



# Social Resistance Framework for Understanding High-Risk Behavior Among Nondominant Minorities: Preliminary Evidence

## Citation

Factor, Roni, David R. Williams, and Ichiro Kawachi. 2013. "Social Resistance Framework for Understanding High-Risk Behavior Among Nondominant Minorities: Preliminary Evidence." *American Journal of Public Health* 103 (12): 2245–51. <https://doi.org/10.2105/ajph.2013.301212>.

## Permanent link

<http://nrs.harvard.edu/urn-3:HUL.InstRepos:41275526>

## Terms of Use

This article was downloaded from Harvard University's DASH repository, WARNING: This file should NOT have been available for downloading from Harvard University's DASH repository.

## Share Your Story

The Harvard community has made this article openly available. Please share how this access benefits you. [Submit a story](#).

[Accessibility](#)

# Social Resistance Framework for Understanding High-Risk Behavior Among Nondominant Minorities: Preliminary Evidence

Roni Factor, PhD, David R. Williams, PhD, MPH, and Ichiro Kawachi, MD, PhD

Nondominant minorities (ethnic/racial minorities and socially or economically disadvantaged groups) are often more likely to engage in risky and unhealthy behaviors, including smoking, alcohol and drug use, sexual risk behaviors, overeating, poor exercise habits, and unsafe driving behaviors, than the majority group in their societies. This pattern appears to be widespread in many countries and among different nondominant groups,<sup>1-8</sup> although there are notable exceptions to this general trend.<sup>9,10</sup>

Over the years, different explanations have been proposed to account for these health disparities. These explanations can be generally divided into 2 groups: macrostructural explanations, which focus on the structural conditions that influence individual behavioral dispositions, and microagentic explanations, which tend to emphasize individual behaviors and downplay structural constraints.<sup>11</sup> The 2 types of explanations lead naturally to differing and sometimes strongly opposed prescriptions for rectifying the situation, and in accordance, they are associated with different political ideologies. Macrostructural explanations tend to be liberal, in that they focus on external factors, and hence, are consistent with the prevailing ideology in public health, which calls for changes in structural conditions to improve individual outcomes. Microagentic explanations tend to be politically conservative and focus on the need for members of minority groups to make better choices when it comes to risky health behaviors.<sup>12</sup>

However, both macrostructural and microagentic explanations have a similar shortcoming, in that they both perceive members of nondominant groups as passive agents, viewing individuals as either passively influenced by larger structural factors, or as failing to make “good” choices in light of the situation in which

**Objectives.** The recently developed social resistance framework addresses a widespread pattern in which members of some nondominant minorities tend to engage in various risky and unhealthy behaviors more than the majority group. This pilot study tested the core hypotheses derived from this innovative framework.

**Methods.** We conducted in 2011 a nationally representative Web-based survey of 200 members of a nondominant minority group (African Americans) and 200 members of a majority group (Whites).

**Results.** The preliminary findings supported the main premises of the framework and suggested that nondominant minorities who felt discriminated and alienated from society tended also to have higher levels of social resistance. Those with higher levels of social resistance also engaged more in risky and unhealthy behaviors—smoking, drinking, and nonuse of seat belts—than did those with lower levels of social resistance. These associations were not found in the majority group.

**Conclusions.** These preliminary results supported the framework and suggested that social resistance might play a meaningful role in risky and unhealthy behaviors of nondominant minorities, and should be taken into account when trying to reduce health disparities. (*Am J Public Health.* 2013;103:2245–2251. doi: 10.2105/AJPH.2013.301212)

they live. Moreover, these explanations are incomplete, in that they fail to address key individual- and cultural-level mediating factors, thereby limiting our ability to fully understand the complex determinants of health.

To overcome this shortcoming, Factor et al.<sup>10</sup> recently introduced the social resistance framework to explain risky and unhealthy behaviors among nondominant minorities. This innovative perspective integrates the macrostructural and microagentic approaches, and sees members of minority groups as active rather than passive agents. The social resistance framework posits that the discrimination faced by nondominant minorities, their low status in society, and their alienation from society—factors that were also previously found to be related to risky and unhealthy behaviors<sup>5,13-17</sup>—may encourage members of these groups to actively engage, consciously or unconsciously,

in a variety of everyday resistance behaviors against the majority group,<sup>18</sup> which may include high-risk and unhealthy behaviors. That is, engaging in unhealthy behaviors offers members of nondominant groups an opportunity to express their opposition to the larger society, and to send a message to the dominant group that its control over their lives is not without bounds.<sup>10</sup>

The social resistance framework generates numerous propositions that need to be rigorously tested in various societies. The present study provides a preliminary test of the framework’s core hypotheses, using a pilot study of 200 members of a majority group (Whites) and 200 members of a minority group (African Americans) in the United States. African Americans may serve as a good example of a nondominant minority group in the context of the social resistance framework because of their particular history, in which

they were enslaved for several hundred years and, after the abolition of slavery, were effectively deprived for another century of full citizenship rights.<sup>19</sup>

As previously described, the social resistance framework suggests that power relations in society can lead nondominant minority groups to engage in a variety of unhealthy behaviors through everyday resistance acts.<sup>18,20</sup> In addition, the framework posits that these power relations may lead members of nondominant minorities to develop an oppositional collective identity, under the banner of which they deliberately choose not to embrace attitudes and behaviors that are identified with the dominant group—or put differently, that are perceived as “acting White.”<sup>21</sup> Both everyday resistance and the rejection of acting White can affect 2 overlapping sets of behaviors: behaviors that are directly related to physical health (e.g., smoking, alcohol use, and weight control), and behaviors that represent an absence of commitment to the country’s laws (e.g., compliance with road safety regulations and age-related restrictions on smoking and alcohol use).

