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Psychosocial Factors Related to Smoking: The Midlife Study

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Abstract

Background—There is limited research on the correlates of cigarette smoking in women in late midlife.

Objectives—The present study examined the associations between risk factors in several psychosocial domains and current cigarette smoking among women in their mid-60s. These domains included risks in personal attributes, family relationships, negative life events, financial stressors, contextual factors, and problematic alcohol use.

Methods—Data were from a cohort of women originally living in two upstate New York counties (N=511) in late midlife (\bar{x} age = 65). Bivariate and multivariate logistic regression analyses were conducted.

Results—The results supported our hypotheses. The cumulative psychosocial risk index was significantly associated with a greater likelihood of cigarette smoking [A.O.R.=1.53; 95% C.I. (1.3-.181); $p<.001$] after controlling for age and educational level.

Conclusions and Scientific Significance—It is important to reduce the number of psychosocial risk factors faced by women in their 60s in order to reduce the likelihood of continued cigarette smoking.

Keywords

Smoking; Financial stressors; Alcohol use; Maladaptive personal attributes; Negative life events; Family conflict

Introduction

Smoking cigarettes is still a major cause of preventable disease in the United States, despite declines in the prevalence of smoking. The adverse health consequences of smoking cigarettes, such as lung and heart disease, lung cancer, and stroke, have been well characterized in several studies.¹ However, at the present time, there is limited research on the correlates of cigarette smoking in women in late midlife. The present study, therefore, was designed to examine the multiple psychosocial risk factors related to the increased

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Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

probability of cigarette smoking in women in late midlife. In contrast to other studies, we assess the presence of cumulative psychosocial risk factors related to cigarette smoking.

The present study adds to the literature in three ways. First, we examine not only the specific psychosocial risk factors for cigarette smoking, but also the cumulative risk factors for cigarette smoking in women in late midlife. The study of cumulative psychosocial risk factors such as neighborhood risk factors, high financial stressors, family conflict, and psychosocial symptoms should have important implications for the prevention and treatment of cigarette smoking in women in late midlife. Second, in contrast to other studies, we control for the impact of earlier psychosocial factors, age, and educational level.

Family Interactional Theory (FIT) posits that the cumulative number of psychosocial risk factors predicts the development of cigarette smoking, substance use disorders, and psychopathology. Based on FIT, we expect that there will be an increase in the likelihood of cigarette smoking in women in late midlife as the total number of risk factors increase. In a study of African Americans and Puerto Ricans, Brook and colleagues² reported that as the number of risks increased, there was an associated increase in the likelihood of the occurrence of a cannabis disorder.

According to FIT, several domains of psychosocial risk factors are associated with cigarette smoking.³ These domains include: intrapersonal distress (e. g., depression), substance use (i.e., alcohol problems), family relationships (e.g., family conflict), negative life events (e.g., low life satisfaction), financial stressors (e.g., financial strain), and contextual factors (e.g., neighborhood poverty). Intrapersonal distress and psychiatric disorders are known to be correlated with the use of cigarettes.⁴ For instance, rates of depression are higher in cigarette smokers than in the general population, and anxiety disorders are associated with cigarette smoking.⁵ Problematic alcohol use (e.g., alcohol dependence and abuse) by individuals is a strong predictor of cigarette smoking.⁶ Family conflict and having a partner who smokes cigarettes also predict cigarette smoking.⁶ Negative life events⁶ and financial stressors also play major roles in cigarette smoking.^{7,8}

A number of the studies to date have used a generalized assessment of stress or a limited number of specific risk factors. Several previous studies assessing the presence of multiple risk factors have found an increase in the probability of negative developmental outcomes, including substance use.⁹ This is the first study to examine the cumulative effect of several significant domains of psychosocial risk factors as related to cigarette smoking in women in late midlife.

Hypotheses

Our hypotheses include the following. First, risk factors in several psychosocial domains are associated with an increased likelihood of current cigarette smoking. These domains include personal attributes, family relationships, negative life events, financial stressors, contextual factors, and problematic alcohol use. Second, as the total number of risk factors increases, there will be a corresponding increase in the likelihood of cigarette smoking.

