Smoking, Social Support, and Hassles in an Urban African-American Community

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ABSTRACT

Background. Despite public health efforts, the prevalence of smoking among African Americans remains high. The determinants of smoking behavior in this population must be elucidated so that interventions can be better targeted and more effective.

Methods. As part of a prospective community intervention trial to reduce cancer mortality, we conducted a random household survey of 1137 African-American adults in San Francisco and Oakland between November 1985 and July 1986. The survey instrument included questions about social network characteristics, instrumental and emotional aspects of social support, smoking behavior, and stressors.

Results. The overall prevalence of smoking (41.9%) was higher than that reported in national surveys. Logistic models revealed that persons reporting high levels of stress, represented by an abbreviated hassles index, were more likely to smoke than those reporting less stress. Women with poor social networks were more likely to smoke (odds ratio = 3.1) than women with optimal networks; however, this relationship did not hold among men. Indeed, men lacking emotional support from friends or family were less likely to smoke (odds ratio = 0.5) than men receiving such support. No interaction between social support and hassles was observed.

Conclusions. Stressful environments may contribute to high-risk smoking behavior among urban African Americans. (*Am J Public Health.* 1991;81:1415–1422)

Introduction

Educational efforts and innovative policies have reduced the prevalence of cigarette smoking among US adults from 41.7% in 1965[1] to 28.8% in 1987.[2] Despite this progress, 15.7% of deaths in 1984 could still be attributed to smoking.[3] African Americans suffer from a particularly severe burden of smoking-related disease. The age-adjusted smoking-attributable mortality rate among African Americans in 1984 was 143.2 per 100 000 persons compared with 119.0 among Whites.[3] The 1987 National Health Interview Survey found that 32.9% of African-American adults smoked compared with 28.5% of White adults; the proportion of ever smokers who had quit was far lower among African Americans (31.0% vs 45.8%).[2]

Much attention has therefore been directed to reducing the prevalence of smoking among African Americans.[4,5] Identification of factors that promote smoking in the African-American community is a prerequisite to developing effective interventions. Evidence from the 1987 General Social Survey suggests that stress may be such a factor.[6]

Stress and Smoking

Psychological stress can be defined as an "internal subjective state involving the perception of threat to one's well-being," while stressors are stimuli that provoke psychological stress in susceptible individuals.[7] Stressors have been shown to increase tobacco consumption among established smokers,[8] promote adolescent cigarette use,[9] predispose to smoking clinic failure,[10] and precipitate relapses among successful quitters.[11,12] Investigators have evaluated a variety of potential stressors, including anxiety-inducing tasks,[8] family turmoil,[9] job factors,[13] and major life events (e.g., unemployment, divorce).[6,10]

Lazarus and colleagues have recently argued that daily hassles may represent a better conceptualization of stress than traditional measures of major life events.[14] They define hassles as "the irritating, frustrating, distressing demands that to some degree characterize everyday transactions with the environment."[15] Hassles appear to predict many health outcomes, including psychological distress,[15] somatic symptoms,[16] respiratory illness episodes,[17] and arthritis-related disability.[18]

In a 12-month follow-up study of ex-smokers who had participated in a smoking cessation program, the frequency and severity of hassles were significant predictors of late relapse in men, but not in women.[19] A similar evaluation of a work-site smoking cessation program found that the mean severity of hassles, but not the count, predicted relapse by 12 months.[20] Previous studies have not addressed the relationship between hassles and the prevalence of smoking in a community sample. Given the role of smoking as a psychological coping behavior,[7] we hypothesized that persons reporting numerous hassles

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TABLE 1—Items from the Abbreviated Hassles Index (n = 1134)

Description	% of Respondents Reporting
Being out of work for a month or longer	47.9
Having a serious illness or accident	28.9[a]
Not having enough money for food, clothing, housing, or other necessities of life	31.0
Being concerned about getting credit	26.2
Having a problem with getting things repaired around the house	29.3
Having a check late or lost in the mail	21.1
Having something stolen or having the house or car broken into	24.9
Having a violent argument with a friend or relative	23.5
Having some other kind of trouble with family members	25.7
Being concerned about living in an unsafe area	36.8

[a]This item was deleted from the hassles index used in multivariate regressions to predict smoking behavior because it might represent a consequence rather than a cause of smoking.

would be more likely to smoke than those experiencing fewer stressors.