The theory proposes that by engaging in everyday resistance acts, members of nondominant minorities demonstrate their willingness and ability to defy the country and the dominant group. Moreover, these high-risk behaviors may be seen as a “safety valve”<sup>22</sup> that reduces stress while enabling nondominant minorities to express dissatisfaction with their status. Such everyday resistance practices may also serve to demarcate the limits of the dominant group’s power. They create a boundary that signals to the dominant group that their control over the individual has its limits. In this way, such behaviors may parallel deliberate self-injury or self-mutilation among prisoners, behaviors that enable prisoners to assert their autonomy.<sup>23,24</sup>

Following this logic, the core hypotheses of the social resistance framework are as follows:

H1: members of nondominant minority groups who feel discriminated against and alienated from society will score higher on measures of social resistance than members of the majority group.

H2: members of nondominant minority groups who score higher on measures of social resistance will be more likely to engage in risky and unhealthy behaviors than those who score lower on such measures.

## METHODS

The data for the present pilot study were collected in 2011 by YouGov (formerly Polimetrix), a professional polling organization, via a nationally representative Web-based survey of 200 White Americans and 200 African Americans using the sample matching method. Under this method, YouGov randomly selects cases from its survey panel—consisting of 1.5 million US residents who have agreed to participate in Web surveys—that closely match a target sample on an array of characteristics, including gender, age, race, education, party identification, ideology, and political interests. Then, the matched set of survey respondents is weighted to known marginals for the general US population from the 2006 American Community Survey. The final weighted subsamples of the present study produced by this process are thus representative of African Americans and Whites in the United States on a broad range of demographic characteristics.<sup>25–27</sup>

The sample matching method overcomes the sample quality problems experienced by most Internet surveys. Once the survey panel is large enough, this method (1) can produce representative samples with low levels of total error, (2) yields results similar to a simple random sample, and (3) outperforms conventional estimates based on random digit dialing phone surveys.<sup>28,29</sup> The YouGov panel and sample matching method are widely used in public opinion surveys as well as health research.<sup>25,30–32</sup>

The survey was based on the UNhealthy-RESisTance (UNREST) questionnaire, which we designed to capture the main concepts of the social resistance framework. Three UNREST questionnaire scales were relevant to the present study. Two of these scales, measuring everyday discrimination and alienation, were previously validated on diverse populations.<sup>33,34</sup> The third scale, measuring social resistance, was developed and validated following DeVellis’ guidelines for scale development<sup>35</sup>

(details can be obtained from the authors upon request). Items were answered on a 7-point Likert scale (the scale items, response ranges, and Cronbach alphas can be found in the Appendix, available as a supplement to the online version of this article at <http://www.ajph.org>). Scores for each scale were calculated as a weighted average of its items based on the loadings obtained from a principal components factor analysis (the factorial structure can be obtained from the authors upon request).

Following the everyday discrimination measure, respondents were asked whether they attributed the discrimination they experienced to race, ethnicity (i.e., ancestry or national origin), or some other reason (such as age or gender). Only respondents who cited race or ethnicity were coded as experiencing everyday discrimination for the analyses. In presenting the results, we will therefore refer to this measure as “everyday racial discrimination.”

The following demographic characteristics and socioeconomic variables were collected: age, gender, race (African American or White), attendance at religious services (1 = never, 5 = more than once a week), and highest education completed (1 = did not graduate from high school, 6 = postgraduate degree). We also collected data on respondents’ household income and the number of people living in the household, and used these figures to calculate respondents’ income per capita.

For the outcome variables, following Factor et al.,<sup>10</sup> we collected information about 4 risky or unhealthy behaviors that were shown to be related to morbidity and mortality.<sup>36,37</sup> Two of the 4 were chosen to represent unhealthy lifestyle behaviors (smoking and alcohol use), whereas the other 2 represented risky behaviors that might reflect noncommitment to the country’s laws (nonuse of seat belts as a driver and as a passenger). Smoking was calculated as the number of days the respondent smoked over the last month, multiplied by the number of cigarettes smoked on average each day.<sup>38</sup> Drinking was calculated as the number of days the respondent consumed any type of alcohol (including beer, wine, and liquor) over the last month, multiplied by the number of drinks consumed each day.<sup>39</sup> The 2 seat belt items were calculated by asking respondents how often they had failed to use seat belts as

