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Gender Differences in Smoking Among an Urban Emergency Department Sample

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ABSTRACT

BACKGROUND: Urban emergency department (ED) patients have elevated smoking and substance use compared with the general population. We analyzed gender differences in smoking among an urban ED sample and assessed the contribution of substance use, demographic, and couple factors.

METHODS: We conducted a secondary analysis of data obtained from a cross-sectional, observational survey (N = 1037 participants) on drinking, drug use, and intimate partner violence (IPV). Gender-specific logistic regression models for current (past 30-day) smoking and multinomial regression models for smoking intensity (light: ≤5 cigarettes per day [CPD]; moderate: 6 to 10 CPD; heavier: >10 CPD) were estimated.

RESULTS: Smoking prevalence was higher among men than women (35.5% vs 18.9%; $P < .001$). Substance use (frequency of intoxication, marijuana, amphetamine, and cocaine use), demographic (food insufficiency, unemployment), and couple-related factors (having a spouse/partner who smoked, IPV involvement, being in a same-gender couple) were differentially associated with current smoking and level of intensity among men and women.

CONCLUSIONS: Emergency department staff should consider the impact of polysubstance use, food insufficiency, unemployment, and whether both partners in the couple smoke when screening patients for smoking and formulating cessation treatment plans. Women in same-gender relationships and those who have experienced IPV involvement may require additional referral.

KEYWORDS: Smoking, gender differences, disparities, emergency department, substance use

Introduction

Tobacco use remains the leading cause of preventable death in the United States, with approximately 440 000 deaths annually.[1] Although the prevalence of cigarette smoking among US adults is estimated at 14.0%, elevated prevalence is seen among various segments of the population including some racial/ethnic minorities, members of lower income households, those with lower educational attainment, Medicaid recipients, the uninsured, and those who report their sexual orientation as lesbian, gay, or bisexual.[2] High smoking prevalence among emergency department (ED) patients has long been noted.[3-5] For example, studies among ED patients have reported smoking rates as high as 48%.[4,6] Accordingly, emergency medicine (EM) organizations and the National Academy of Medicine have recognized the ED as an appropriate venue for tobacco control.[7,8] Most patients seeking non-emergent care at urban EDs are Medicaid recipients, uninsured or underinsured and not likely to have a primary care provider, or may not access health care otherwise.[9,10]

Alcohol, marijuana, and illicit drug use are also more prevalent among ED patients than in the general population.[11,12] In a large (14 000+ patients) multisite study across 6 public sector hospitals, 45% of ED patients reported past-year at-risk alcohol use, 30% reported past-year drug use, and 47% reported current tobacco use.[6] Alcohol, tobacco, and drug (ATOD) use were associated with using other substances and severity of other substance use. Although male gender predicted ATOD use versus non-use, gender did not predict severity of smoking or drug use.[6] Similarly, an examination of gender differences in ATOD use across patients at 2 urban EDs found that overall prevalence was higher for men, but frequency of use among men and women reporting past 3-month use was similar for tobacco, marijuana, and other drugs.[13] Men, however, reported more frequent alcohol use than women.[13]

Understanding male and female gender differences in tobacco and comorbid substance use among ED patients is important for several reasons. First, notwithstanding a small number of studies,[6,13] little is known about the epidemiology of gender differences in smoking among ED populations. This knowledge gap is noted in the 2014 *Academic Emergency Medicine* consensus conference, "Gender-Specific Research in Emergency Care."[14] Having more information on gender differences in smoking and

other substance use could help inform the design of effective screening, brief interventions, and referral to treatment (SBIRT) approaches to ATOD use among ED patients.[15] Second, data from the 2017 National Health Interview Survey (NHIS) indicate that tobacco use prevalence is highest among certain demographic groups (eg, whites and non-Hispanic blacks; those with household incomes < US$35 000).[2] Little is known, though, as to how demographic factors and indicators of social disadvantage may differ by gender in relation to current smoking and smoking intensity among ED patients.

