passes through the cycle at different rates based on a variety of cognitive components. Decisional balance is usually based on the weightage given to pros and cons of smoking. Concern about physical health is a primary motivator for making a quit attempt [7]. The death of a significant other is also a motivator for quitting smoking [32]. However, though the benefits of quitting smoking are clear, approximately one third of cancer patients report continuing to smoke even after their diagnosis of lung cancer [6]. Continuation of smoking after cancer diagnosis hampers the treatment response and decreases the quality of life not only for the smokers but also for the family members [33]. Family history of lung cancer might have a psychological impact on people leading to a higher inclination towards quitting smoking that might vary depending on individual risk perception.

Currently, smoking is associated with working class jobs and low educational levels

[34]. It may be important to see the association of job status and education level on intentions to quit smoking. Smoking-related diseases have disproportionately affected racial and ethnic minorities in the United States. Non-Hispanic Blacks are less likely to quit smoking successfully than are non-Hispanic Whites [35, 36]. Also, Hispanics/Latinos do not have higher rates of successful quitting than non-Hispanic Whites [37, 38]. The examination of racial/ethnic disparities in intentions to quit smoking can lead to decreases in disease rates related to smoking across all racial/ethnic populations and can provide valuable information that may aid in quitting smoking. Health professionals can play an important role in helping smokers quit, but they by themselves are insufficient to help most smokers quit [39]. Health professionals' belief that cessation counseling is their own role results in improved cessation outcomes [40]. Therefore, examining the support level from health professionals can provide insights on intentions to quit smoking.

This paper addresses gaps in knowledge about the role of family history of lung cancer, personal risk perceptions, comparative risk perceptions, age, education, race/ethnicity, gender, occupation, smoking status, and help from health professionals on the intention to quit smoking. This information will enable us to target smoking cessation programs.

METHODS

We used HINTS 2012, a cross-sectional health communication survey that gathers sociodemographic, general health, and cancer-specific information. HINTS 2012 data were collected from October 2011 through February 2012 using a random digital dial method to draw a random sample of telephone numbers in the United States. One adult from each household was selected to be telephonically-interviewed by trained interviewers in English and/or Spanish or was asked to complete a web based version of the survey. For the demographic study (Table 1), our study had 2019 participants meeting our research conditions, which included 790 male and 1229 female adults from different smoking statuses. For regression analysis we used only current smokers ($n = 287$) meeting our research criteria, which included 85 current smokers with intentions to quit.

Variable definition

Dependent variable

Intentions to quit smoking – Participants were asked to report whether they have tried to find any information about quitting smoking. Participants responses were recorded in a dichotomous (yes/no) variable.

Independent variables

Family history of cancer was identified by the question 'Have any of your family members ever had cancer?' Response options were a dichotomous yes/no. Adult current smokers, former smoker, and non-smokers were asked to estimate their own risk of developing a smoking-related illness. Absolute risk perception was measured by asking participants, on a 5 point Likert scale, "How likely do you think it is that you will develop lung cancer in the future?" Response options ranged from very low to very high. For relative risk perception, participants were asked: "Compared to the average person your age, would you say that you are more likely, about as likely or less likely to get lung cancer?" Help from health professionals about feelings of uncertainty was measured on 4 point Likert scale. Response options ranged from always to never. Comparative chance of getting cancer was evaluated by asking the question

"Compared to other people your age, how likely are you to get cancer in your lifetime?" The response was measured on 5-point Likert scale with options ranging from very low to very high. Occupation was measured on 6 point Likert scale with options ranging from employed to others. Race/ethnicity was measured on 4 point Likert scale with options being Hispanic, non-Hispanic White, non-Hispanic Black or African-American, and others. Cognitive behavior (worry about getting cancer) was measure on 5 point Likert scale with options ranging from not at all to extremely worried.

Covariates

We considered current smoking behavior as a covariate. Respondents self-reported

whether they were current, former, or never smokers. Current smokers were those who had smoked at least 100 cigarettes in their lives and also reported presently smoking every day. Former smoker were those who did not smoke at all currently but had smoked at least 100 cigarettes in their lives. And those individuals who never smoked at least 100 cigarettes in their lives were called as never smokers.

Statistical Analysis

The analysis was conducted using IBM SPSS 20. For each variable we performed Pearson X² goodness of fit test to determine the statistical significance of the association between the intention to quit smoking and the independent variables. We did not include those participants who responded yes to the question “have you ever had a cancer?” as the risk perception of participants changes after the diagnosis of cancer. Multivariate logistic regression analysis was conducted to examine predictors of intention to quit smoking and 95% confidence intervals were constructed.