Social Support and Smoking

There is extensive epidemiologic evidence of a relationship between social support and diverse health outcomes.[21] Persons with high levels of social support have lower mortality rates,[22] have less coronary atherosclerosis,[23] and use less health care[24] than those with lower levels of support. Social support may exert these salutary effects partially by fostering changes in health-related behaviors, such as smoking. Indeed, successful quitters have higher levels of perceived support from their partners than smokers who never quit or relapse.[25] Having someone to talk to about one's problems predicted cessation in another recent study.[26] The prevalence of smoking is higher among separated or divorced persons than among those currently married or widowed,[2] even after controlling for other demographic characteristics.[27] We therefore hypothesized that persons with poor social support would be more likely to smoke than those with good support.

Buffering and the Stress–Support Interaction

The mechanism by which social support improves health outcomes has been a subject of intense debate.[28] Advocates of the buffering hypothesis argue that social support works by moderating the deleterious effect of stressful events and serving as "coping assistance."[29] Therefore, our final hypothesis was that any association between social support and smoking would be stronger among persons experiencing stressors than among those in low-stressor environments.

The present study was undertaken to assess the cross-sectional relationship between these social factors and smoking behavior in a large population-based sample of African-American adults in the San Francisco Bay area.

Methods

As part of a prospective controlled community intervention trial to reduce cancer mortality, a survey of African-American households in San Francisco and Oakland, Calif, was conducted between November 1985 and July 1986. Potential respondents were identified through two-stage probability sampling. In the first stage, 100 census blocks with at least 25% African-American population (according to the 1980 census) were randomly selected from each city. Specific households were then randomly selected from each block. Using the Kish procedure, interviewers randomly identified one respondent from each household with an African-American member aged 20 years or over.[30] A non-profit survey research organization hired, trained, and supervised field workers. Intensive efforts were made to interview persons who were not available during the initial visit. Follow-up telephone contacts with at least 10% of all respondents confirmed that the interviews took place and that the information obtained was accurate.

The survey instrument included questions about current health status, health behaviors, use of preventive services, sources of health information, knowledge and attitudes regarding cancer, social networks and stressors, and demographic characteristics. Smokers were defined in the usual manner[2] as individuals who currently smoked and had smoked at least 100 cigarettes since birth. Average daily consumption of 20 or more cigarettes was used as the cutoff to separate heavy smokers from light smokers. Demographic variables included age, gender, years of formal education, household income (recoded from an ordinal into a continuous variable), marital status, and employment. Respondents were asked to describe the impact of smoking on cancer risk (1 through 7 scale); those who indicated that it had no effect, a favorable effect, or an unknown effect were categorized as "unaware."

A four-item, health-specific locus of control scale was adapted from the work of Wallston et al.[31] This scale represents the mean of standardized Likert-type responses (coded 1 through 6) to four statements concerning self-control over health. A high score represents a strong belief in one's ability to avoid getting sick by taking care of oneself, to stay healthy by following "the advice of experts," and to control "the most important things that affect health."

A 10-item hassles index was created by abbreviating the original Kanner et al. list of 117 hassles.[15] Each item was chosen to represent a dimension that community residents involved in the project perceived to be especially relevant (Table 1). The second item ("having a serious illness or accident") was deleted from the scale because of concern that such events might be consequences rather than causes of smoking.[32] Scoring from zero to nine was based upon how many of the remaining hassles happened to the respondent or a person "most important" to him or her during the preceding three months. We did not employ an intensity scale because the frequency of hassles has superior predictive power.[15-17] In accord with Dohrenwend's recommendations,[32] we inquired whether these events occurred but did not ask for any judgment as to their significance.

