Introduction

Current research has highlighted the role of health behavior as a potential mechanism through which differences in social and economic resources relate to health disparities (Institutes of Medicine 2001; Marmot 1999; Ross and Wu 1995; Taylor et al. 1997). Smoking is of particular interest, since trends in the likelihood of smoking rates across socioeconomic status (SES), over the last several decades (Faulkner and Merritt 1998; Gilpin and Pierce 2002; USDHHS 1988), have mirrored similar trends in the widening of mortality by SES (Preston and Taubman 1994). This paper explores the relationship between smoking cessation and work, for men and women in the three most prevalent US ethnic groups (European American, African American, and Mexican American). It considers the role of two components of the work environment − psychosocial conditions and occupational culture− in determining the likelihood of smoking cessation.

Psychosocial Conditions

The contrast between the demands of a job and the control one experiences in a job (Karesek and Theorell 1990), or the effort involved in a particular type of work versus the rewards related to this position (Siegrist et al. 1986), compose the psychosocial components of the work environment most commonly related to health. Studies considering these psychosocial components of work have consistently linked work-related stress with poor health and mortality (Kuper and Marmot 2003; Mathews et al. 1998; Schnall and Landsbergis 1994). It is argued that health behaviors, such as smoking, offer a mechanism for dealing with stressful work conditions (*Work in America* 1973), and thereby link a poor work environment to poor health outcomes. Nonetheless, the findings on the relationship between smoking and psychosocial strain, have been mixed (Green and Johnson 1990; Greenlund et al. 1995; Hibbard 1993; Mensch and Kandel 1988a).

Occupational Culture

Membership in social groups, such as those determined by work environment and occupational status, involves the development of similar values, beliefs, orientation and knowledge (Stronks 1997). These differences in "occupational culture" have been used to explain socioeconomic differences in health behaviors (Serxner et al. 1992), especially with respect to alcohol and the intersecting influences of gender (Ames and Rebhun 1996). The manner in which work groups set social norms and delineate appropriate and deviant behavior has been associated with significant differences in subject norms and attitudes towards smoking cessation (Sorensen et al. 1986). To date, no known studies have included data on smoking attitudes or norms when assessing the potential influence of "occupational culture" on cessation.

This paper considers the implications of two key components of the work environment −job strain and occupational health norms− in determining changes in smoking related health behavior. The analysis inter-relates theory on the psychosocial and the cultural components of an individual's environment to describe how health behavior links poor socioeconomic status to poor health and premature mortality (Ames and Rebhun,1996; Institutes of Medicine 2001; Marmot 1999; Serxner et al. 1992).

Data and Methods

The data are from the National Longitudinal Survey of Labor Market Experience, Youth Survey 1979-1998 (NLSY79), in which current and retrospective information on smoking is assessed in 1984, 1992, 1994 and 1998.[1] In light of the over-sample of selected minority subpopulations, contrasts can be made between men and women of African American, European American and Mexican American ethnic origin[2]. Data are used from all respondents who reported that they had ever smoked.

Information on the age of initiation of "regular" smoking is combined with data on the respondent's current smoking status and data on the time since the respondent last smoked regularly. The smoking data is compiled in an event history file which reflects the transitions in and out of smoking. Respondents are censored upon first cessation of regular smoking or exit from the survey. The event history file also includes early assessments of educational attainment, marital status, and work status. Yearly information on work status is linked with job-specific information about the type of occupation and the number of hours.[3]

Psychosocial measures of job-strain are imputed from the National Survey of Midlife Development in the United States (MIDUS), using individual characteristics and three-digit US Census occupational codes, as described by Schwartz and colleagues (1988). The two dimensions of strain imputed in this manner (e.g.job demands and job latitude) are considered as continuous measures, and dichotomized and cross-classified to produce a four-category variable consistent with the job-strain measure in Mensch and Kandel (1988a).

The differing norms associated with changes in occupational culture are measured by occupation-specific smoking attitudes and workplace policies regarding smoking. Smoking attitudes and workplace policies are imputed for the NLSY79 in a manner similar to job-strain, using information on smoking beliefs from the 1992 National Health Interview Survey (NHIS). These imputed measures are obtained for each point along the occupational trajectory, addressing within occupation differences by ethnicity, gender, education and marital status.

Data is also available to control for selection, or predisposition to both smoking and specific occupational trajectories or smoking attitudes. Potential controls include both time-independent measures, such as cognitive ability which has been found to be important in other studies (Oldham 1999), and time-varying measures, such as occupational prestige and salary.