**TABLE 1—Descriptive Statistics of the Main Research Variables: United States, 2011**

Variables	Whites			African Americans		
	No.	Range	Mean (SD)	No.	Range	Mean (SD)
<b>Sociodemographics</b>						
Gender (1 = male)	200	0,1	0.48 (0.50)	200	0,1	0.46 (0.50)
Age, y	200	21-91	48.89 (16.90)	200	19-90	43.45 (15.61)
Attend religious services	199	1-6	2.86 (1.75)	191	1-6	3.54 (1.73)
Highest education completed	200	1-6	3.28 (1.47)	200	1-6	2.79 (1.27)
Income per capita, \$	185	833-87 499	28 348.88 (20 808.32)	178	357-150 000	20 136.18 (21 641.25)
<b>Attitudes</b>						
Everyday racial discrimination <sup>a</sup>	200	1-4	1.04 (0.32)	200	1-7	2.34 (1.52)
Alienation <sup>b</sup>	200	1-7	4.94 (1.27)	200	1-7	4.95 (1.52)
Social resistance <sup>b</sup>	200	1-6	2.00 (1.09)	199	1-7	2.33 (1.26)
<b>Risky and unhealthy behaviors</b>						
Smoking <sup>c</sup>	200	0-600	98.47 (208.61)	200	0-600	62.68 (155.65)
Drinking <sup>d</sup>	200	0-150	15.31 (29.99)	200	0-150	12.60 (29.33)
Driving without seat belt <sup>e</sup>	200	0-6	0.59 (1.36)	200	0-6	0.69 (1.45)
Riding without seat belt <sup>f</sup>	199	0-6	0.68 (1.46)	200	0-6	0.86 (1.65)

<sup>a</sup>Five-item scale, response categories ranging from 1 = never to 7 = almost every day.

<sup>b</sup>Four-item scale, response categories ranging from 1 = strongly disagree to 7 = strongly agree.

<sup>c</sup>Average number of cigarettes smoked over the last month.

<sup>d</sup>Average number of alcoholic beverages consumed last month.

<sup>e</sup>How often failed to use seat belts as a driver in previous 12 months.

<sup>f</sup>How often failed to use seat belts as a passenger in previous 12 months.

a driver and as a passenger during the last 12 months (0 = never failed to use a seat belt, 6 = very often failed to use a seat belt).<sup>40</sup> It should be noted that although there might be some overlap between the 2 seat belt variables, the literature indicated that people were not consistent in their use of seat belts as drivers versus as passengers.<sup>41</sup> Descriptive statistics of the main research variables for both races are presented in Table 1.

## RESULTS

Because the outcome variables were count data or right-skewed, we used Poisson regressions in the analyses presented in the following.<sup>42</sup> First, we explored the underpinning rationale of the social resistance framework by testing our first hypothesis, which suggested that higher levels of social resistance would be found in members of nondominant groups who perceived themselves as discriminated against, or who felt alienated from society. The Poisson regression presented in Table 2

suggested that members of the minority group (African Americans) who perceived higher levels of everyday racial discrimination and alienation also exhibited significantly higher levels of social resistance. Holding the other variables in the model constant, an increase of 1 unit in everyday racial discrimination among members of the nondominant group was related to an increase of 6% in their expected estimated social resistance; similarly, a 1-unit increase in alienation was related to a 7% increase in expected estimated social resistance. This effect was not significant for the dominant group (Whites). Therefore, our preliminary results supported our first hypothesis.

Interestingly, the model in Table 2 further shows that among the nondominant minority group, attendance at religious services was negatively associated with social resistance, meaning that members of the nondominant group who were less religious tended to score higher on measures of social resistance. Moreover, consistent with the premises of

the social resistance model,<sup>10</sup> in both races younger individuals tended to score higher on social resistance measures.

Next, we tested for a positive association between social resistance and the 4 outcome variables (high-risk or unhealthy behaviors) among members of the nondominant minority group, and whether that association was stronger for the nondominant than for the majority group, as postulated in our second hypothesis. As shown in Table 3, social resistance was not significantly associated with any of the outcomes among the dominant group. By contrast, social resistance was positively and significantly associated with all 4 behaviors among the nondominant minority group. Controlling for all other variables,

**TABLE 2—Poisson Regression of Social Resistance on Everyday Discrimination, Alienation, and Sociodemographic Variables, by Race: United States, 2011**

Variables	OR (95% CI)
<b>Whites</b>	
Constant	3.07*** (1.73, 5.44)
Male	1.11 (0.97, 1.27)
Age	0.99*** (0.99, 1.00)
Attend religious services	0.97 (0.93, 1.02)
Highest education completed	0.97 (0.92, 1.03)
Income per capita	1.00 (1.00, 1.00)
Everyday racial discrimination	1.10 (0.91, 1.34)
Alienation	1.01 (0.94, 1.08)
<b>African Americans</b>	
Constant	3.26*** (2.17, 4.89)
Male	0.92 (0.80, 1.06)
Age	0.99*** (0.98, 0.99)
Attend religious services	0.95** (0.91, 0.98)
Highest education completed	0.95 (0.90, 1.00)
Income per capita	1.00* (1.00, 1.00)
Everyday racial discrimination	1.06* (1.01, 1.11)
Alienation	1.07* (1.01, 1.13)

Note. CI = confidence interval; OR = odds ratio.  
\**P* < .05; \*\**P* < .01; \*\*\**P* < .001.