There is also evidence that couple-related factors are associated with elevated smoking risk, but the role of these characteristics has not been investigated in ED populations. A meta-analysis of spousal concordance for major coronary risk factors found a significant correlation for smoking,[16] and an analysis of Dutch survey data between 1991 and 2013 found spousal resemblance for current smoking, especially among more recent surveys.[17] Another couple-related factor linked to smoking is past-year intimate partner violence (IPV). In a gender-stratified analysis of data from Wave 2 of the National Epidemiologic Study on Alcohol and Related Conditions (NESARC-II), IPV victimization and perpetration were not associated with current smoking or smoking quantity among men.[18] Among women, however, both IPV victimization and perpetration were associated with a greater likelihood of smoking, and IPV victimization was linked to more cigarettes smoked per day (CPD).[18] Finally, data from the Medical Expenditures Panel Survey (MEPS) study indicate that individuals who are in same-gender couples are more likely to smoke than those in different-gender couples.[19] The gender-stratified analysis showed that men, but not women, in same-gender couples were more likely to smoke.[19] Despite evidence pointing to health disparities in smoking among same-gender couples and individuals who identify as sexual minorities,[20] little is known about smoking behavior among ED patients who are in same-gender couples. Investigating if couple-related factors are associated with smoking among ED patients, and if the associations vary by gender, can provide important contextual information that can be harnessed to aid screening and formulation of cessation treatment plans.

The purpose of this study is to quantify gender differences in smoking prevalence and intensity among a sample of partnered adult ED patients ages 18 to 50 recruited at an urban safety-net hospital and to determine the contribution of substance use, demographic, and couple-related factors to smoking prevalence and intensity.

Methods

Study design and setting

Survey data in this article were collected as part of a cross-sectional, observational study on drinking, drug use, and IPV among a sample of ED patients at an urban Level I trauma center in Northern California.[21] The hospital is part of a county-wide integrated public health care system and is home to an established Emergency Medicine training program. The ED has an annual census of 72 000 and serves as the county's safety-net provider, with 61% of visits covered by Medicaid and another 17% uninsured. Approximately 41% of patients are African American and 33% are Hispanic. The project was approved by the Alameda Health System Institutional Review Board (approval no. IRB16-02093A).

Subject selection

Study eligibility criteria were as follows: 18 to 50 years old; English or Spanish speaker; resident of the county in which the hospital is located; and married, cohabiting, or in a romantic (dating) relationship for the past 12 months. Age 50 was chosen as the upper age limit because the incidence of IPV sharply drops among adults above this age. Patients who were intoxicated, experiencing acute psychosis or suicidal or homicidal ideation, were cognitively/psychologically impaired and unable to provide informed consent, in custody by law enforcement, or in need of immediate medical attention (ie, Emergency Severity Index [ESI] level 1 or 2)[22] were ineligible and excluded.

After receiving training about the study's conceptual framework, data collection techniques, and protection of human subjects, a team of bilingual, BA-level Research Assistants (RAs) pilot tested the survey with 41 low-acuity participants. The purpose of the pilot test process was to identify obstacles to study recruitment, refine data collection procedures, and provide the research team with estimates of average survey interview length. Data collection with the finalized survey instrument was conducted from February 27 through December 15, 2017. Due to staffing constraints, we did not seek to proportionately recruit participants from all ED shifts. Instead, 2 interviewers per shift staffed the ED during weekday peak volume hours (9 a.m. to 9 p.m.) to recruit eligible participants to the study.