Method

Participants and Procedure

Data on the participants in this study came from a community-based random sample residing in one of two upstate New York counties first assessed in 1975. Population data from the census (updated in 1975) for sampling units in Albany and Saratoga counties were obtained. A systematic sample of primary sampling units (blocks) in each county was then drawn with probability proportional to the number of households. The detailed sampling procedures were published elsewhere (Cohen & Cohen, 1996). At the time the data was collected, there was a close match of the participants on family income, maternal education, and family structure with the 1980 survey conducted for upstate New York by the U.S. Bureau of Census. For example, 75% of the children lived with married parents, and 19% lived with a mother who was not currently married; the census figures were 79% and 17%, respectively.¹⁰

The original maternal/youth study only assessed behavior among the children of the participants in 1975. The mean age of the participants (mothers) in 1975 was 32. Ninety two percent of the participants were white. Interviews of the participants were conducted in 2009 (N=511; $X_{age}=65$). The participants were given self-administered questionnaires, and written informed consent was obtained from them. The Institutional Review Board of New York University School of Medicine approved of the procedures used in this research study.

Data obtained from the 2009 interviews were used in the present study. The participants' mean age in 2009 was 65.3 years, with a standard deviation of 6.2 years. Of the 511 women, 66.1% were married, 15.7% were divorced, 17.6% were widowed, and 0.6% were never married. Of the 511 women, 40% reported some college attendance in 1983. With respect to women's working status in 2009, 29.3% worked full time, 11.3% worked part time, 42.6% were retired, and 16.8% were classified as "other." Of the 511 women, 14.8% smoked cigarettes in 2009.

Measures

Current cigarette smoking—At the 2009 interview, the participants were asked to report on the frequency of their cigarette smoking in the past year. The frequency was rated as not at all (0); a few cigarettes or less a week (1); 1–5 cigarettes a day (2); about half pack a day (3); about 1 pack a day (4); about 1.5 packs a day (5); and more than one 1.5 packs a day (6). Seventy five (14.7%) of the participants reported that they smoked in the past year (a few cigarettes or less a week or greater) and were assigned a score 1 for current cigarette smoking. Other participants were assigned a score of 0 for current cigarette smoking.

Maladaptive Personal Attributes—The maladaptive personal attributes domain consisted of three variables: A) Depression [8 items scored on a 5 point scale: not at all (0) to extremely (4)];¹¹ Cronbach's alpha=.90; e.g., Within the past five years, how much were you bothered by feeling hopeless about the future?, B) Low Traditionality [6 items scored on a 5 point scale: disagree (1) to agree (5) (Original); Cronbach's alpha=.75; e.g., Do you agree that having a child out of wedlock is no big deal these days?], and C) Low Ego-control

[6 items scored on a 4 point scale: false (1) to true (4);³ Cronbach's alpha=.65; e.g., I sometimes feel that I am about to go to pieces or fall apart.]

Marital/Partner Conflict and Spouse/Partner Smoking—The domain of marital/partner conflict and spouse/partner smoking consisted of three variables: A) Arguments with spouse/partner [6 items scored on a 5 point scale: never (0) to always (4);³ Cronbach's alpha=.88; e.g., How often do the two of you argue or fight about things?], B) Low satisfaction with spouse/partner [4 items scored on a 6 point scale: never (0) to all of the time (5);¹² Cronbach's alpha=.90; e.g., In general, how often do you think that things between you and your spouse/partner are going well?], and C) Spouse/partner smoking in the past year. [not at all (0), a few cigarettes or less than a week (1), 1–5 cigarettes a day (2), about half pack a day (3), about one pack a day (4), about one and a half packs a day (5), and more than one and a half packs a day (6)].

Financial stressors—The dimension of financial stressors consisted of three variables: A) Financial strain [7 items scored on a 5 point scale: never (0) to almost always (4); Cronbach's alpha=.90, e.g., How often is it hard to live on your present income?].¹³ B) Financial problems [14 items scored on a 4 point scale: completely untrue (0) to definitely true (3); Cronbach's alpha=.90; e.g., Because of the current economic condition, how true is it that you find it more difficult to pay for food?].¹⁴ C) Symptoms due to financial worries [5 items scored on a 4 point scale: completely untrue (0) to definitely true (3); Cronbach's alpha=.79; e.g., Because of the current economic condition, how true is it that you sometimes feel anxious?].¹⁵

