

Acculturation Matters: Risk Perceptions of Smoking among Bosnian Refugees Living in the United States

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Abstract The relationship between acculturation and health behavior change is complex. Little research has focused on acculturation and perceptions of health-related risks. This study investigated acculturation and risk perceptions of heart attack and lung cancer among a group of refugees. Questionnaires were distributed to a sample of Bosnian refugees living in the United States ($N = 55$). Results indicated that smokers thought they were less at risk than other smokers and no more at risk than non-smokers, whereas non-smokers did not think they were less at risk than other non-smokers. Greater acculturation was associated with greater perception of smokers' risk of heart attack and lung cancer. Smoking cessation interventions with refugees should incorporate culturally appropriate risk information.

Keywords Risk perception · Smoking · Refugees · Acculturation

Introduction

When immigrants or refugees arrive in the United States they receive many new as well as familiar health-related messages. These messages are incorporated into their existing (culturally and socially influenced) life style patterns which are likely to change as they over time adjust to a new culture. Broadly speaking “acculturation is the process by which foreign-born individuals and their children acquire and accommodate the values, beliefs, language, customs and mannerisms of the new country in

which they live, including health behaviors such as dietary choices, physical activity patterns and substance abuse” ([1], p. 303). This process can involve behavior adoption of both beneficial and risky health behaviors. Thus, as acculturation occurs, behaviors gradually come to resemble those of the mainstream culture.

Smoking is one serious health-related behavior that worldwide is associated with 5 million deaths a year [2]. Research examining how smoking rates are affected by acculturation reveals a complex pattern that varies as a function of country of origin, gender, and age. For example, in a study of Asian Americans, acculturation was associated with higher smoking rates for youth and women but associated with lower smoking rates for men [3]. In a literature review of the association between acculturation and smoking among Hispanics, Bethel and Schenker [4] also found important gender differences. In most of the studies reviewed (9 out of 11) acculturation was significantly associated with increased smoking among women (i.e., more acculturated Hispanic women smoked more). However, is only one of the studies reviewed (1 out 11) was acculturation significantly associated with increased smoking among men (the other 10 studies showed no relationship). In this one study the relationship was in the opposite direction as the pattern found among women (i.e., more acculturated Hispanic men smoked less). Importantly, these studies examined prevalence of smoking and not risk perceptions of smoking. Risk perceptions of smoking should, just like health behaviors, show a pattern of change toward the mainstream culture with increased acculturation. In other words, as people acculturate to mainstream values and beliefs their smoking risk perceptions (e.g., is it dangerous to smoke?) ought to become similar to those of people in the mainstream culture. Thus, increased acculturation could be associated with either

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greater or smaller perceptions of risk depending on whether the mainstream culture communicates greater or smaller risk perceptions relative to the country of origin.

Much research examines how smokers and non-smokers view their personal risk of illnesses as well as their perceptions of the risks of other smokers and non-smokers (for a review see 5). Smokers typically acknowledge some risk associated with smoking and think their personal risk of getting smoking-related illnesses is greater than that of non-smokers [6, 7]. However, smokers think they are less at risk than other smokers and also think that their brand is less dangerous and has less tar than the brands of other smokers [8]. Smokers tend to acknowledge that it is hard to quit although younger smokers also believe that they would have an easier time quitting than other smokers and that they are less addicted [9]. Overall, smokers drawn from U.S. samples generally acknowledge that they take risks by smoking but think the risks they take are smaller than the risks that non-smokers think smokers take [5]. Moreover, one consistent finding is that smokers tend to see their personal risk as less than that of other smokers and non-smokers tend to see their personal risk as less than that of other non-smokers. This well-established phenomenon is called *comparative optimism* (and in earlier work *optimistic bias*) and has been shown for a range of negative outcomes including having a heart attack, stroke, cancer, car accidents, etc. (for a review see 10).