**TABLE 3—Poisson Regression of Risky and Unhealthy Behaviors on Social Resistance and Sociodemographic Variables, by Race: United States, 2011**

	Smoking, OR (95% CI)	Drinking, OR (95% CI)	Driving Without Seat Belt, OR (95% CI)	Riding Without Seat Belt, OR (95% CI)
<b>Whites</b>				
Constant	617.26*** (74.25, 5131.11)	30.27*** (5.33, 172.04)	0.18 (0.02, 2.01)	0.28 (0.04, 1.90)
Male	0.85 (0.47, 1.54)	1.68 (0.94, 3.03)	2.16* (1.14, 4.11)	1.22 (0.64, 2.34)
Age	0.98* (0.97, 1.00)	0.99 (0.97, 1.00)	0.99 (0.97, 1.02)	0.99 (0.97, 1.02)
Attend religious services	0.89 (0.74, 1.09)	0.85* (0.72, 0.99)	1.01 (0.82, 1.25)	1.06 (0.90, 1.24)
Highest education completed	0.72* (0.56, 0.94)	0.96 (0.79, 1.16)	0.83 (0.66, 1.06)	0.90 (0.73, 1.12)
Income per capita	1.00 (1.00, 1.00)	1.00 (1.00, 1.00)	1.00 (1.00, 1.00)	1.00 (1.00, 1.00)
Everyday racial discrimination	0.87 (0.60, 1.27)	1.19 (0.93, 1.52)	1.21 (0.90, 1.61)	1.18 (0.90, 1.57)
Alienation	0.69 (0.33, 1.45)	1.03 (0.71, 1.50)	1.27 (0.61, 2.63)	1.19 (0.69, 2.06)
Social resistance	1.23 (0.92, 1.65)	0.90 (0.73, 1.12)	1.17 (0.90, 1.52)	1.15 (0.90, 1.47)
<b>African Americans</b>				
Constant	17.52** (2.55, 120.59)	0.39 (0.04, 3.74)	0.20 (0.03, 1.51)	0.40 (0.04, 3.80)
Male	1.23 (0.67, 2.26)	4.81*** (2.64, 8.76)	0.98 (0.53, 1.81)	1.12 (0.63, 1.96)
Age	1.01 (0.99, 1.03)	1.02 (1.00, 1.05)	1.01 (0.98, 1.04)	1.03 (1.00, 1.05)
Attend religious services	0.90 (0.76, 1.07)	0.84 (0.70, 1.02)	0.93 (0.74, 1.16)	0.88 (0.74, 1.06)
Highest education completed	0.83 (0.61, 1.11)	1.11 (0.90, 1.36)	0.79 (0.59, 1.06)	0.69* (0.49, 0.97)
Income per capita	1.00 (1.00, 1.00)	1.00 (1.00, 1.00)	1.00 (1.00, 1.00)	1.00 (1.00, 1.00)
Everyday racial discrimination	0.96 (0.76, 1.22)	1.34** (1.07, 1.68)	1.12 (0.86, 1.45)	1.19 (0.99, 1.44)
Alienation	1.21 (0.95, 1.55)	1.02 (0.78, 1.33)	1.06 (0.85, 1.32)	0.91 (0.75, 1.10)
Social resistance	1.25** (1.01, 1.58)	1.50* (1.05, 2.13)	1.47** (1.13, 1.93)	1.53*** (1.24, 1.89)

Note. CI = confidence interval; OR = odds ratio.  
\**P* < .05; \*\**P* < .01; \*\*\**P* < .001.

every 1-unit increase in the social resistance scale was related to increased involvement in these behaviors, ranging from 25% (for smoking) to 53% (for riding as a passenger without a seat belt). Moreover, in these models, alienation was not significantly associated with any risky behavior (for either group), and everyday discrimination had a significant positive association only with consuming alcoholic beverages.

Finally, as a side note, we compared the model shown in Table 3 with a reduced model that did not include the social resistance variable (not shown in this article) to test whether including the social resistance variable affected the associations between alienation and everyday racial discrimination and the unhealthy and risky behaviors. Among African Americans, the inclusion of social resistance eliminated the association between alienation and smoking and between everyday racial discrimination and nonuse of seat belts as a passenger, and slightly reduced the strength of the association between everyday