The original Kanner et al. instrument was reported[17] to have a test–retest reliability of $r = 0.79$ with nine consecutive monthly administrations. Similar instruments developed by Weinberger et al.,[18] Wolf et al.,[33] and DeLongis et al.[34] have demonstrated 5- through 9-month median test–retest reliabilities of .72 to .77. Our abbreviated instrument had good internal consistency (Cronbach's $\alpha = .74$). We

validated the scale against demographic variables; the mean score was 2.5 for employed and 4.1 for unemployed respondents. Hassle scores were inversely related to family income ($r = -.19$, $P = .0001$).

Measures of social network characteristics can be categorized as either structural or functional. Structural features were assessed using Berkman and Syme's Social Network Index (SNI),[22] which measures four types of social ties: marital status, number of close friends, number of close relatives, and membership in formal groups. This index was modified slightly by adding two types of specified organizations (neighborhood and senior groups) and dropping a question on the frequency of contact with close friends or relatives. Scores range from one to four, where one represents those with the fewest relatives or friends and no history of church or group involvement. Functional features were assessed using Seeman and Syme's three-item Network Instrumental Support scale,[23] which measures whether respondents would "most likely" turn to friends or family for assistance with rides, borrowing "a small sum of money," or household repairs. Their four-item Network Emotional Support scale[23] was abbreviated to two items, only one of which had construct validity ("Who would you turn to for information or advice about a personal problem?"). This question, scored one for those who cited friends or family and zero for others, resembles the emotional support item used by Strogatz and James.[35]

The distribution of demographic characteristics was examined among smoking status categories: never smokers, ex-smokers, current light smokers, and current heavy smokers. Analysis of variance with two-tailed pairwise t tests and Bonferroni's correction for multiple comparisons was used to contrast the means of continuous variables. Chi-square analysis, with Yates' continuity correction for 2×2 tables, was performed on categorical variables. The Kruskal-Wallis procedure with two-tailed pairwise mean rank comparisons and Bonferroni's correction was applied to ordinal variables.

Multivariate logistic regression models were constructed to determine whether social support and hassles contributed to explaining smoking status after controlling for potential confounders. Heavy smokers and light smokers were aggregated because of their similar characteristics. In the absence of data about when or why respondents quit, both never smokers and ex-smokers were categorized as non-smokers in our primary analyses. Independent variables included age (with a quadratic term), gender, educational status (<12 years, 12 years, 13 through 15 years, and ≥16 years), household income (transformed to optimize fit), health-specific locus of control, and lack of awareness about the risk of smoking. These variables were selected on the basis of previous studies of smoking correlates.[2,36]

The abbreviated hassles index was then added to the basic model to determine the role of psychosocial stress, controlling for demographic and attitudinal characteristics. Social support variables were added next, with the reference group consisting of individuals with SNI = 4 (optimal) and Network Instrumental Support and emotional support scales greater than zero. To test the hypothesis that social support buffers the deleterious effects of stress, interaction terms between the hassles index and the three support measures were tested. All two-factor interactions involving demographics and social support were evaluated by forward selection and backward elimination procedures.[37] The significance level for entry and exit was $\alpha = .10$, with adjustment to ensure that terms derived from a single variable entered together. Hierarchical models were compared with the likelihood ratio test.

Finally, multivariate linear regression was used to determine factors associated with self-reported daily cigarette consumption among current smokers. Multicollinearities prohibited inclusion of interaction terms in this model. The PROC LOGIST and PROC REG programs in SAS were used for most analyses.[38] Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated by exponentiating the logistic coefficient estimates. These ORs modestly overestimate the true risk ratios because the "rare disease" assumption underlying the OR is not satisfied.

Results

The total sample size was 1137, representing a response rate of 67.6% in Oakland and 69.1% in San Francisco. The age, gender, and income distributions of our sample closely resembled 1980 census data from the same neighborhoods. The San Francisco and Oakland samples were almost equal in size (569 and 568, respectively) and showed similar demographic characteristics. Therefore, they have been combined for all analyses.

Of the 1134 respondents who described their smoking habits, 36.0% never smoked, 22.1% had quit smoking, 26.8% were light smokers, and 15.1% were heavy smokers. Current smoking was more prevalent among women than among men (43.1% vs 40.1%), but female smokers were less likely than male smokers to consume 20 or more cigarettes daily.