Negative Life Events and Life Dissatisfaction—The domain of negative life events and life dissatisfaction consisted of three variables: A) Negative life events during the past 15 years consisted of 8 items [scored on a 2 point scale: no(0) to yes (1); e.g., death of spouse];¹⁶ B) The scale of life dissatisfaction in 1995–2004 consisted of 19 items [scored on a 4 point scale: quite satisfied (1) to quite dissatisfied (4); Cronbach's alpha=0.94; e.g. How dissatisfied were you with your overall sense of well-being during 1994–2004?];¹⁷ and C) the scale of life dissatisfaction in 2005–2009 consisted of 19 items [scored on a 4 point scale: quite satisfied (1) to quite dissatisfied (4); Cronbach's alpha=0.95; e.g. How dissatisfied were you with your overall sense of well-being during 2005-present?].¹⁷

Alcohol Use Disorder and Problems—The domain of alcohol use disorder and problems consisted of two variables: A) diagnosis based on DSM-IV criteria of alcohol dependence or abuse in the past 12 months [18]; and B) alcohol problems that consisted of the sum of 13 items (scored on a 3 point scale: no (1) to a lot (3); Cronbach's alpha=.92; e.g., has your use of alcohol caused you to behave in ways that you later regretted? (Original)).

Environmental Risk Factors—The domain of environmental risk factors consisted of the experience of discrimination [9 items scored on a 4 point scale: never (0) to often (3) [19]; Cronbach's alpha=.90; e.g., How often on a day-to-day basis do you experience being treated with less respect than other people?] and neighborhood poverty [2 items scored on a

4 point scale: not at all true (0) to very true (3) [19]; Cronbach's alpha=.83; e.g., How true is that there are a lot of people in your neighborhood who use food stamps?].

Control Variables—The control variables were age (years) and level of education obtained by 2009.

Scoring of the Independent Variables: With the exception of a diagnosis of alcohol dependence or abuse based on DSM-IV criteria, for each of the indicator variables of psychosocial risk factors, a participant was assigned a score of one if the original continuous scale (see above) was 1 standard deviation above its mean. We then created indicator variables for each domain (i.e., high maladaptive personal attributes, high marital/partner conflict and spouse/partner smoking, high financial stressors, high negative life events and life dissatisfaction, alcohol use disorder and problems, and high environmental risk factors). A participant was assigned a score of one for the domain indicator variable if one or more of the indicator variables in the domain was 1. Finally, we created a cumulative psychosocial risk index by summing the domain indicator variables.

Data Analysis—We conducted separate bivariate logistic regression analyses on each indicator of psychosocial risk factors to examine the associations between the women's risk factors and their likelihood of current cigarette smoking in their mid-60s (see Table 1). On the domain level (see Table 2), we conducted separate bivariate logistic regression analyses as well as a multivariate logistic regression analysis. In the multivariate logistic regression analysis, we included all of the six risk domains as independent variables. We then conducted a multivariate logistic regression analysis to examine the association between the cumulative psychosocial risk index and the likelihood of current cigarette smoking, while controlling for age and level of education obtained by 2009.

Results

Tables 1 and 2 present the results of the logistic regression analyses. With two exceptions (shown in Table 1), all of the psychosocial variables were individually associated with a greater likelihood of current cigarette smoking at the 0.05 level or lower. As shown in Table 2, each of the risk domains was significantly associated with a greater likelihood of current cigarette smoking (without controls). The result of the multivariate logistic regression analyses (Table 2) indicated that, above and beyond the other risk domains, alcohol use disorder and problems [Adjusted Odds Ratio (A.O.R.) = 3.70], high financial stressors (A.O.R. = 2.48), high family conflict, spouse smoking (A.O.R. = 1.97), and high maladaptive personal attributes (A.O.R. = 1.79) each significantly ($p < 0.05$) predicted current cigarette smoking after controlling for all of the other domain variables.

We also conducted a multivariate logistic regression analysis. The cumulative psychosocial risk index was significantly associated with a greater likelihood of current cigarette smoking among women in their mid-60s [A.O.R. = 1.53; 95% C.I. (1.3–.181); $p < .001$] after controlling for age and level of education obtained by 2009.

Discussion

In a sample of women in late midlife, we examined the relation of a number of individual psychosocial risk factors and several domains of psychosocial risk factors to current cigarette smoking. Of significance is our examination of the association between the cumulative number of domains and the probability of current cigarette smoking in women in midlife. Our findings were consistent with our hypotheses. Fourteen of 16 of the psychosocial risk factors were correlated with the likelihood of continued cigarette smoking.²⁰ Furthermore, an increase in the cumulative number of domains of psychosocial risk factors was associated with an increased likelihood of current cigarette smoking.