Refugees have typically been studied less frequently than other immigrant groups. Relatively little research has been published about Bosnian refugees (people who used to live in the region now called Bosnia-Herzegovina) and their health concerns [11]. One noteworthy health issue in this population is the smoking prevalence. Bosnian smoking rates in Bosnia are very high both among the general population (48%) [12], among family physicians (40%) and nurses (51%) living in Bosnia [13], and among newly arrived Bosnian refugees in the U.S. (51%) [14]. Thus, smoking rates are high before and after leaving Bosnia. The rates are also higher than smoking rates in the U.S. (23%) [12] and higher than smoking rates among refugees from Cuba (31%) and Vietnam (36%) [14]. Stress is likely associated with high smoking rates. In a study of health-care professionals working in a public hospital in Sarajevo, the smokers ($N = 39$) recalled smoking more cigarettes per day during the war compared to before the war and reported smoking more because of the war-related stress [15]. Similarly, in a study of 11 Bosnian refugees living in the U.S. participants perceived their current smoking as a result of stress associated with being a refugee and adjusting to life in the U.S. [16]. Furthermore, Bosnian refugees living in the U.S. report that just as when they lived in Bosnia, smoking and coffee drinking are important social activities that bond families and friends together and

provide important opportunities for social exchange [14–16]. “In the Bosnian society, cigarettes are regarded as ‘social tools’ along with coffee and food. It is rare that one visits an office or home without being offered at least some of the above. Should a smoker light a cigarette in a business or social setting, it is customary to offer a cigarette and light to everyone present” ([15], pp. 642–643). However, virtually nothing is known about the risk perceptions associated with the high rates of smoking among Bosnian refugees or how such perceptions might change as a function of acculturation.

The purpose of this study was to examine smoking risk perceptions in a sample of Bosnian refugees living in the U.S. and examine the relationship between smoking risk perceptions and acculturation. To the extent the Bosnian refugees were acculturated, we expected that risk perceptions would be optimistic (just as extensive research shows U.S. samples to be). Because the process of acculturation involves the adaptation to mainstream culture, and the level of smoking is lower in the U.S. than in Bosnia, we predicted that acculturation would be lower among smokers than non-smokers. We also predicted that risk perceptions would be positively associated with acculturation such that greater acculturation would be associated with perception of greater smoking risk.

Method

Participants

Fifty-five refugees from Bosnia-Herzegovina (31% women) were recruited from the central Pennsylvania area to participate in this study. Participants’ average age was 36.7 (SD = 14.6, range 18–70), had lived in the U.S. 5.1 years (SD = 2.1, range 1–10) and left what is now called Bosnia-Herzegovina 7.4 years ago (SD = 5.3, range 1–33). Self-reported primary ethnic identification was 46% Bosnian, 6% Croatian, 38% Serbian, and 2% other. Eighteen percent took the questionnaire in English, 56% in Bosnian/Croatian and 26% in Serbian. Smokers comprised 33% of the sample, former smokers 22%, and non-smokers 35% of the sample. Among current smokers 33% smoked 1–10 cigarettes a day, 22% 11–20 cigarettes per day, 39% 21–30 per day, and 6% 31–40 a day.

Materials

Risk Perception

Six items asked the participants to assess their personal risk, the average non-smoker’s risk, and the average

smoker’s risk for getting lung cancer and heart disease. For example, one question asked “What is the chance that the typical smoker (your age) will get lung cancer in his/her lifetime.” The response scale for the risk perception items ranged from 1 (*not at all likely*) to 5 (*very likely*). Because the risk of lung cancer and heart disease were highly correlated when assessing personal risk ($r = .93, P < .001$), non-smoker risk ($r = .70, P < .001$), and smoker risk ($r = .73, P < .001$), these two risk events were combined.

Acculturation

The acculturation scale consisted of seven items assessing the degree to which participants were assimilated into an American lifestyle and the degree to which they maintained a Bosnian lifestyle. This scale was adapted from the Cultural Beliefs and Behaviors Adaptation Profile and the Benet-Martinez Acculturation Scale [17], and included the following statements, “I feel more comfortable around Bosnians than I do around Americans,” “I would prefer to live in a Bosnian community,” “In the United States, I still live a Bosnian lifestyle,” “To understand who I am, you must see me with members of my group,” “I feel my beliefs and values separate me from Americans,” “My diet consists mostly of Bosnian food,” and “I celebrate Bosnian holidays.” The items generally assessed socialization and affiliation (cf. 18). Responses were recorded on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). These items were reverse scored and combined into a single score so that higher numbers indicated greater acculturation (Cronbach’s alpha = .84, $M = 2.8, SD = 0.8$).