Sociodemographic Characteristics by Smoking Status

Table 2 illustrates how the sociodemographic characteristics of current smokers differed from those of ex-smokers and never smokers. Ex-smokers were significantly older than current or never smokers. Ex-smokers were more than twice as likely to have graduated from college as heavy smokers (15.6% vs 7.1%). About 41% of heavy smokers and 36% of light smokers were separated or divorced, compared with only 20% of never smokers and 24% of ex-smokers. Current smokers reported lower household incomes than ex-smokers. Heavy smokers had a particularly high frequency of disability (15.4%); both light and heavy smokers were more likely to be unemployed than ex-smokers or never smokers. Current smokers had higher hassle scores than either ex-smokers or never smokers, whereas the latter two groups had higher SNI scores. More than 15% of heavy smokers denied a link between smoking and cancer, as compared with 4% of nonsmokers.

Intercorrelations Between Stress and Social Support Measures

Bivariate Pearson correlations between the social support and stress measures revealed only two significant associations. The hassles score was negatively related to the SNI ($r = -.10$, $P = .0009$), whereas Network Instrumental Support was positively related to emotional support ($r = .17$, $P = .0001$). The structural and functional measures of social support were not related to each other.

Demographic Predictors of Smoking Status

Table 3 shows the beta coefficients and ORs with 95% confidence limits for each variable in the basic logistic model, which included demographics, risk awareness, and locus of control. Lack of awareness of the smoking–cancer link was a strong correlate of current smoking, whereas health-specific locus of control

TABLE 2—Distribution of Selected Sociodemographic Characteristics by Smoking Status

Characteristics	Never Smokers (n = 408)	Ex-Smokers (n = 251)	Light Smokers (n = 304)	Heavy Smokers (n = 171)
Mean age, y (F = 15.14, $P < .0001$)	44.3[a]	48.7[b]	39.8	42.0
Gender ($\chi^2 = 31.72$, $P < .0001$), %				
Male	34.3	55.4	36.8	43.9
Education ($\chi^2 = 21.47$, $P = .01$), %				
Less than high school	26.9	27.2	20.2	30.2
High school graduate or equivalent	27.6	29.2	38.4	31.4
1–3 y college	33.8	28.0	31.8	31.4
4 or more y college	11.7	15.6	9.6	7.1
Marital status ($\chi^2 = 77.16$, $P < .0001$), %				
Married	36.2	49.0	25.3	28.1
Separated/divorced	20.4	24.5	36.5	41.5
Widowed	16.5	10.8	8.2	9.4
Never married	26.9	15.7	29.9	21.0
Mean annual household income, dollars (F = 5.89, $P < .001$)	20 200	22 502[c]	17 663	18 164
Perceived risk of cancer from smoking, % ($\chi^2 = 32.16$, $P < .001$)				
Not aware	3.7	4.0	10.3	15.4
Employment ($\chi^2 = 43.59$, $P < .0001$), %				
Full or part time	57.6	54.8	57.9	50.3
Unemployed	8.1	10.4	14.5	16.6
Disabled/ill	5.4	4.4	5.6	15.4
Not in labor force	28.8	30.4	22.0	17.7
Locus of control, mean score (F = 1.21, $P = .30$)	0.03	0.04	−0.03	−0.05
Social Network Index, mean score (range 1–4, $\chi^2 = 33.67$, $P < .0001$)	2.47[d]	2.62[e]	2.29	2.07
Network Instrumental Support, mean score (range 0–3, $\chi^2 = 7.38$, $P = .06$)	1.51	1.34	1.51	1.55
Hassles index, mean score (range 0–9, $\chi^2 = 22.81$, $P < .0001$)	2.37[f]	2.37[f]	2.95	3.28

[a]Different from ex-smokers ($P < .05$) and light smokers ($P < .01$).
[b]Different from never smokers ($P < .05$), light smokers ($P < .001$), and heavy smokers ($P < .01$).
[c]Different from light smokers ($P < .01$) and heavy smokers ($P < .05$).
[d]Different from heavy smokers ($P < .01$).
[e]Different from light smokers ($P < .05$) and heavy smokers ($P < .001$).
[f]Different from light smokers ($P < .05$) and heavy smokers ($P < .05$).

was marginally significant. The quadratic coefficient for age indicates that smoking prevalence peaked in middle age, with lower rates in young and elderly adults. College graduates were less likely to smoke than high school graduates, but no gender difference was noted. Current smoking was inversely related to household income.