Our study is unique in two ways. First, we add to the literature by addressing the association between the number of psychosocial risk factors and current cigarette smoking. Second, this is the first study to assess multiple psychosocial risk factors related to smoking in a sample of women in late midlife.

As noted above, multiple psychosocial risk factors are implicated in psychopathology and in cigarette smoking.^{2,21} In accord with FIT and our hypotheses, an increase in the number of domains of psychosocial risk factors was associated with an increase in the probability of current cigarette smoking by women in late midlife. This indicates that it is not only the presence of individual psychosocial risk factors that predict cigarette smoking, but the sheer number of risk factors.

Our results indicate that specific psychological risk factors are associated with continued cigarette smoking. Kiviniemi et al.²² also reported a relationship between psychological distress and smoking. According to the self-medication theory of substance abuse as expressed by Khantzian and Albanese,²³ individuals who use substances (e.g., smoke cigarettes) may be motivated to use substances to cope with feeling of internal distress such as depression.

Both the family domain (e.g. family conflict) and the financial stressors domain (financial problems) were of great importance in predicting current smoking. Not only was family conflict related to smoking,²⁴ but there was also concordance between the significant other's cigarette smoking and that of the individual. One possibility is that women smokers imitate the behavior of their partners. At the same time, women whose partners do not smoke may model their behavior after their partners and thus refrain from smoking. In addition, contextual factors such as economic strain and life adversity may increase craving and make it difficult for women to control their urges to smoke.²⁵ The relationship between economic strain and smoking may be mediated by self-control, as women who are exposed to economic strain may have difficulty in their ability to control their impulses to smoke and, consequently, tend towards continuing to smoke.

Finally, alcohol abuse and dependence had the highest odds ratio for current smoking. As noted above, both activities can be a form of self-medication to cope with stress. It may be that alcohol abuse exacerbates the individual's difficulty in controlling her/his impulses. Another possibility is that alcohol abuse heightens earlier depression which in turn predicts

continued cigarette use.²⁶ It is also possible that both activities are the result of a third variable, such as genetic factors or other factors not included in this investigation.

From a physiological perspective, the associations between the varied stressors and smoking may reflect the role played by smoking in the stress response system. Smoking may alter physiological systems involved in the stress response system. Chronic smoking diminishes adrenocortical and cardiovascular responses to stress.²⁷ Kirschbaum et al.²⁸ found that chronic nicotine consumption may also lead to lower responses of a number of stress hormones (ACTH, prolactin, growth hormone) to a variety of stimuli.

As noted previously, we examined the associations between the stressful life domain (e.g., low levels of life satisfaction) and the contextual domain (e.g., discrimination) and cigarette smoking. The bivariate analyses suggested that both of these domains were of considerable importance in predicting current smoking. Nevertheless, the associations between these two domains and cigarette smoking lost significance in the multivariate analysis. It is possible that the associations were mediated by the personal attributes domain, alcohol domain, the family domain, and the financial stressors domain.

Our findings viewed in the context of longitudinal studies⁷ suggest that interventions to lessen the number of risk factors from multiple social and psychological domains should be included in programs designed to eliminate cigarette smoking. Intervention and prevention programs should pay particular attention to financial stressors, family conflict, and alcohol abuse or dependence.

Limitations and Strengths

The study has several limitations. First, the measures are based on self-reports. In addition, there may be limitations due to the reliability of retrospective data. However, as noted by Johnston et al,²⁹ self-reports of substance use are reasonably reliable and valid. Nevertheless, the results are subject to the problems inherent in self-reports. Second, the study is based on a sample of primarily white women in late mid-life. Consequently, we are limited in our ability to generalize our findings to men and women of other ethnic groups or different ages. In addition, the sample was a representative sample of the population who resided in two upstate New York counties. However, there were several sizable urban centers that were not included in the study. Nevertheless, the two counties selected did match the 1980 Census. Third, one focus of this study was the association of negative life events and cigarette smoking. Future research should include positive as well as negative life events.