RESULT

The sample for our socio-demographic analysis (Table 1) had 2019 participants meeting our research conditions, which included 277 790 male and 473 1229 female adults from different smoking statuses. From Table 1, we find that the majority of the current smokers were non-Hispanic whites (70.03%) with ages 50 – 64 years (38.32%), 39.02% males and 60.98% females. Among all participants, 28.52% smokers had college or higher level education and 4.87% smokers had lower than high school education. Among current smokers, about 77.70% of people had one or more family member diagnosed with cancer. About 47.38 % of the current smokers believe that they are likely or very likely to get cancer. Only 17.5% current smokers thought they are very likely to get cancer as compared to 57.14% of non-smokers. Among current smokers, only 29.61% had intentions to quit smoking.

We used logistic regression to examine whether age, race, occupation, help from health professionals, perceived risk of cancer, perceived comparative risk of cancer, family

history of lung cancer, and worry about getting cancer are associated with the intention to quit smoking among the current smokers (n = 287). Initial models were unadjusted and examined to determine whether each variable alone can significantly predict the intention to quit smoking. Multiple logistic regression analysis was performed to examine whether variables remained significant after including other predictors. Thus, there is a significant association of race (Hispanic, non-Hispanic White, non-Hispanic Black or African-American), occupation (unemployed), and worry about getting cancer (slightly) with the intention to quit smoking. However, there is no significant association of personal perceived risk of cancer, comparative perceived risk of cancer, family history of lung cancer, age, and help from health professionals about feelings of uncertainty with the intention to quit smoking. Hispanics, non-Hispanic Whites, non-Hispanic Black or African-American were 11, 13, and 14 times respectively more likely to have an intention to quit smoking as compared to other races. Unemployed participants were five times more likely to have intentions to quit than participants with other occupation statuses. Participants who were slightly worried about getting cancer were five times more likely to have intentions to quit smoking than those who were extremely worried about getting cancer.

DISCUSSION

Race/ethnicity is significantly associated with the motivation to quit smoking [41]. Quit rate increases with increasing age, education level, and occupation level [42, 43]. Also, a higher number of smokers was found among unemployed individuals during an economic crisis [44]. Our findings suggest that unemployment is a crucial factor in smoking cessation as unemployed smokers are more likely to quit smoking than employed, retired, students, and homemakers. Race/ethnicity is significantly associated with intentions to quit and smokers belonging to non-Hispanic African-American groups are also more likely to quit smoking than smokers belonging to other racial/ethnic groups. If there is slight worry about getting cancer among smokers, that can play a vital role in quitting smoking and smokers who are worried about getting cancer

TABLE 1

SOCIODEMOGRAPHIC CHARACTERISTICS				
VARIABLES		SMOKING STATUS N (%)		
		CURRENT SMOKERS	FORMER SMOKERS	NEVER SMOKERS
AGE GROUP	18-34	65 (17.5)	43	263
	35-49	89 (15.1)	102	398
	50-64	110 (15.4)	225	377
	65-74	17 (6.8)	111	122
	75+	6 (6.2)	45	46
EDUCATION LEVEL	Less than High school	14 (21.2)	18	34
	High school graduate	60 (21.6)	80	138
	Some college	134 (20.7)	190	324
	Bachelor's Degree or higher	61 (9.9)	150	404
	Post Baccalaureate degree	18 (4.4)	88	306
GENDER	Male	112 (14.2)	245	433
	Female	175 (14.2)	281	773
RACE	Hispanic	34 (18.2)	31	122
	Non-Hispanic white	201 (14.1)	414	808
	Non-Hispanic Black or African American	39 (14.7)	56	170
	Others	13 (9.02)	25	106
COMPARE RISK PERCEPTION	Very unlikely	10 (6.8)	45	93
	Unlikely	32 (9.1)	78	242
	Neither unlikely nor likely	114 (13.4)	225	513
	Likely	101 (20.0)	141	262
	Very likely	30 (18.4)	37	96
FAMILY HISTORY OF LUNG CANCER	Yes	223 (14.8)	414	869
	No	64 (12.5)	112	337
LOOKED FOR INFORMATION TO QUIT SMOKING	Yes	85 (66.9)	15	27
	No	202 (10.7)	511	1179
PERSONAL RISK OF LUNG CANCER	Very unlikely	16 (10.8)	44	88
	Unlikely	23 (9.0)	56	176
	Neither unlikely nor likely	112 (13.2)	228	510
	Likely	103 (17.9)	150	324
	Very likely	33 (17.5)	48	108

are more likely to quit than smokers who are extremely worried about getting cancer.