Psychosocial Predictors of Smoking Status

When we added the abbreviated hassles index alone to this model, it significantly contributed to explaining smoking risk ($\chi^2 = 5.54$, $df = 1$, $P = .02$). We next added the five social support variables (SNI levels, Network Instrumental Support, and emotional support) and four interaction terms (Table 4). Only gender interactions with the SNI and emotional support scales met our entry criteria. Interaction terms between the hassles index and social support variables were not significant, either individually or as a group ($\chi^2 = 5.82$, $df = 5$, $P = .32$). The model in Table 4, which includes social network characteristics, was superior to that with only demographics and hassles ($\chi^2 = 30.68$, $df = 9$, $P = .0001$) in predicting smoking status.

A high frequency of hassles in the preceding 3 months was associated with increased likelihood of smoking for both sexes. With an OR of 1.07 per unit hassle, an individual with five hassles had 1.43 times the odds of smoking as a similar individual with no hassles. Strong social networks were associated with lower odds of smoking among women, but not among men. Conversely, men with inadequate emotional support were *less* likely to smoke than men with better emotional support. There was no relationship between this item and smoking among women. Instrumental support was independent of smoking.

Confirmatory Models

The robustness of these findings was tested in several ways. By using an income variable in regression equations, we lost 85 observations for which we had otherwise complete data. To examine the effect of this loss, we tested a model with employment status (employed, unemployed, not in labor force) in place of income. The prevalence of smoking was highest among those not in the labor force (OR = 1.48; CI = 1.03, 2.13), and the coefficients for psychosocial variables remained significant. Income and employment could not be included in the same model because of collinearity. We also tested a model in which social support variables were entered in continuous form. The findings were similar to those in Table 4, except that the interaction between gen-

TABLE 3—Estimated Logistic Regression Coefficients and Odds Ratios Comparing Current Smokers with Nonsmokers in Model 1 (demographic variables only)

Variable	Coefficient	SE	Adjusted Odds Ratio	95% Confidence Interval
Intercept	−1.324**	.639		
Locus of control (mean of 4 standardized items)	−0.210*	.114	0.81[a]	0.65, 1.01
Lack of risk awareness (not aware of cancer risk = 1)	1.782***	.315	5.9	3.2, 11.0
Age (y)	0.116***	.031		
Age^2 (y^2)	−0.0016***	.0003		
Gender (male = 1)	0.064	.140	1.07	0.81, 1.40
Education				
Less than high school	−0.094	.199	0.91	0.62, 1.35
High school graduate or equivalent	Referent			
1–3 y college	−0.262	.169	0.77	0.55, 1.07
4 or more y college	−0.624**	.249	0.54	0.33, 0.87
Annual household income (thousands, square root)	−0.163***	.047	0.85[b]	0.78, 0.93

Note. The dependent variable is current smoking. n = 1108; model $\chi^2 = 114.22$ ($df = 9$); −2logL = 1263.09.
[a]Adjusted odds ratio associated with a change of one standard deviation in the locus of control scale.
[b]Adjusted odds ratio associated with a one-unit change in the transformed income variable (e.g., $16 000 per year vs $9000 per year).
*$P < .10$.
**$P < .05$.
***$P < .01$.

der and SNI was weakened by implicitly forcing it to be uniform across SNI levels ($\chi^2 = 1.86$, $df = 1$, $P = .17$). A multiple linear regression model was used to test whether the association between psychosocial stress and smoking was driven by a cohort of light, relatively low-risk smokers. Hassle scores were positively related to self-reported cigarette consumption among current smokers, after adjusting for demographic characteristics ($t = 1.76$, $P = .08$). Social support variables did not improve the model ($F = 1.05$, $df = 5/407$, $P = .39$).