Despite the limitations, the study has a number of strengths. First, an important strength is that we studied a number of psychosocial risk domains related to cigarette smoking, adding to the existing literature, which has focused on limited and individual risk factors related to current cigarette smoking. These women with multiple risk domains are more likely to smoke cigarettes, and as one increases the number of risk domains, there is an increase in the probability of smoking cigarettes. Second, we included a number of measures assessing multiple domains of psychosocial risk factors in order to assess a variety of roles and life contexts of the women. Third, we identified those individual risk domains which have the

largest association with current cigarette smoking. Those women who reported specific risk factors, particularly in the domains of problematic alcohol use, financial stressors, maladaptive personal attributes, and family conflict, have a higher probability of smoking cigarettes. This may have implications for setting priorities in interventions designed to stop smoking. More specifically, reducing the number of risk factors should reduce the likelihood of smoking cigarettes. Overall, the findings indicate that future research on smoking cigarettes in women in late midlife should include risk factors from multiple domains.

In conclusion, from a treatment perspective, it is critical to reduce the number of psychosocial risk factors experienced by women in order to reduce the likelihood of continued cigarette smoking. Second, smoking cessation treatments should include a focus on stress reduction, and should be included and directed toward addressing alcohol abuse and dependence, financial stressors, maladaptive personal attributes, and stressors in the family, particularly partner smoking.

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Table 1

Separate bivariate logistic regression analyses of current smoking status of women in their mid-sixties on individual psychosocial risk factors (N=511)

Independent variables	Proportion (Value of the independent variable=1)	Current smoking vs. not Smoking (14.7%) O.R. (95% CI)
High neighborhood risk factors		
High experience of discrimination	15.7%	2.49 (1.40 – 4.41)**
High neighborhood poverty	11.9%	1.90 (0.99 – 3.66)§
Alcohol use disorder and problems		
Alcohol use, abuse, or dependence	2.4%	8.87 (2.74 – 28.76)***
High alcohol use problem	5.7%	3.99 (1.80 – 8.84)***
High financial stress		
High financial strain	16.6%	4.28 (2.49 – 7.36)***
High financial problem	19.8%	2.55 (1.49 – 4.37)***
High symptoms due to financial worries	16.1%	2.19 (1.23 – 3.91)**
High family conflict and spouse smoking		
Low satisfaction with spouse/partner	15.9%	2.05 (1.14 – 3.68)*
High argument with spouse/partner	15.5%	2.32 (1.30 – 4.15)**
High spouse/partner smoking	14.7%	4.19 (2.39 – 7.34)***
High negative life events and life dissatisfaction		
High negative life event during the past 15 years	16.1%	1.67 (0.92 – 3.05)§
Low life satisfaction 1994–2004	15.9%	2.44 (1.37 – 4.32)**
Low life satisfaction 2005–present	17.6%	2.85 (1.65 – 4.94)***
High maladaptive personal attributes		
Low traditionality	18.0%	2.17 (1.24 – 3.80)**
Low ego-control	12.7%	2.88 (1.57 – 5.26)***
High depression	15.1%	2.21 (1.23 – 3.99)**

Note:

1. O.R.=Odds Ratio, CI=confidence interval;
2. § p<0.10, *p<0.05, **p<0.01, *** p<0.001

Table 2

Bivariate and Multivariate logistic regression analyses of current smoking status of women in their mid-sixties on psychosocial risk domains (N=511)

Domain indicator variables	Proportion (value of the domain indicator variable=1)	Bivariate Analyses: Current smoking vs. not smoking (14.7%) O.R. (95% CI)	Multivariate Analysis: Current smoking vs. not smoking (14.7%) A.O.R. (95% CI)
High neighborhood risk factors	23.3%	2.42 (1.44 – 4.07)***	1.27 (0.70 – 2.30)
Alcohol use disorder and problems	7.1%	4.91 (2.42 – 10.11)***	3.70 (1.69 – 8.09)***
High financial stress	28.4%	3.85 (2.32 – 6.38)***	2.48 (1.38 – 4.44)**
High family conflict and spouse smoking	32.9%	2.93 (1.78 – 4.83)***	1.97 (1.14 – 3.40)*
High negative life events and life dissatisfaction	30.7%	2.11 (1.28 – 3.48)**	0.91 (0.50 – 1.67)
High maladaptive personal attributes	33.9%	2.96 (1.80 – 4.89)***	1.79 (1.01 – 3.19)*

Note:

1. O.R.=Odds Ratio; A.O.R.=Adjusted Odds Ratio; CI=confidence interval;
2. All domain indicator variables were included as independent variables in the multivariate analysis;
3. *p<0.05, **p<0.01, *** p<0.001