Demographic Questions

Questions addressing age, gender, marital status, educational level, ethnicity, length of time in the US, length of time since leaving Bosnia and current smoking behavior were included in the questionnaire as well.

Procedure

Participants were obtained through a convenience sample from the Harrisburg/Carlisle (PA) Bosnian community and a Bosnia-Herzegovinian mosque located in Harrisburg (PA). Access to these communities was gained through three Bosnian refugee contacts (one from each major ethnic group). These individuals served as consultants on the project, providing cultural information, feedback on the survey questions, translating the questionnaires, and administering the questionnaires. Questionnaires were not

back translated but two native speakers checked the accuracy of both translations. The contacts determined that it was necessary to have three language versions of the questionnaire, namely English, Serbian (using the Cyrillic alphabet), and Bosnian/Croatian (which are sufficiently similar to be understood by both ethnic groups).

Written instructions on the survey emphasized the voluntary and anonymous aspects of the study and asked participants to be as truthful as possible. Participants were informed that their answers would be used for research purposes only. No compensation was provided. The project was approved by the Dickinson College Institutional Review Board.

Results

Risk Perception

Despite much research showing an optimistic comparative bias in smoking risk perceptions, in this sample, non-smokers did not show comparative optimism (see Fig. 1). Non-smokers perceived their personal risk for heart disease and lung cancer ($M = 1.93, SD = 0.82$) as comparable to the average non-smoker’s risk for heart disease and lung cancer ($M = 2.13, SD = 0.92$), $t(15) = 1.31, P = .25$. However, non-smokers did rate their personal risk as significantly lower than they rated the average smoker’s risk for heart disease and lung cancer ($M = 4.53, SD = 1.65$), $t(14) = 0.47, P < .001$. Thus, non-smokers saw their personal risk similarly to how they saw the typical non-smokers risk but thought they were less at risk than smokers.

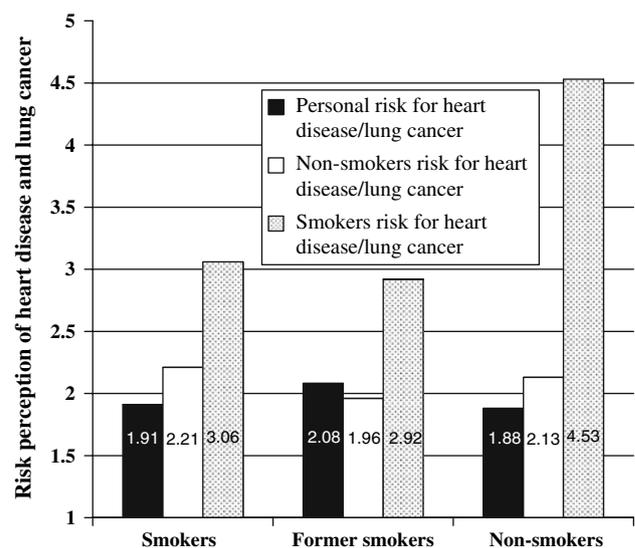


Fig. 1 Perceived risk of heart disease and lung cancer by smoking status: personal risk, non-smoker risk, and smoker risk

In contrast to non-smokers, smokers showed comparative optimism in that their judgments of their personal risk for heart disease and lung cancer ($M = 1.91$, $SD = 0.83$) were significantly lower than their judgments of the average smoker's risk for the same diseases ($M = 3.06$, $SD = 1.49$), $t(16) = 3.05$, $P = .01$. Furthermore, smokers in this sample did not rate their personal risk for heart disease and lung cancer as significantly different from how they rated the risk of average non-smoker for heart disease and lung cancer ($M = 2.21$, $SD = 1.10$), $t(16) = 0.92$, $P = .37$. This is quite optimistic considering that smoking is a major risk factor for both heart disease and lung cancer. In sum, smokers thought they were less at risk than other smokers and thought their risk of heart attack and lung cancer were about the same as non-smokers' risk of these diseases.