Since marital status is a component of the SNI, we examined whether the effect of that measure could be explained simply by a higher prevalence of smoking in separated and divorced adults. A logistic regression model that included SNI and marital status was significantly superior ($\chi^2 = 12.53$, $df = 6$, $P = .05$) to an otherwise identical model without SNI. Stratified analyses confirmed that lack of church involvement was related to smoking among married, separated/divorced, and widowed respondents. A small number of friends and nonmembership in community organizations were related to smoking among married persons, but not in other marital categories.

To explore whether psychosocial factors were related primarily to initiation or cessation of smoking, we performed a logistic analysis similar to the one in Table 4 but limited to ever smokers, with quitting as the dependent variable. Low SNI scores were associated with low odds of having quit smoking among women, but the hassles index was independent of smoking cessation ($\chi^2 = .06$, $df = 1$, $P = .81$). Age appeared to be the major confounder of the bivariate association between hassles and quitting (Table 2).

Discussion

The prevalence of smoking in this population-based probability sample of African-American adults was higher than that reported in studies using similar sampling techniques in the general population.[2] For example, the 1985 Current Population Survey found that 26% of Californians 20 years or older currently smoke.[39] The 1985 Behavioral Risk Factor Survey revealed current smoking rates of 26.3% and 24.9% in male and female Californians, respectively.[40] The gap between these rates and that observed by our group (41.9%) suggests that African Americans living in urban communities with large African-American populations are at especially high risk for smoking-related illness. Aggressive marketing by tobacco companies in these neighborhoods may be a contributing factor.[41]

Our study of African-American adults found that the prevalence of current smoking was highest among low-income, middle-aged individuals who never completed college. These findings are similar to those reported from the National Health Interview Survey[2] and a recent survey of Black insurance policyholders.[42] Our finding that individuals who lack awareness of the risks of smoking are more likely to smoke also corroborates previous work, particularly with adolescents.[43] This association may be explained in two ways: (1) People who are ignorant of the risks of smoking misperceive their vulnerability, or (2) nicotine addicts deny those risks to minimize cognitive dissonance.

Our measure of health-specific locus of control was only marginally related to smoking in multivariate models; however, individuals with a strong sense of control over health determinants tended to be less likely to smoke. Since the relationship between locus of control and smoking behavior has not been well studied, this finding should stimulate further investigation. The four-item scale we employed may not adequately represent the concept.

The independent association between hassles and current smoking has not previously been recognized. This effect was uniform by gender and did not change significantly after including social networks as a potential confounder. Among current smokers, hassled individuals tended to smoke more cigarettes daily than those relatively free of hassles. These findings support Lazarus' theory that the stresses of everyday life exert a cumulative impact on health.[14] Smoking may rep-

TABLE 4—Estimated Logistic Regression Coefficients and Odds Ratios Comparing Current Smokers with Nonsmokers in Model 2 (demographic, stress, and social support variables with interactions)

Variable	Coefficient	SE	Adjusted Odds Ratio	95% Confidence Interval
Intercept	−2.770***	.726		
Locus of control (mean of 4 standardized items)	−0.200*	.116	.82[a]	0.65, 1.03
Lack of risk awareness (not aware of cancer risk = 1)	1.752***	.320	5.8	3.1, 10.8
Age (y)	0.125***	.031		
Age^2 (y^2)	−0.0016***	.0003		
Gender (male = 1)	0.847**	.341	[b]	[b]
Education				
Less than high school	−0.112	.206	0.89	0.60, 1.34
High school graduate or equivalent	Referent			
1–3 y college	−0.244	.173	0.78	0.56, 1.10
4 or more y college	−0.585**	.256	0.56	0.34, 0.92
Annual household income (thousands, square root)	−0.111**	.050	0.89[c]	0.82, 0.99
Social Network Index (SNI)				
Level 1 (smallest)	1.123***	.314	3.1[d]	1.7, 5.7
Level 2	0.715***	.256	2.0[d]	1.2, 3.3
Level 3	0.871**	.349	2.4[d]	1.2, 4.7
Level 4 (largest)	Referent			
Network Instrumental Support (none from family or friends = 1)	−0.188	.198	0.83	0.56, 1.22
Network Emotional Support (none from family or friends = 1)	0.059	.185	1.06[d]	0.74, 1.52
Hassles Index (1–9 scale)	0.072**	.032	1.07[e]	1.01, 1.14
Gender interactions (male = 1)				
SNI Level 1	−0.920**	.442	1.22[f]	0.66, 2.29
SNI Level 2	−0.112	.373	1.83[f]	1.07, 3.13
SNI Level 3	−0.794*	.482	1.08[f]	0.56, 2.08
Network Emotional Support	−0.742***	.281	0.51[f]	0.33, 0.77