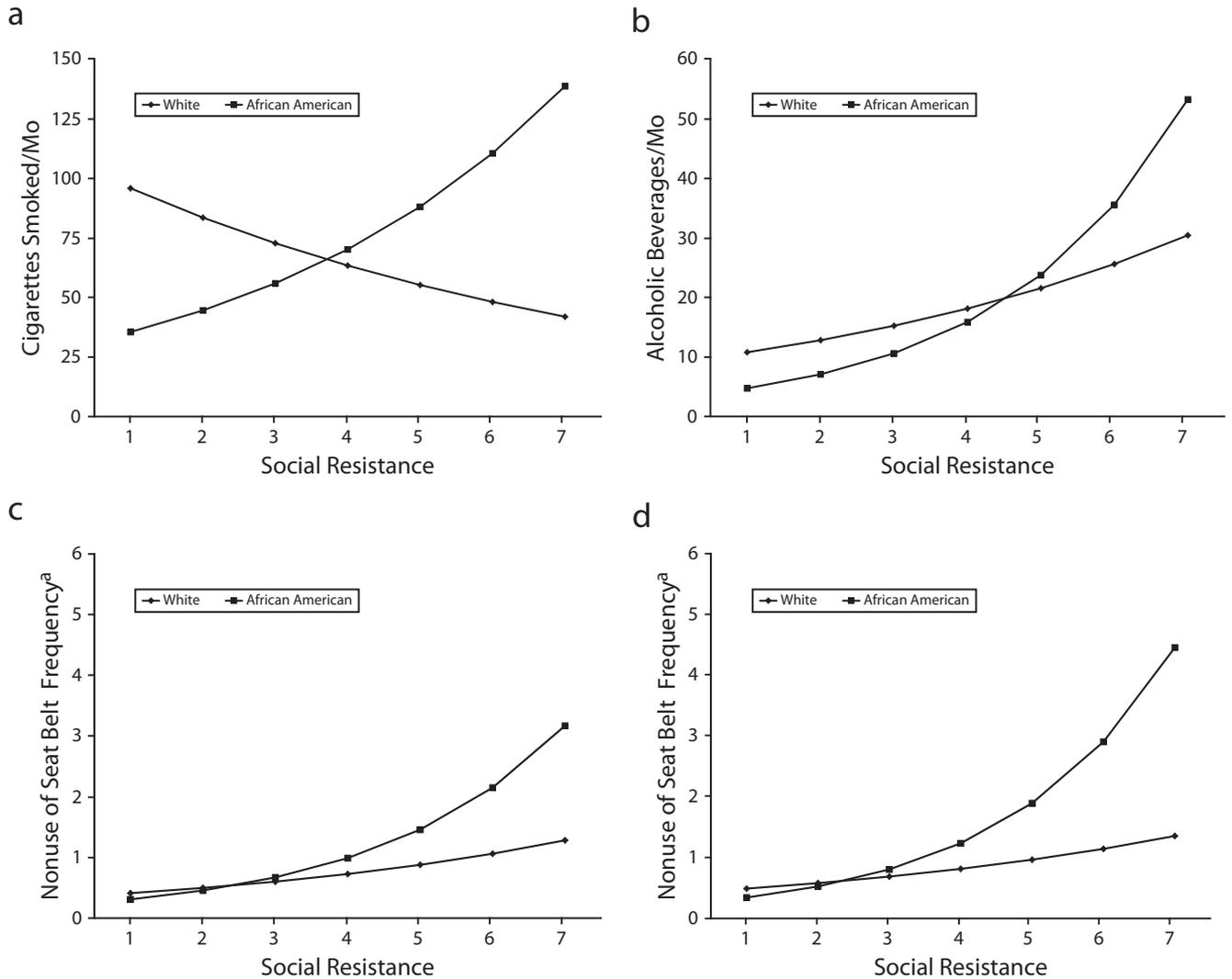
racial discrimination and drinking. (Results for these analyses can be obtained from the authors.) These findings suggested that the mechanisms by which social resistance affected unhealthy behaviors might differ for different risky behaviors.

The effects shown in Table 3 can be easily observed in Figure 1, which presents the predictions regarding risky and unhealthy behaviors from the Poisson regressions when all other variables in the model were held constant.<sup>42</sup> The slopes in Figure 1 show that the effect of social resistance on the studied behaviors was stronger for the nondominant group than the majority group (for the majority group, social resistance was not significant). Controlling for the other variables in the model, African Americans who scored highest in social resistance were estimated to smoke, on average, about 139 cigarettes per month, compared with only 36 per month for those who scored lowest (Figure 1a). Similarly, those who scored highest in social resistance consumed a predicted 53 alcoholic beverages

per month, compared with 5 for those who scored lowest (Figure 1b). Finally, our analyses suggested that those African American respondents who scored highest in social resistance frequently went unbuckled, both as drivers (3.2 on a 0–6 point scale) and passengers (4.5). The comparable figures for those with the lowest levels of social resistance were only 0.3 for drivers and passengers (Figure 1c and 1d). Thus, our second hypothesis was also supported by our analysis.

## DISCUSSION

Across many societies, a troubling pattern can be observed wherein nondominant minorities appear to engage in various unhealthy behaviors, such as smoking, drug and alcohol use, sexual risk behaviors, overeating, and unsafe driving habits, to a greater degree than the dominant group in their society. Recently, Factor et al.<sup>10</sup> introduced the social resistance framework as a new approach to explaining this pattern. According to this framework, power



Note. The effects displays were modeled from the Poisson regressions when all other variables in the model were held constant to their means. The trends were significant at  $P < .05$  for African Americans, and were not significant for Whites.

<sup>a</sup>How often failed to use seat belts in previous 12 months. Response categories ranged from 0 = never to 6 = very often.