The findings of this research should be considered and interpreted in the context of several limitations. First, though rigorous sampling procedures were utilized in collecting data, there are chances of recall bias. Second, since the study was a secondary data analysis of an existing data, the survey was not designed

to specifically address the intention to quit smoking and could not explicitly assess many variables such as self-efficacy to quit, self-concept, and motivation evaluation. Third, we could not evaluate the time latency of the teachable moment concept. Also, we could not acquire information about the closeness of the relative diagnosed with cancer and the number of family members diagnosed with cancer.

TABLE 2

MODEL FIT STATISTICS (CURRENT SMOKERS ONLY)				
CHARACTERISTIC		ODDS RATIO	ODD RATIO INTERVAL	
AGE	18-34	1.145	0.388	3.381
	35-49	0.848	0.313	2.294
	50-64	1.981	0.209	18.759
	65-74	0.884	0.192	0.294
	75+ (Reference)			
RACE	Hispanic	11.083*	1.236	99.359
	Non-Hispanic White	13.165*	1.798	96.381
	Non-Hispanic Black or African American	13.830*	1.632	117.206
	Others (Reference)			
OCCUPATION	Employed	1.565	0.583	4.206
	Unemployed	4.997*	1.077	23.194
	Homemaker	1.713	0.203	14.484
	Student	1.883	0.230	15.392
	Retired	2.211	0.372	13.136
	Others (Reference)			
HELP FROM HEALTH PROFESSIONALS ABOUT FEELINGS OF UNCERTAINTY	Always	1.819	0.472	7.018
	Usually	1.148	0.305	4.324
	Sometimes	1.576	0.387	6.414
	Never (Reference)			
PERCEIVED PERSONAL RISK OF CANCER	Very unlikely	2.280	0.095	54.442
	Unlikely	1.770	0.138	22.701
	Neither unlikely nor likely	0.901	0.095	8.508
	Likely	0.817	0.107	6.255
	Very Likely (Reference)			
PERCEIVED COMPARATIVE RISK OF CANCER	Very unlikely	0.686	0.018	26.846
	Unlikely	0.704	0.064	7.790
	Neither unlikely nor likely	0.786	0.090	6.885
	Likely	1.354	0.193	9.496
	Very Likely (Reference)			
FAMILY EVER HAD LUNG CANCER	Yes	1.790	0.559	5.729
	No (Reference)			
WORRY ABOUT GETTING CANCER	Not at all	3.266	0.568	18.789
	Slightly	5.060*	1.347	19.009
	Somewhat	1.607	0.510	5.062
	Moderately	0.907	0.266	3.089
	Extremely (Reference)			

Due to the research question, the sample size for the study is very limited and may not be a representative of US population in general. Further studies are needed to examine the role of the number of family members with a history of cancer, their relationship with the

respondent, and to what level the emotional response was evoked in the context of the intention to quit smoking.

In summary, findings presented here suggest that worry about getting cancer is a key to successful smoking cessation. In addition,

race (non-Hispanic Black or African-American), and occupation (unemployed) are important determinants of the intention to quit smoking. Future work should evaluate the extent to which these determinants provide a viable target for smoking cessation intervention. Since worry about getting cancer and race play an important role in quitting smoking, clinicians or primary care providers can encourage people to maintain smoke-free environments in their homes and offices, which will not only protect non-smokers but also make it less convenient to smoke, and decrease cigarette consumption and smoking cues over time. Experience with prior tobacco media campaigns suggests that targeted campaigns that resonate with smokers' needs and aspirations can be successful [36,

45, 46]. Also, it is suggested that public health professionals should develop interventions specifically targeted for unemployed persons, particularly during hard times [44]. Further research on how to incorporate occupation, race, and cognitive behavior information into tobacco media campaigns is required, which will increase chances for smoking cessation and ultimately decrease mortality rate and health care cost in the United States.