Note. The dependent variable is current smoking. n = 1008; model χ^2 = 136.89 (*df* = 19); −2logL = 1226.87.
[a]Adjusted odds ratio associated with a change of one standard deviation in the locus of control scale.
[b]Adjusted odds ratios for male gender vary according to the level of emotional support and social network involvement, from 0.44 (0.22, 0.88) among those with poor emotional support and SNI = 1 to 2.33 (1.19, 4.55) among those with optimal levels of both (SNI = 4). These odds ratios were derived by exponentiating the sum of the gender and applicable social support interaction coefficients.
[c]Adjusted odds ratio associated with a one-unit change in the transformed income variable (e.g., $16 000 per year versus $9000 per year).
[d]Adjusted odds ratios for women with low SNI scores (1, 2, or 3) or absent emotional support, relative to women with SNI = 4 and appropriate emotional support, respectively.
[e]Adjusted odds ratio associated with a one-unit increase in the hassles score.
[f]Adjusted odds ratios for men with low SNI scores (1, 2, or 3) or absent emotional support, relative to men with SNI = 4 and appropriate emotional support, respectively. These odds ratios were derived by exponentiating the sum of the social support and applicable gender interaction coefficients.
*$P < .10$.
**$P < .05$.
***$P < .01$.

resent a coping behavior that mitigates the harmful psychological impact of a stressful environment. After controlling for other variables, hassles were not associated with ex-smoking among ever smokers. This finding suggests that hassles may influence smoking initiation more than cessation, but the cross-sectional nature of our data undercuts such an interpretation.

We observed that social support, as measured by the SNI, was inversely related to the likelihood of smoking only among women. This gender interaction may be a consequence of our measure or an inherent feature of how social support affects health behaviors. Male respondents may have exaggerated their social networks to appear well-adjusted to female interviewers. Men may be more responsive to unmeasured dimensions of social support, such as peer support directly related to quitting. Waldron and Lye[27] demonstrated that marital status is related to current smoking among both sexes, but the other three SNI components may be irrelevant for men. The potentially favorable effects of social networks for men may be outweighed by concomitant peer pressure to smoke. This hypothesis is supported by the observation that men who turn to close friends or relatives for help with personal problems are more likely to smoke than self-reliant men.

These data do not support the hypothesis that social support buffers the adverse impact of stressful events.[28] Instead, we found that social networks were associated with decreased smoking in women at all levels of hassles. Conversely, strong social support did not attenuate the detrimental effect of hassles. Social networks did not appear to operate by enhancing instrumental or emotional support for our female respondents.

Household interview surveys are susceptible to several sources of bias. Our sampling scheme excluded African-American families residing in predominantly non-Black census blocks. The further exclusion of institutionalized individuals and the homeless may limit the generalizability of our findings to the entire African-American community. Mis-

classification bias is always a concern in measuring sensitive behaviors, such as smoking. However, nondifferential misclassification of smokers as nonsmokers would not create artifactual associations between smoking and social factors.

Since our study design was cross-sectional, we cannot elucidate the chain of causation that links social support, stress, and smoking. Given present public attitudes toward tobacco, smokers who quit may experience improved social connections. Similarly, smokers may be more likely to suffer hassles than nonsmokers as a result of covert discrimination or physiological withdrawal symptoms. Recall bias may explain the associations if smokers reported more hassles or less social support in a post hoc effort to justify their unhealthy behavior. The likelihood of biased responses was minimized by separating questions about smoking from those about social factors and by disguising the research hypotheses. Finally, hassled persons and women with low SNI scores may possess other characteristics that are the actual determinants of smoking. The SNI could be a proxy for future orientation or interest in self-improvement; perceived hassles could reflect an underlying psychological vulnerability that predisposes to smoking.