**FIGURE 1—Poisson regression of social resistance effects for (a) smoking, (b) drinking, (c) nonuse of seat belt as a driver, and (d) nonuse of seat belt as a passenger: United States, 2011.**

relations in society may encourage members of nondominant minorities to engage in everyday social resistance acts that include unhealthy and risky behaviors. From this innovative and complex framework, several hypotheses can be derived. In the present pilot study, we sought to test the main premises of the social resistance framework, with a national representative sample of 200 members of a nondominant group (African Americans) and 200 members of a majority group (Whites).

The results of this preliminary study indicated that African Americans who reported higher levels of everyday racial discrimination and alienation from the larger society also scored higher in measures of social resistance. In turn, African Americans who scored higher in social resistance were also more likely to engage in unhealthy and risky behaviors. They tended to smoke more and to consume more alcoholic beverages, and they were less likely to buckle up their seat belts as both drivers and

passengers. This pattern was not observed among the majority group. Thus, our results provided preliminary support for the social resistance framework, and hinted that social resistance might be 1 of the underlying mechanisms behind the participation of nondominant minorities in risky and unhealthy behaviors. The framework and the present findings suggested that similar processes were likely to be evident for other nondominant minorities (and possibly other social groups that face

discrimination and alienation). At the same time, because there were empirical examples that deviated from the general pattern of majority-minority health disparities,<sup>10</sup> the present results should be interpreted cautiously and might not be generalizable to all nondominant minority groups.

Previous studies suggested that, for the most deprived members of society, resistance to health education messages might represent a rational response to their life chances and particular circumstances. That is, informed by a lay epidemiology, such individuals assessed their reduced likelihood of survival and determined that it was not worth their while to change some risky behaviors; instead, they shifted the balance toward minimizing hazards that represented more immediate threats to their health.<sup>43,44</sup> The present findings, however, implied that engaging in risky and unhealthy behaviors might represent not merely a passive response (however rational). Rather, it might also represent an active response by some minority group members aimed at expressing their dissatisfaction with their social position.

In general, the resistance framework informed us that education-oriented strategies to change behavior would not suffice. Our model suggested that people who engaged in risky and unhealthy behaviors did not necessarily lack knowledge about the consequences of their actions. Rather, some might be well aware of the associated risks, and their risky choices might be agentic expressions of their resistance. Under these conditions, lecturing to members of nondominant groups about the risks of their behavior was likely to backfire in at least some cases, because it might make the intended audience even more determined to avoid being manipulated by the messages of the dominant group. One implication of this view is that policymakers charged with designing interventions should not focus merely on delivering educational messages, but must also address people's underlying motivations for choosing particular behaviors. For example, if smoking is perceived as an act of resistance, an effective intervention might be one that reframes the terms of this resistance—for instance, by shifting the target of resistance from the dominant group to manipulation by corporate interests (e.g., the Florida antismoking

truth campaign<sup>45,46</sup>). More ambitiously, it might be possible—with the aid of attitudinal and behavioral change agents, such as the mass media, the educational system, and nondominant minority leadership—to work to eliminate the exploitation that leads to frustration or to channel the frustration of nondominant minority groups to more constructive alternatives. Such efforts would aim to empower disadvantaged communities to work together to actively produce social change and make themselves heard by the dominant group. At the same time, researchers and practitioners need to be aware of the potential risk of framing norm and law violations too positively, and allowing social resistance behaviors to receive an inappropriate degree of empathy that disregards their health consequences.

Social resistance does not occur in a vacuum. It is also well documented that socially disadvantaged populations have less access to health-related information,<sup>47</sup> and that powerful economic interests market unhealthy behaviors to them.<sup>48</sup> Future research is called for to help us better understand how all these factors interact to affect the social distribution of disease and its risk factors.

The preliminary results of the present pilot study should be interpreted in light of its research limitations. First, we used cross-sectional data, which did not allow for causal inference. Second, the data were obtained through an online survey using the sample matching method. This method is growing in popularity, because it has several important advantages—for instance, it is relatively fast and inexpensive, and it offers respondents complete anonymity. In addition, studies found sample matching to be a valid and reliable method that produces outcomes similar to conventional sampling procedures. Nonetheless, the method is still relatively new, and the present results should be validated using data collected in more traditional ways. Finally, the present results were based on 2 samples that were relatively small. Similar studies with larger samples might produce more robust results using alternative statistical analyses (e.g., structural equation models or zero-inflated Poisson regression) and allowing for the testing of more hypotheses and with more complex factors derived from the social resistance framework.

Future studies, moreover, might extend the explanations of the social resistance framework to other nondominant minorities and to other unhealthy and risky behaviors, as well as to different types of delinquent behaviors. Such studies might explore, for instance, whether social resistance is also associated with delinquent or criminal behaviors that might harm others, such as crimes against persons or property.

In conclusion, the present pilot study provided preliminary evidence in support of the main premises of the social resistance framework. Our results showed that members of nondominant groups who felt discriminated against and alienated from society also exhibited a greater degree of social resistance. In turn, those with higher levels of social resistance were more likely to engage in risky and unhealthy behaviors. These findings offer a potential foundation for the design of more effective interventions aimed at reducing disparities in health and health-related behaviors. Future studies should seek to replicate these results in different societies and among different nondominant groups, as well as using alternative data collection methods, to validate the present preliminary findings and to continue developing the social resistance framework. ■

#### About the Authors

Roni Factor is with the School of Criminology, University of Haifa, Haifa, Israel. David R. Williams is with the Department of Society, Human Development, and Health, Harvard School of Public Health and the Department of African and African-American Studies, Harvard University, Boston, MA. Ichiro Kawachi is with the Department of Society, Human Development, and Health, Harvard School of Public Health, Harvard University.