The former smokers exhibited the same pattern of risk perceptions as current smokers, perceiving no significant difference between their personal risk ($M = 2.08$, $SD = 0.95$) and the average non-smokers' risk for heart disease and lung cancer ($M = 1.96$, $SD = 0.92$), $t(12) = 0.61$, $P = .55$. Former smokers also saw themselves ($M = 2.08$, $SD = 0.95$) as less likely than the average smoker to get heart disease or lung cancer ($M = 2.92$, $SD = 1.20$), $t(12) = 2.44$, $P = .03$.

Comparing across smoking groups, it is apparent in Fig. 1 that smokers, former smokers, and non-smokers rated their personal risk similarly ($P_s > .05$). Additionally, all groups considered the risk of non-smokers to be relatively similar ($P_s > .05$). However, perceptions of the average smoker's risk differed according to smoking status, $F(2, 42) = 5.45$, $P = .01$. Smokers ($M = 3.06$, $SD = 0.36$) and former smokers ($M = 2.92$, $SD = 1.20$) saw the average smoker's risk of getting heart disease and lung cancer as less likely than non-smokers saw this risk ($M = 4.53$, $SD = 0.43$), $t_s < .01$.

Correlates of Risk Perceptions¹

First, we examined if smoking status was associated with acculturation. A one-way ANOVA revealed that acculturation varied as a function of smoking status, $F(1, 43) = 4.18$, $P = .02$, such that smokers ($M = 2.4$) were less acculturated than former smokers, ($M = 2.6$), who in turn were less acculturated than non-smokers ($M = 3.1$), $P_s < .05$. Furthermore, as seen in Table 1, the more acculturated the participants the more likely they were to rate smokers at risk for heart disease and lung cancer,

$r(48) = .37$, $P = .01$. Did this relationship occur equally for smokers and non-smokers? The correlation between perceptions of smoker risk and acculturation was $r(17) = .29$, $P = .27$ for smokers and $r(15) = .35$, $P = .20$ for non-smokers. Although the sample for these subgroups is too small to reach significance, the results suggest that the overall correlation is a product of both smokers and non-smokers rating smoking as more dangerous with increased acculturation. Thus, it appears that with increased acculturation the mainstream U.S. message that smoking is dangerous is received by both smokers and non-smokers. Of interest, length of time in the U.S. was correlated with personal risk, $r(48) = .40$, $P < .01$. Again examining the correlations separately for smokers, $r(13) = .38$, $P = .13$, and non-smokers, $r(14) = -.07$, $P = .82$, reveals non-significant findings again likely due to the small sample sizes. However, the effect sizes suggest that smokers come to see their personal risk as greater the longer they live in the U.S. but this is not true for non-smokers. It appears that time spent in the U.S. makes smokers (but naturally not non-smokers) more aware of the personal risk associated with smoking.

Discussion

The risk perceptions of Bosnian refugees varied in important ways from the consistent pattern of risk perceptions found in studies of smokers and non-smokers from the U.S. First, in this study Bosnian smokers tended to view their personal risk of lung cancer and heart attack as comparable to the average non-smokers' risk. Essentially, smokers did not perceive their smoking to increase their risk for heart attack and lung cancer. This is in marked contrast to research showing that U.S. smokers recognize that they are more at risk for health problems than non-smokers are [5]. A recent study of Danish and U.S. young adult smokers found that among U.S. smokers more cigarette smoking was associated with greater perception of personal risk of lung cancer, whereas among Danish smokers there was no relationship between the amount of daily smoking and personal risk of lung cancer [19]. Thus, U.S. smokers might be relatively more realistic (or less unrealistic) about their smoking risk than people in some other countries or cultural settings. Second, although smokers did think they were less at risk than other smokers (displaying an optimistic comparative bias) non-smokers did not show this oft replicated optimistic comparative bias (that is, here non-smokers did not think they were less at risk than other non-smokers). Unfortunately, we did not include risk perception questions that assessed non-cardiovascular health domains. Thus, it is not possible to know if non-smokers generally do not think they are less at

¹ Gender and age are typically not related to risk perceptions. That was also the case in the current study in which gender and age were not significantly correlated with any of the variables in Table 1.