Figure 1 shows the recruitment sequence. The RAs identified potentially eligible participants through a multi-step process. First, they searched the ED's electronic patient information system (Wellsoft) for currently registered ED patients between ages 18 and 50 (n = 3386) who had been triaged at ESI levels 3 to 5. Second, the RAs located and conducted face-to-face screening with patients in the ED waiting room or in a treatment cubicle (n = 2212). Third, the RAs offered eligible participants the opportunity to participate in a confidential, face-to-face survey interview for which they would receive a US$30 grocery store gift card incentive (n = 1184). The RAs obtained informed consent in a private area adjacent to the ED waiting room, or in the subject's room without others present (n = 1066). A total of 29 participants terminated the survey interview before completion. This was due primarily to interruption for medical services (eg, patient transported to ultrasound or X-ray). Thus, 1037 participants (53% female) completed the survey interview (87.5% participation rate). Patient survey data were collected by the RAs using computer-assisted personal
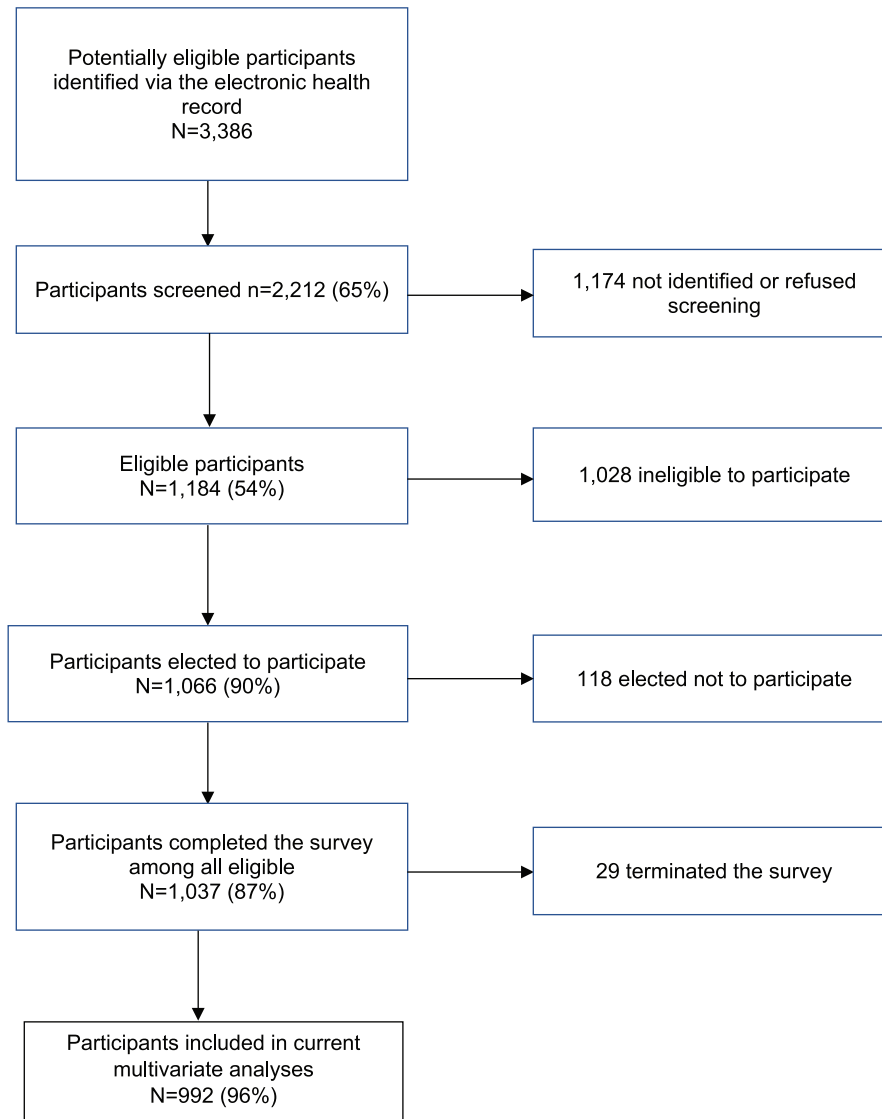
Figure 1. Study sample recruitment.

interview (CAPI) techniques with tablet computers running the Qualtrics platform. The average survey interview completion time was 37 minutes (SD = 20.7).

Measurements

Cigarette smoking (outcome). We created a dichotomous "current smoking" variable that was coded positively for all those who smoked any cigarettes in the past 30 days (see Supplemental Appendix 1 for survey instrument). We next created a variable to represent smoking intensity (light: ⩽5 CPD; moderate: 6-10 CPD; heavier: >10 CPD).[23]

Frequency of intoxication and at-risk drinking. Participants were asked about the frequency of intoxication during the past 12 months. Based on the largest number of drinks they had in a single day, a 3-level at-risk drinking variable (abstainers, non-at-risk drinkers, and at-risk drinkers) was coded positively for

women who had at least 4 drinks and men who had at least 5 drinks. These thresholds are in accord with the National Institute on Alcohol Abuse and Alcoholism's gender-specific definition of at-risk or heavy drinking.[24] Abstainers were set to "0."

Marijuana use. We created a continuous variable for number of days in the past 12 months that the participant used marijuana. A dichotomous variable was coded that represented any past-year marijuana use.