Correspondence should be sent to Roni Factor, Mt. Carmel, Haifa 31905, Israel (e-mail: rfactor@univ.haifa.ac.il). Reprints can be ordered at <http://www.ajph.org> by clicking the "Reprints" link.

This article was accepted December 31, 2012.

#### Contributors

R. Factor led the study conceptualization, data collection and analysis, and the writing of the article. D. R. Williams and I. Kawachi guided the study conceptualization and assisted with the writing of the article. All authors participated in interpretation of the findings, and review and editing of the article.

#### Acknowledgments

The study was conducted with the support of the Robert Wood Johnson Foundation Health and Society Scholars Seed Grant Program, and the Takemi Program in International Health at the Harvard School of Public Health.

## Human Participant Protection

Institutional review board approval was received from Harvard School of Public Health.

## References

- Oster RT, Toth EL. Differences in the prevalence of diabetes risk-factors among First Nation, Métis and non-Aboriginal adults attending screening clinics in rural Alberta, Canada. *Rural Remote Health*. 2009;9(2):1170.
- Peters J, Parry GD, Van Cleemput P, Moore J, Cooper CL, Walters SJ. Health and use of health services: a comparison between gypsies and travellers and other ethnic groups. *Ethn Health*. 2009;14(4):359–377.
- Burns FM, Evans AR, Mercer CH, et al. Sexual and HIV risk behaviour in Central and Eastern European migrants in London. *Sex Transm Infect*. 2011;87(4):318–324.
- Factor R, Yair G, Mahalel D. Who by accident? The social morphology of car accidents. *Risk Anal*. 2010;30(9):1411–1423.
- Williams DR, Mohammed SA, Leavell J, Collins C. Race, socioeconomic status, and health: complexities, ongoing challenges, and research opportunities. *Ann N Y Acad Sci*. 2010;1186(1):69–101.
- Phelan JC, Link BG, Diez-Roux A, Kawachi I, Levin B. “Fundamental causes” of social inequalities in mortality: a test of the theory. *J Health Soc Behav*. 2004;45(3):265–285.
- Braveman PA, Cubbin C, Egerter S, Williams DR, Pamuk E. Socioeconomic disparities in health in the United States: what the patterns tell us. *Am J Public Health*. 2010;100(suppl 1):S186–S196.
- Jackson JS, Knight KM, Rafferty JA. Race and unhealthy behaviors: chronic stress, the HPA axis, and physical and mental health disparities over the life course. *Am J Public Health*. 2010;100(5):933–939.
- Ujic-Voortman JK, Bos G, Baan CA, Uitenbroek DG, Verhoeff AP, Seidell JC. Ethnic differences in total and HDL cholesterol among Turkish, Moroccan and Dutch ethnic groups living in Amsterdam, the Netherlands. *BMC Public Health*. 2010;10(1):740.
- Factor R, Kawachi I, Williams DR. Understanding high risk behavior among non-dominant minorities: a social resistance framework. *Soc Sci Med*. 2011;73(9):1292–1301.
- Cockerham WC. Health lifestyle theory and the convergence of agency and structure. *J Health Soc Behav*. 2005;46(1):51–67.
- Wax AL. *Race, Wrongs, and Remedies: Group Justice in the 21st Century (Hoover Studies in Politics, Economics, and Society)*. Stanford, CA: Rowman & Littlefield Publishers; 2009.
- Seeman M, Seeman AZ, Budros A. Powerlessness, work, and community—a longitudinal-study of alienation and alcohol-use. *J Health Soc Behav*. 1988;29(3):185–198.
- Kavanagh AM, Turrell G, Subramanian SV. Does area-based social capital matter for the health of Australians? A multilevel analysis of self-rated health in Tasmania. *Int J Epidemiol*. 2006;35(3):607–613.
- Palosuo H. Health-related lifestyles and alienation in Moscow and Helsinki. *Soc Sci Med*. 2000;51(9):1325–1341.
- Marczynski KS, Welte JW, Marshall JR, Ferby EN. Prevalence and determinants of alcohol-related problems. *Am J Drug Alcohol Abuse*. 1999;25(4):715–730.
- Williams DR, Mohammed SA. Discrimination and racial disparities in health: evidence and needed research. *J Behav Med*. 2009;32(1):20–47.
- Scott JC. *Domination and the Arts of Resistance: Hidden Transcripts*. New Haven, CT: Yale University Press; 1990.
- Smelser NJ, Wilson WJ, Mitchell F. *America Becoming: Racial Trends and Their Consequences*. Washington, DC: The National Academies Press; 2001.
- Scott JC. *Weapons of the Weak: Everyday Forms of Peasant Resistance*. New Haven, CT: Yale University Press; 1985.
- Fordham S, Ogbu JU. Black students’ school success: coping with the “burden of ‘acting white’”. *Urban Rev*. 1986;18(3):176–206.