ACKNOWLEDGEMENTS: *The authors would like to thank anonymous referees and Editor-in-Chief Dr. Stefania Boccia for their valuable suggestions and comments that led to a significant improvement in the original manuscript.*

References

- [1] Prevention, C.f.D.C.a., Cigarette smoking among adults and trends in smoking cessation - United States, 2008. 2012.
- [2] Jemal, A., et al., Annual report to the nation on the status of cancer, 1975–2001, with a special feature regarding survival. *cancer*, 2004. 101(1): 3-27.
- [3] Control, C.f.D. and Prevention, How tobacco smoke causes disease: The biology and behavioral basis for smoking-attributable disease: A report of the surgeon general. 2010: Centers for Disease Control and Prevention (US).
- [4] Fagan, P., et al., Quit attempts and intention to quit cigarette smoking among young adults in the United States. *American journal of public health*, 2007. 97(8): 1412.
- [5] Association, A.L. American lung association. Lung cancer fact sheet. 2012 12/4/2012]; Available from: <http://www.lung.org/lung-disease/lung-cancer/resources/facts-figures/lung-cancer-fact-sheet.html>
- [6] Patterson, F., et al., Intention to quit smoking: role of personal and family member cancer diagnosis. *Health education research*, 2010. 25(5): 792-802.
- [7] Etzel, C.J., C.I. Amos, and M.R. Spitz, Risk for smoking-related cancer among relatives of lung cancer patients. *Cancer research*, 2003. 63(23): 8531-5.
- [8] Lissowska, J., et al., Family history and lung cancer risk: international multicentre case-control study in Eastern and Central Europe and meta-analyses. *Cancer causes & control*, 2010. 21(7): 1091-104.
- [9] Park, S.K., et al., Lung cancer risk and cigarette smoking, lung tuberculosis according to histologic type and gender in a population based case-control study. *Lung cancer*, 2010. 68(1): p. 20-26.
- [10] Joubert, B.R., et al., 450K epigenome-wide scan identifies differential DNA methylation in newborns related to maternal smoking during pregnancy. *Environmental health perspectives*, 2012. 120(10): 1425.
- [11] Peddada, S.D., D.M. Umbach, and S. Harris, Statistical analysis of gene expression studies with ordered experimental conditions. *Handbook of Statistics: Bioinformatics in Human Health and Heredity*, 2012. 28: 39.
- [12] Humpel, N., C. Magee, and S.C. Jones, The impact of a cancer diagnosis on the health behaviors of cancer survivors and their family and friends. *Supportive Care in Cancer*, 2007. 15(6): p. 621-30.
- [13] Solak, Z.A., et al., Success of a smoking cessation program among smoking relatives of patients with serious smoking-related pulmonary disorders. *European addiction research*, 2005. 11(2): 57-61.
- [14] McKee, S.A., et al., Perceived risks and benefits of smoking cessation: gender-specific predictors of motivation and treatment outcome. *Addictive behaviors*, 2005. 30(3): 423-35.
- [15] McCoy, S.B., et al., Perceptions of smoking risk as a function of smoking status. *Journal of behavioral medicine*, 1992. 15(5): 469-88.
- [16] Rutten, L.J.F., et al., Illness representations of lung cancer, lung cancer worry, and perceptions of risk by smoking status. *Journal of Cancer Education*, 2011. 26(4): 747-53.
- [17] Kluger, R., *Ashes to ashes: America's hundred-year cigarette war, the public health, and the unabashed triumph of Philip Morris*. 2010: Random House LLC.
- [18] Heikkinen, H., K. Patja, and P. Jallinoja, Smokers' accounts on the health risks of smoking: Why is smoking