Illicit drug use. Continuous variables were created for use of amphetamine, cocaine, and prescription pain relievers. Dichotomous variables representing any past-year use for each drug were coded.

The frequencies for abstainers/non-users across all substances were coded as "0," and the frequency of intoxication, marijuana, and illicit drug use variables were log transformed for all participants due to skewed distributions.

Sociodemographic factors. These included self-reported gender, race/ethnicity, age, level of education, and unemployment. Food insufficiency was measured with level of agreement with the statement, "In the past 12 months the food we bought ran out and we didn't have money to get more." Response categories were never, sometimes true, and often true. In accord with Okechukwu et al,[25] we dichotomized and compared those who responded "sometimes" or "often" to those who responded "never."

Couple factors

Intimate partner violence. Past 12-month physical IPV was measured with the 12-item physical assault subscale in the Revised Conflict Tactics Scale (CTS2).[26] Cronbach α for the scale was 0.85. Participants who indicated that they perpetrated any violent behaviors against their spouse/partner, or that their spouse/partner perpetrated any violent behaviors against them, were coded positively for past-year IPV involvement.

Same-gender couple. Participants who reported that their spouse/partner was the same gender as themselves were coded as being part of a same-gender couple.

Spouse/partner smoking. Participants whose spouse/partner smoked any cigarettes in the past 30 days were coded positively for spouse/partner smoking.

Statistical analysis

The study's initial sample size estimate called for the enrollment of 800 married, cohabiting, or dating adults (50% female). This was based on calculations that using linear regression analyses. Power would be 80% to detect a small overall effect ($R^2 = 0.02$) with 20 predictors ($\alpha = 0.05$). Power would be 85% to detect small incremental changes of adding single variables to the regression equations ($\Delta R^2 = 0.01$) with 19 prior predictors, a prior R^2 of 0.10, and $\alpha = 0.05$.

Analyses were conducted with IBM SPSS Statistics v. 25. We calculated chi-square statistics for cross tabulations of categorical variables by smoking status. Due to multiple bivariate tests, we used the Bonferroni correction with $P < .003$. We developed gender-stratified logistic regression models of current smoking based on complete data from 461 men and 531 women. Three participants identified as transgender; due to small numbers, these cases were excluded from the analyses. Using SPSS's "logistic regression" procedure, we calculated odds ratios (ORs) and 95% confidence intervals (CIs). Missing data ranged from 0% to 1.6% for the variables in the analysis and were handled with listwise deletion. We next developed gender-stratified multinomial regression models of smoking intensity using the "nomreg" procedure. Models included substance use, demographic, and couple-related variables. For men, we compared light smokers, moderate smokers, and heavier smokers to non-smokers. Due to a low number of men in same-gender relationships, this variable had to be dropped

from the model as it produced unstable estimates. For women, we collapsed the moderate and heavier smoker categories into 1 moderate/heavier smoking category as few women (n = 14) reported smoking more than 10 CPD. We compared light smokers and moderate/heavier smokers to non-smokers.

Results

Descriptive analysis

Rate of current smoking (Table 1) among male participants was nearly double that of female participants. Smoking rates varied by race/ethnicity; rates among whites were more than triple those of Hispanics/Latinos. Higher smoking rates were seen among the unemployed and those who reported food insufficiency. Regarding substance use, rates of smoking were higher among at-risk drinkers, marijuana, cocaine, and amphetamine users, and among those who misused prescription opioids. Regarding couple factors, rates of smoking were more than double among those whose partners were current smokers and among those who reported any past-year IPV. Smoking intensity levels by gender are shown in Figure 2.

Logistic regression

Factors associated with current smoking for men and women are shown in Table 2. Among men, those reporting food insufficiency were significantly more likely to be current smokers compared with those with enough food in their household. Frequency of intoxication and days of cocaine use were associated with being a current smoker. Those who reported that their spouses/partners were current smokers were more than twice as likely to be current smokers compared with those whose partners were not current smokers.

Among women, Hispanics/Latinas were significantly less likely to be current smokers compared with whites. Unemployed women were twice as likely to be current smokers compared with those who were not unemployed. Days of marijuana use and amphetamine use were significantly associated with the likelihood of being a current smoker. Regarding couple factors, women whose spouses/partners were current smokers were more than 3 times as likely to smoke compared with those whose spouses/partners were non-smokers. Those who reported any past-year IPV were also more than twice as likely to smoke compared with those who did not report IPV. Finally, women who were in the same-gender relationships were 3 times as likely to be current smokers compared with women whose spouses/partners were male.