- Gluckman M. *Order and Rebellion in Tribal Africa*. New York, NY: Free Press of Glencoe; 1963.
- Suyemoto KL. The functions of self-mutilation. *Clin Psychol Rev*. 1998;18(5):531–554.
- Klonsky ED. The functions of deliberate self-injury: a review of the evidence. *Clin Psychol Rev*. 2007;27(2):226–239.
- Gerber AS, Patashnik EM, Doherty D, Dowling C. The public wants information, not board mandates, from comparative effectiveness research. *Health Aff (Millwood)*. 2010;29(10):1872–1881.
- Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2005.
- Boyle JM, Lampkin C. *2007 Motor Vehicle Occupant Safety Survey*. Washington, DC: National Highway Traffic Safety Administration; 2008.
- Rivers D. Sampling for web surveys. Paper presented at: 2007 Joint Statistical Meetings; July 29–August 2, 2007; Salt Lake City, UT. Available at: [http://www.laits.utexas.edu/txp\\_media/html/poll/files/Rivers\\_matching.pdf](http://www.laits.utexas.edu/txp_media/html/poll/files/Rivers_matching.pdf). Accessed February 1, 2012.
- Vavreck L, Rivers D. The 2006 cooperative congressional election study. *J Elect Public Opin Parties*. 2008;18(4):355–366.
- Stone AA, Broderick JE, Schwartz JE, Schwarz N. Context effects in survey ratings of health, symptoms, and satisfaction. *Med Care*. 2008;46(7):662–667.
- Sinclair SJ, Blais MA, Gansler DA, Sandberg E, Bistis K, LoCicero A. Psychometric properties of the Rosenberg self-esteem scale: overall and across demographic groups living within the United States. *Eval Health Prof*. 2010;33(1):56–80.
- Hays RD, Bjorner JB, Revicki DA, Spritzer KL, Cella D. Development of physical and mental health summary scores from the patient-reported outcomes measurement information system (PROMIS) global items. *Qual Life Res*. 2009;18(7):873–880.
- Weakliem DL, Borch C. Alienation in the United States: uniform or group-specific change? *Social Forum*. 2006;21(3):415–438.
- Hunte HE, Williams DR. The association between perceived discrimination and obesity in a population-based multiracial and multiethnic adult sample. *Am J Public Health*. 2009;99(7):1285–1292.
- DeVellis RF. *Scale Development: Theory and Applications*. 2nd ed. Thousand Oaks, CA: Sage Publications, Inc.; 2003.
- Elvik R, Vaa T, eds. *The Handbook of Road Safety Measures*. New York, NY: Elsevier; 2004.
- Kvaavik E, Batty GD, Ursin G, Huxley R, Gale CR. Influence of individual and combined health behaviors on total and cause-specific mortality in men and women: the United Kingdom health and lifestyle survey. *Arch Intern Med*. 2010;170(8):711–718.
- Minnesota Department of Health. *Minnesota Adult Tobacco Survey*. St. Paul, MN: Minnesota Department of Health; 2011.
- McLellan AT, Luborsky L, Woody GE, O’Brien CP. An improved diagnostic evaluation instrument for substance abuse patients: The addiction severity index. *J Nerv Ment Dis*. 1980;168(1):26–33.
- Rakauskas ME, Ward NJ, Gerberich SG, Alexander BH. *Rural and Urban Safety Cultures: Human-Centered Interventions Toward Zero Deaths in Rural Minnesota*. Report No.: MN/RC 2007-41. St. Paul, MN: Minnesota Department of Transportation; 2007.
- IRTAD. *Road Safety Annual Report 2011*. Paris, France: IRTAD; 2012.
- Fox J. *Applied Regression Analysis and Generalized Linear Models*. 2nd ed. Los Angeles, CA: Sage; 2008.
- Lawlor DA, Frankel S, Shaw M, Ebrahim S, Smith GD. Smoking and ill health: does lay epidemiology explain the failure of smoking cessation programs among deprived populations? *Am J Public Health*. 2003;93(2):266–270.
- Davison C, Smith GD, Frankel S. Lay epidemiology and the prevention paradox: the implications of coronary candidacy for health education. *Social Health Illn*. 1991;13(1):1–19.
- Hershey JC, Niederdeppe J, Evans WD, et al. The theory of “truth”: how counterindustry campaigns affect smoking behavior among teens. *Health Psychol*. 2005;24(1):22–31.
- Niederdeppe J, Farrelly MC, Haviland ML. Confirming “truth”: more evidence of a successful tobacco countermarketing campaign in Florida. *Am J Public Health*. 2004;94(2):255–257.
- Viswanath K. Public communications and its role in reducing and eliminating health disparities. In: Thomson GE, Mitchell F, Williams MB, eds. *Examining the Health Disparities Research Plan of the National Institutes of Health: Unfinished Business*. Washington, DC: Institute of Medicine; 2006:215–253.
- Grier SA, Kumanyika S. Targeted marketing and public health. *Annu Rev Public Health*. 2010;31(1):349–369.