- not dangerous for me? *Social Science & Medicine*, 2010. 71(5): 877-83.
- [19] Song, A.V., et al., Perceptions of smoking-related risks and benefits as predictors of adolescent smoking initiation. *American journal of public health*, 2009. 99(3): 487.
- [20] Bousman C A., M.L., Family history of Lung Cancer and contemplation of smoking cessation. *Preventing chronic disease*, 2010. 7(2): A29.
- [21] Orom, H., et al., Perceived cancer risk: why is it lower among nonwhites than whites? *Cancer Epidemiology Biomarkers & Prevention*, 2010. 19(3): 746-54.
- [22] Cooley, M.E., et al., Health behaviors, readiness to change, and interest in health promotion programs among smokers with lung cancer and their family members: A pilot study. *Cancer nursing*, 2013. 36(2): 145-54.
- [23] Chen, L. and K. Kaphingst, Risk perceptions and family history of lung cancer: Differences by smoking Status. *Public health genomics*, 2010. 14(1): 26-34.
- [24] Costello, M.J., et al., Perceived risk and quitting behaviors: results from the ITC 4-country survey. *American journal of health behavior*, 2012. 36(5): 681.
- [25] Hayran, M., et al., Smoking habits of relatives of patients with cancer: cancer diagnosis in the family is an important teachable moment for smoking cessation. *Asian Pac J Cancer Prev*, 2013. 14: 475-9.
- [26] Weinstein, N.D. and M. Nicolich, Correct and incorrect interpretations of correlations between risk perceptions and risk behaviors. *Health Psychology*, 1993. 12(3): 235.
- [27] Weinstein, N.D., A.J. Rothman, and M. Nicolich, Use of correlational data to examine the effects of risk perceptions on precautionary behavior. *Psychology and Health*, 1998. 13(3): 479-501.
- [28] Prochaska, J.O. and C.C. DiClemente, Transtheoretical therapy: Toward a more integrative model of change. *Psychotherapy: Theory, Research & Practice*, 1982. 19(3): 276.
- [29] Ryan, R.M., et al., Motivation and autonomy in counseling, psychotherapy, and behavior change: A look at theory and practice. *The Counseling Psychologist*, 2010.
- [30] Prochaska, J.O., J.C. Norcross, and C.C. DiClemente, Applying the stages of change. *Psychotherapy in Australia*, 2013. 19(2): 10.
- [31] Norcross, J.C., P.M. Krebs, and J.O. Prochaska, Stages of change. *Journal of clinical psychology*, 2011. 67(2): 143-54.
- [32] Sussman, S., School-based tobacco use prevention and cessation: where are we going? *American journal of health behavior*, 2001. 25(3): 191-9.
- [33] Demark-Wahnefried, W., et al., Riding the crest of the teachable moment: promoting long-term health after the diagnosis of cancer. *Journal of Clinical Oncology*, 2005. 23(24): 5814-30.
- [34] Barbeau, E.M., N. Krieger, and M.-J. Soobader, Working class matters: socioeconomic disadvantage, race/ethnicity, gender, and smoking in NHIS 2000. *American Journal of Public Health*, 2004. 94(2): 269-78.
- [35] Lawrence, D., et al., Smoking cessation interventions in US racial/ethnic minority populations: an assessment of the literature. *Preventive medicine*, 2003. 36(2): 204-16.
- [36] Ling, P.M. and S.A. Glantz, Tobacco industry research on smoking cessation. *Journal of general internal medicine*, 2004. 19(5p1): 419-26.
- [37] Services, U.D.o.H.a.H., How tobacco smoke causes disease: the biology and behavioral basis for smoking-attributable disease: a report of the Surgeon General. Atlanta, GA: US Department of Health and Human Services, , in CDC. 2010.
- [38] Trinidad, D.R., et al., A nationwide analysis of US racial/ethnic disparities in smoking behaviors, smoking cessation, and cessation-related factors. *Journal Information*, 2011. 101(4).
- [39] Tong, E.K., et al., National survey of US health professionals' smoking prevalence, cessation practices, and beliefs. *Nicotine & Tobacco Research*, 2010. 12(7): 724-33.
- [40] Tremblay, M., D. Cournoyer, and J. O'Loughlin, Do the correlates of smoking cessation counseling differ across health professional groups? *Nicotine & Tobacco Research*, 2009. 11(11): 1330-8.
- [41] Karvonengutierrez, C., et al., Ethnicity predicts perceptions of smoking and smoking cessation among veterans. *Journal of psychiatric and mental health nursing*, 2012. 19(3): 203-10.
- [42] Kabat, G.C. and E.L. Wynder, Determinants of quitting smoking. *American Journal of Public Health*, 1987. 77(10): 1301-5.
- [43] Marques-Vidal, P., et al., Prevalence and factors associated with difficulty and intention to quit smoking in Switzerland. *BMC public health*, 2011. 11(1): 227.
- [44] Gallus, S., et al., Effects of the economic crisis on smoking prevalence and number of smokers in the USA. *Tobacco control*, 2013.
- [45] Allen, J.A., D.M. Vallone, and A.K. Richardson, Reducing Tobacco-Related Health Disparities: Using Mass Media Campaigns to Prevent Smoking and Increase Cessation in Underserved Populations, in *Handbook of African American Health*. 2011, Springer. 79-99.
- [46] McCausland, K.L., et al., Piloting EX, a social marketing campaign to prompt smoking cessation. *Social Marketing Quarterly*, 2009. 15(1 suppl): 80-101.