Table 1 Correlations between years in the U.S., acculturation, and risk perceptions

	Years in the U.S.	Acculturation	Personal risk	Typical non-smoker risk	Typical smoker risk
Years in the U.S.	1.00				
Acculturation	.39**	1.00			
Personal risk	.40**	.08	1.00		
Typical non-smoker risk	.26	.01	.54**	1.00	
Typical smoker risk	.12	.37**	.02	.14	1.00

Note: *Ns* 45–50, * $P < .05$, ** $P < .01$

risk than their peers or if there is something unique about smoking-related risks such as heart disease and lung cancer. However, because smokers showed an optimistic comparative bias Bosnians do sometimes think of themselves as less at risk than their peers for health risks.

Risk perceptions of cardiovascular health were associated with acculturation; non-smokers were more acculturated than smokers. Participants who were more acculturated also had higher perceptions of the average smoker's risk of getting heart disease or lung cancer, regardless of smoking status. Thus, it appears that the process of adapting to the norms of the new culture was associated with the realization that smoking is dangerous. Acculturation might lead to increased risk perceptions in a variety of ways. In a study using focus groups of U.S. teenagers the primary sources for both pro- and anti-smoking messages were family and peers, school, television, and movies [20]. In addition to the sources above, risk information about smoking might be communicated by refugee resettlement workers along with instructions about where and when it is appropriate and legal to smoke. Some refugees might also learn about the dangers of smoking from their children who are likely to have received anti-smoking messages at school. Furthermore, refugees might learn about the dangers of smoking from the variety of anti-smoking initiatives undertaken at the local, state and federal level. For example, tobacco control initiatives in the Commonwealth of Pennsylvania include clean indoor air laws, limitations on sales of cigarettes to minors, smoking cessation programs, and media campaigns [21]. In sum, information about smoking risks (and smoking benefits) is likely transmitted from a host of different sources. Future research should directly examine the sources of smoking risk information.

Acculturation is a multi-faceted process. Studies which focus on the relationship between acculturation and smoking habits rather than smoking risk perceptions report many mediating variables, including ethnicity, knowledge, gender, and perceptions of peer smoking [1, 4, 22]. Future research should examine which variables influence the relationship between risk perceptions and acculturation and how the mediators function. Future research should also examine variables that might moderate the strength of

comparative optimism such as negative affect or perceived control, two factors which have been found to alter risk estimates of personal risk [10].

Although these results add to our knowledge about smoking risk perceptions among refugees, the study was not without limitations. The small sample size did not permit analysis of subgroups (e.g., female smokers) and because the sample was not randomly drawn we cannot generalize from this sample to other Bosnian refugees living in the U.S. Furthermore, the acculturation scale focused mainly on Bosnian's attitudes toward their own group (maintaining cultural integrity) and focused less on their attitudes toward mainstream U.S. society (adoption of new cultural values). A measure of acculturation that clearly focused on the multidimensional aspects of the process would have been better [23]. Finally, correlational data cannot determine the direction of the relationships (perhaps realizing that smoking is dangerous can make it easier to acculturate) or third variables (perhaps a general increase in health conscious attitudes and behaviors is associated both with increased acculturation and smoking risk perceptions). A more comprehensive longitudinal study of recent immigrants could better address these issues.

Understanding the risk perceptions of smokers has important implications for health education and smoking cessation programs [24]. Believing that smoking is not that dangerous might be one important mechanism by which smokers can justify continued smoking. In fact, most major theories of health behavior change include an element of risk acknowledgement as a precursor to behavioral change. For example, the Precautionary Adoption Model proposes that before people take action to attenuate a health risk, they must first recognize the risks associated with their behavior [25]. A study using a representative sample of U.S. adult smokers also found that personal risk perception of smoking risk is an important predictor of smoking-related behaviors such as number of cigarettes smoked and number of quit attempts [26]. In general, cultural sensitivity when implementing cessation or smoking awareness programs is important [27]. One step in such cultural sensitivity is to more fully understand the beliefs smokers have about smoking and its risks.

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