Event history methods are used to model the relationship between work and smoking. The analysis involves discrete-time pooled logistic regression models, with time-varying covariates which take the form (Yamaguchi 1991):

$$\log \{ P(t) / \{1-P(t)\} \} = \beta_0 + \boldsymbol{\beta_1 x} + \boldsymbol{\beta_2 x(t)}.$$

In this case, P(t) is the probability of cessation at time t, given that the respondent was a regular smoker at age 't-1'. The effect β_1 and β_2 represent the increase in likelihood of cessation with a given x covariate; **x** is a vector of time-independent covariates (such as gender and ethnicity),

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[1] The smoking data have been found to be reliable and consistent with other sources (Johnson 2001; Mensch and Kandel 1988b).

[2] Limited data on other Hispanic ethnic groups is also available; however, they are not combined with the data on Mexican Americans in light of the growing literature on the importance of ethnic differences within the Latino community. Similarly, contrasts can not be made between other ethnic groups in light of their small sample sizes.

[3] In light of the lack of data on the day of smoking cessation, it is thus assumed that yearly smoking status corresponds with the day of the survey.

and **x(t)** is a vector of time-dependent covariates (such as age and duration of smoking, job-strain and occupational attitudes).

Discussion and Conclusion

This paper extends the cross-sectional and urban-based literature on the relationship between work and health behaviors. It addresses longitudinal trajectories of occupational attainment and smoking cessation, from young adulthood through midlife, in a population representative sample that is particularly appropriate for this type of life course research. The preliminary results suggest that employment status does not fully mediate the ethnic and gender differences in smoking cessation. Regardless of ethnicity, it is determined that both psychosocial strain and occupational culture have significant relationships with cessation. The independent assessments of the work components suggest that there may be a stronger association for occupational culture, as measured by smoking attitudes. The findings have both theoretical and programmatic implications for addressing the health behavior component of disparities in health.

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Chart 1. Likelihood of Smoking Cessation Over the Transition to Adulthood for Men by Ethnicity, Controlling for Number of Previous Years Spent Smoking, NLSY79

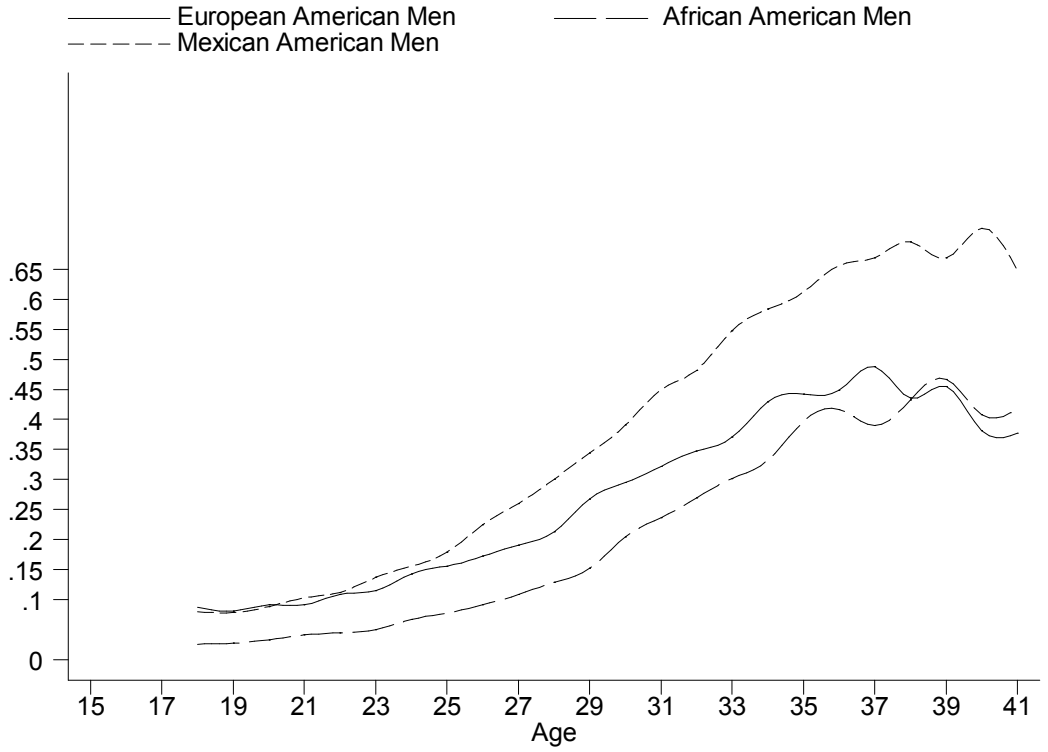

Chart 1. Likelihood of Smoking Cessation Over the Transition to Adulthood for Women by Ethnicity, Controlling for Number of Previous Years Spent Smoking, NLSY79