Multinomial regression

Table 3 shows the results of the multinomial regression analysis for smoking intensity among men. Regarding demographic factors, men who reported food insufficiency were nearly twice as likely to be light smokers compared with those who did not

Table 1. Sample characteristics.

	CURRENT SMOKER (%)		CHI-SQUARE, *DF*
	NO	YES	
Demographics			
Gender			
Male (n = 484)	64.5	35.5	36.38, 1***
Female (n = 550)	81.1	18.9	
Missing = 3			
Age			
18-29 (n = 297)	74.4	25.6	1.49, 2
30-39 (n = 382)	74.6	25.4	
40-50 (n = 355)	71.0	29.0	
Missing = 3			
Education			
Less than high school (n = 336)	75.0	25.0	15.67, 3
High school graduate/GED (n = 367)	68.4	31.6	
Some college n = 221)	71.9	28.1	
College graduate+ (n = 93)	88.2	11.8	
Missing = 20			
Race/ethnicity			
Hispanic/Latino (n = 518)	84.7	15.3	72.63, 3***
African American (n = 299)	61.9	38.1	
Other (n = 150)	65.3	34.7	
White (n = 67)	53.7	46.3	
Missing = 3			
Unemployed			
Yes (n = 310)	64.2	35.8	18.79, 1***
No (n = 724)	77.2	22.8	
Missing = 3			
Food insufficiency			
Sometimes/often (n = 513)	68.2	31.8	13.19, 1***
Never (n = 515)	78.3	21.7	
Missing = 9			

(Continued)

Table 1. (Continued)

	CURRENT SMOKER (%)		CHI-SQUARE, *DF*
	NO	YES	
Substance use			
At-risk drinking			
At-risk drinkers (n = 278)	59.0	41.0	56.74, 2***
Non-at-risk drinkers (n = 364)	71.7	28.3	
Abstainers (n = 392)	84.9	15.1	
Missing = 3			
Marijuana			
Yes (n = 276)	50.7	49.3	97.25, 1***
No (n = 746)	81.5	18.5	
Missing = 15			
Cocaine			
Yes (n = 69)	30.4	69.6	68.48, 1***
No (n = 957)	76.2	23.8	
Missing = 11			
Amphetamine			
Yes (n = 54)	18.5	81.5	86.60, 1***
No (n = 970)	76.2	23.8	
Missing = 13			
Prescription drug (opioid) misuse			
Yes (n = 33)	36.4	63.6	23.35, 1***
No (n = 992)	74.3	25.7	
Missing = 12			
Couple factors			
Same-gender couple			
Yes (n = 39)	61.5	38.5	2.83, 1
No (n = 992)	73.7	26.3	
Missing = 6			
Spouse/partner current smoking			
Yes (n = 231)	51.9	48.1	68.21, 1***
No (n = 797)	79.3	20.7	
Missing = 9			

(Continued)

Table 1. (Continued)

	CURRENT SMOKER (%)		CHI-SQUARE, *DF*
	NO	YES	
Past-year intimate partner violence			
Yes (n = 240)	53.8	46.3	61.1, 1***
No (n = 794)	79.2	20.8	
Missing = 3			

Abbreviation: GED, General Educational Development.
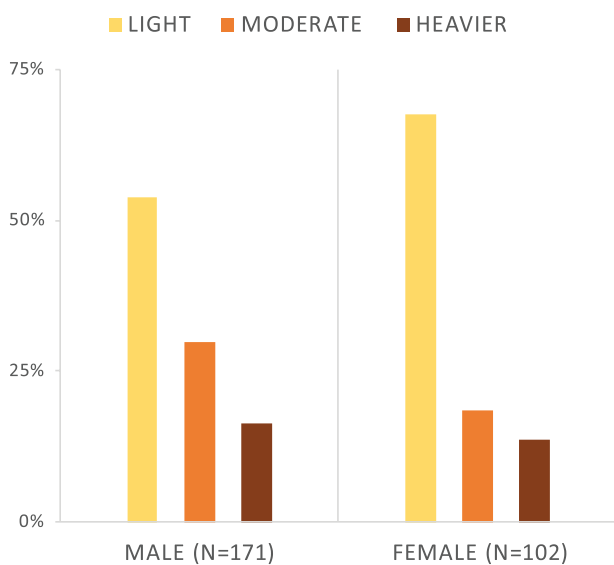***P < .001.