The high prevalence of smoking noted among urban African Americans underscores the importance of smoking prevention and cessation activities focused on this population. Prospective studies with more detailed measures of support and stress are needed to clarify the direction of causation between psychosocial factors and smoking. The generalizability of our findings to other ethnic groups should also be evaluated. To the extent that smoking represents a behavioral response to stressful circumstances, prevention and cessation programs may achieve optimal success only by addressing larger community problems. As an interim measure, interventions to teach healthier coping behaviors may be efficacious. Interventions designed to improve social networks may have a particular role in smoking cessation programs for African-American women. □

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Preventive Health Care for Children Works Better in Europe

Although they spend a smaller share of their gross national product on health care than does the United States, European countries achieve nearly complete participation of children in preventive health care and more favorable health outcomes for young children and adolescents. These are among the findings of a just-published report, *Preventive Health Care for Young Children: Findings from a 10-Country Study and Directions for United States Policy,* by Bret C. Williams, MD, MPH and C. Arden Miller, MD.

Supported by the William T. Grant Foundation and the US Maternal and Child Health Bureau, Williams and Miller looked at preventive health services for children from infancy through adolescence and at the social benefit programs that support children and families in Belgium, Denmark, France, the Federal Republic of Germany, Ireland, the Netherlands, Norway, Spain, Switzerland, and the United Kingdom. They found the following:

- Childhood mortality rates are higher in the United States than in Europe at all age levels, most markedly among children aged 1 to 4 years and adolescents aged 15 to 19 years.
- US immunization rates among preschool children lag behind European rates by 23% to 49%.
- US children are less likely to have a regular source of medical care than their European counterparts.
- US children are far more likely than children in Europe to experience injury-related deaths.

Williams and Miller found that the "truly remarkable aspect" of preventive health services in Europe is the nearly complete participation of children. Compliance with the full schedule of preventive health care visits generally exceeds 90% during the first year of life; completed immunization rates among young children are also generally above 90%. All health care for children in the study countries is financed under national systems that assure financial coverage of the entire population without means testing. Williams and Miller note that full availability of health care for children and social benefits programs for families came about in Europe only after earlier selective approaches failed.

Preventive Health Care for Young Children suggests that six attributes of European health systems are particularly worthy of US consideration:

1. Access to one or more provider systems that assure compliance with routine preventive services and linkage to more sophisticated care when necessary;
2. Separation of preventive services from the delivery of acute medical care, allowing the former to be rendered by less specialized personnel;
3. No means testing or payment required at the time of service delivery;
4. Linkage of families with children to benefit programs that alleviate poverty equitably across age groups;
5. Access of very young children to low-cost regulated programs for children of working parents;
6. A tracking system for children from birth through the age of 4 years to assure that young children and their families actively participate in health and social programs for which they are eligible.

Williams and Miller point out that European patterns of preventive health care and social supports are not strikingly different from the proposals of professional groups and public health agencies in the United States, including the majority of members of the National Commission on Children. They suggest that a national effort to improve preventive health care for children in the United States could build on what is being learned from US initiatives that include local prenatal health care programs, statewide tracking systems, and established, but underfunded, national efforts like WIC and Head Start.

Preventive Health Care for Young Children is a publication of the National Center for Clinical Infant Programs (NCCIP), a national nonprofit organization concerned with the healthy development of children and families during the first three years of life. In 1987, NCCIP published C. Arden Miller's monograph, *Maternal Health and Infant Survival,* an analysis of medical and social services to pregnant women, newborns, and their families in the same 10 European countries described in the new report.

Copies of *Preventive Health Care for Young Children* are available for $9.50 each; *Maternal Health and Infant Survival* is available for $7.50 per copy. Both reports may be ordered as a set for $15.00. Checks should be made payable to NCCIP and include shipping and handling charges of $3 for the first item ordered, $1 for each additional item, and 10% for orders of $60 or more. Send orders to the National Center for Clinical Infant Programs, PO Box 25494, Richmond, VA 23260-3494.