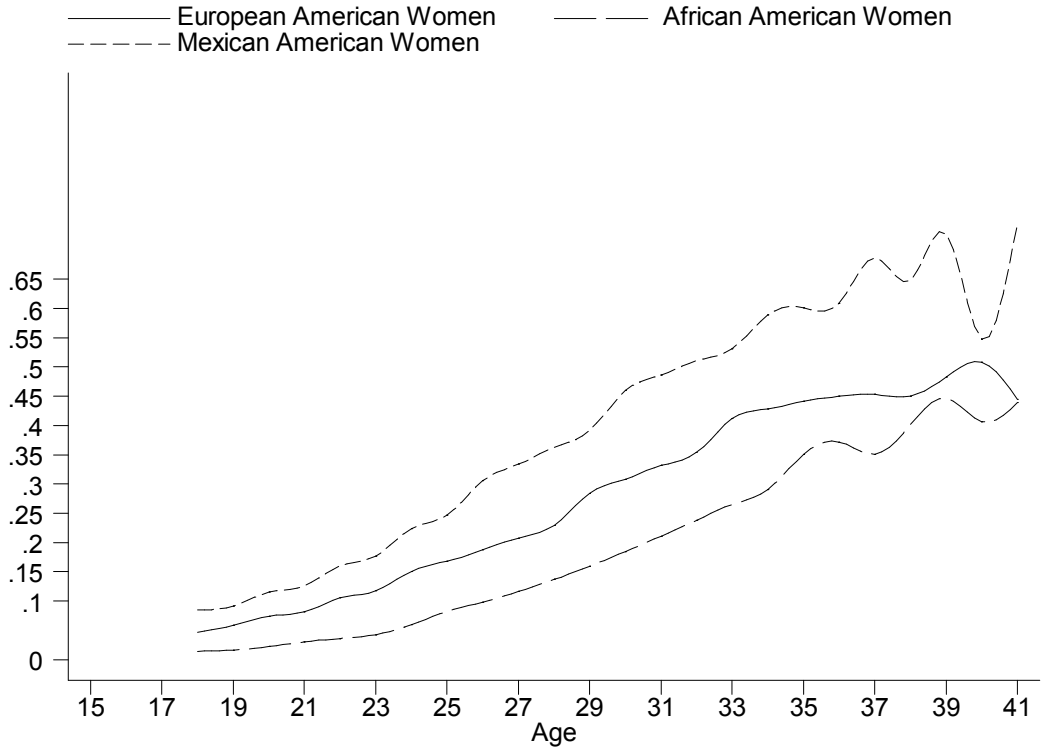

Table 1. Likelihood of Smoking Cessation Associated with Occupational Psychosocial Strain and Smoking Attitude, Stratified by Gender, NLSY79

Variables	Men				Women			
	Coeff. Model 1	Coeff. Model 2	Coeff. Model 3	Coeff. Model 4	Coeff. Model 1	Coeff. Model 2	Coeff. Model 3	Coeff. Model 4
Age	-1.466	-1.276	-1.525	-1.404	-0.357$^{(ns)}$	-0.337$^{(ns)}$	-0.517*	-0.395$^{(ns)}$
Age^2	0.062	0.055	0.063	0.587	0.025**	0.024**	0.029	0.025**
Age^3	-0.001	-0.001	-0.001	-0.001	-0.000	-0.000**	-0.000	-0.000**
European American	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
African American	-2.280	-2.251	-2.054	-2.027	-2.453	-2.371	-2.083	-2.050
Mexican American	-0.228*	-0.162*	-0.078$^{(ns)}$	-0.086$^{(ns)}$	0.483	0.577	0.582	0.595
African American × Age	0.060	0.060	0.062	0.062	0.059	0.059	0.058	0.058
Duration Smoking	-0.167	-0.165	-0.155	-0.156	-0.163	-0.160	-0.145	-0.146
Duration Smoking × Mexican American	0.065	0.062	0.062	0.063				
High demand, high latitude		0.000		0.000		0.000		0.000
High demand, low latitude		0.284$^{(ns)}$		0.297$^{(ns)}$		-0.198		0.049$^{(ns)}$
Low demand, high latitude		-0.263		0.202**		-0.384		0.066$^{(ns)}$
Low demand, low latitude		-0.375		0.214		-0.603		0.060$^{(ns)}$
Working, unknown occupation		0.066$^{(ns)}$		0.391		-0.037$^{(ns)}$		0.312
Keep house		-0.782		-0.407**		-0.481		-0.038$^{(ns)}$
School work		-0.096$^{(ns)}$		-0.171$^{(ns)}$		-0.320*		-0.353*
Unemployed		-0.195*		0.287		-0.701		-0.169*
Military		-0.259**		-0.013$^{(ns)}$		0.419*		0.661
Unknown work						2.511*		2.726*
Smoking Attitude			0.360	0.398			0.507	0.517
Constant	8.436	7.117	1.170	-0.903	-2.426	-2.199	-12.408	-13.473
N	26823	26817	26877	26830	25078	25078	25231	25094
Log Likelihood	-12910	-12851	-12732	-12684	-12256	-12131	-11941.	-11898

Note: all coefficients are significant at $p < 0.001$ unless otherwise noted
$^{(ns)}$ p>.10; * p<.10; **p<.01;