Figure 2. Smoking intensity by gender.

report food insufficiency. Regarding substance use, only days of marijuana use was associated with the likelihood of being a light smoker. Days of cocaine use and having a spouse/partner who was a smoker were associated with moderate smoking intensity. Regarding heavier smoking, men who were Hispanic/Latino and African American were less likely than white men to smoke at this intensity. Frequency of intoxication and days of amphetamine use were associated with the likelihood of being a heavier smoker. Men whose spouse/partners were smokers were nearly 5 times more likely to be a heavier smoker compared with those whose spouses/partners did not smoke.

Table 4 shows the results of the multinomial regression for smoking intensity among women. Days of amphetamine use was associated with being a light smoker. Women whose spouses/partners were current smokers were nearly 4 times as likely to be light smokers compared with women whose spouses/partners did not smoke. Those who reported any past-year IPV were more than twice as likely to be light smokers compared with those with no IPV involvement. Regarding moderate/heavier smoking, unemployed women were more than 4 times as likely to smoke at this intensity compared with women who

were not unemployed (OR = 4.50; 95% CI = 1.76, 11.49). Days of marijuana use and amphetamine use were associated with moderate/heavier smoking. Finally, all 3 couple factors were related to moderate/heavier smoking: having a spouse/partner who was a smoker, any past-year IPV, and having a same-gender spouse/partner.

Discussion

The sample's elevated smoking prevalence is consistent with estimates from other studies showing disparities in smoking rates among urban safety-net ED patients compared with the general population.[6,13] Moreover, our findings highlight gender differences in smoking prevalence and level of intensity. Specifically, rates of current smoking for men (35.5%) and women (18.9%) observed in our sample were more than double the gender-specific adult smoking rate in California (16.2% and 8.8% for men and women, respectively).[27] The findings underscore the need for ED providers to screen patients for smoking, engage in discussions with them about cessation, and offer appropriate treatment referrals. Given that most smokers (54% of men and 68% of women) in our study were light smokers, many may inadvertently believe that they are "low-risk" smokers. It is important that ED staff clarify with patients that smoking 5 or fewer CPD still confers significant tobacco disease-related risk compared with those that are tobacco free.[28,29] For example, light smokers are more likely to develop cardiovascular disease, ischemic heart disease, and lung cancer compared with non-smokers.[28]

Approximately 27% of the sample reported at-risk drinking; of these, 41% were current smokers. A similar percentage of the sample used marijuana, and nearly half of marijuana users were current smokers. Although lower proportions of patients endorsed past-year cocaine (6.7%) or amphetamine use (5.3%), smoking rates among those who did were 69.6% and 81.5%, respectively. These findings are in accord with other studies showing elevated prevalence of co-occurring substance use in ED populations.[6,13,30] Furthermore, our results show gender-specific associations between other substance use and smoking. Among men, frequency of intoxication and days of cocaine use were associated with current smoking and the likelihood of being a heavier or moderate smoker, respectively. In addition, days of marijuana and amphetamine use were associated with light smoking and heavier smoking, respectively. Among women, days of marijuana and amphetamine use were associated with current smoking. Marijuana use was also associated with women's moderate/heavier smoking, and days of amphetamine use was associated with light and moderate/heavier smoking. Prescription (opioid) drug misuse was not associated with current smoking or smoking intensity among either gender. This may be due to the small number of patients (n = 33) who reported this type of illicit drug use. Despite barriers to treating tobacco use in clinical settings,[31] successful smoking cessation interventions among low-income ED patients with concurrent substance use have been reported.[32,33] One intervention study

Table 2. Logistic regression results for current smoking.

	MEN (N = 461)	WOMEN (N = 531)
	OR (95% CI)	OR (95% CI)
Age	1.00 (0.98, 1.03)	1.01 (0.98, 1.05)
Race/ethnicity		
Hispanic/Latino	0.42 (0.17, 1.08)	0.20** (0.07, 0.57)
Black	0.92 (0.37, 2.32)	0.41 (0.15, 1.12)
Other	1.17 (0.43, 3.15)	0.44 (0.15, 1.31)
White (ref.)	1.00	1.00
Unemployment		
Yes	0.94 (0.59, 1.51)	2.00* (1.13, 3.54)
No (ref.)	1.00	1.00
Food insufficiency		
Yes	1.74* (1.13, 2.68)	1.44 (0.78, 2.65)
No (ref.)	1.00	1.00
Frequency of intoxication	1.24* (1.04, 1.47)	1.14 (0.91, 1.42)
Days marijuana use	1.08 (0.97, 1.21)	1.17* (1.04, 1.32)
Days amphetamine use	1.41 (0.97, 2.05)	2.48** (1.39, 4.41)
Days cocaine use	1.42* (1.04, 1.94)	1.57 (0.98, 2.50)
Days prescription drug (opioid) misuse	1.15 (0.75, 1.76)	2.84 (0.79, 10.23)
Spouse/partner current smoker		
Yes	2.64** (1.47, 4.76)	3.45*** (1.95, 6.12)
No (ref.)	1.00	1.00
Past-year intimate partner violence		
Yes	0.96 (0.56, 1.65)	2.49** (1.35, 4.56)
No (ref.)	1.00	1.00
Same-gender couple		
Yes	0.64 (0.16, 2.60)	3.12* (1.15, 8.42)
No (ref.)	1.00	1.00

Abbreviations: CI, confidence interval; OR, odds ratio.
*$P < .05$; **$P < .01$; ***$P < .001$.

found lower rates of successful cessation among ED patients who had used illicit drugs, but not among those who had only used marijuana.[34] Our findings underscore the importance of health care providers inquiring about co-occurring substance use among male and female ED patients who smoke to formulate cessation plans that address polysubstance use.

Regarding demographic factors, results showed no racial/ethnic differences in the likelihood of current smoking among men, but Hispanic/Latino and African American men were less likely to be heavier smokers than white men. Among women, Hispanics/Latinas were less likely to be current smokers than white women, and Hispanics/Latinas and African Americans were less likely to be light smokers than white women. Being unemployed was associated with current and moderate/heavier smoking among women; food insufficiency was related to current and light smoking among men. These findings indicate that, among an underserved sample of urban ED patients, those who are faced with additional socioeconomic stressors, such as unemployment and food insufficiency, may be particularly vulnerable to smoking-related health disparities.

Table 3. Multinomial logistic regression results—men.

	LIGHT SMOKING VS NO SMOKING	MODERATE SMOKING VS NO SMOKING	HEAVIER SMOKING VS NO SMOKING
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age	0.99 (0.96, 1.03)	1.02 (0.98, 1.07)	1.03 (0.97, 1.08)
Race/ethnicity			
Hispanic/Latino	1.35 (0.34, 5.46)	0.28 (0.07, 1.15)	0.11 (0.03, 0.45)**
African American	2.07 (0.52, 8.32)	1.32 (0.35, 4.93)	0.12 (0.03, 0.51)**
Other	3.11 (0.73, 13.17)	0.95 (0.22, 4.11)	0.46 (0.12, 1.81)
White (ref.)	1.00	1.00	1.00
Unemployed			
Yes	0.96 (0.55, 1.67)	0.89 (0.43, 1.84)	0.89 (0.34, 2.32)
No (ref.)	1.00	1.00	1.00
Food insufficiency			
Sometimes/often	1.94 (1.17, 3.22)*	1.49 (0.75, 2.96)	1.07 (0.43, 2.67)
Never (ref.)	1.00	1.00	
Frequency of intoxication	1.13 (0.91, 1.39)	1.23 (0.96, 1.58)	1.56 (1.16, 2.08)**
Days of marijuana use	1.14 (1.01, 1.30)*	1.01 (0.85, 1.18)	1.08 (0.87, 1.34)
Days of cocaine use	1.34 (0.93, 1.93)	1.76 (1.20, 2.58)**	1.25 (0.74, 2.12)
Days of amphetamine use	1.28 (0.82, 1.99)	1.38 (0.87, 2.21)	1.69 (1.06, 2.69)*
Days of prescription drug (opioid) misuse	0.94 (0.54, 1.62)	1.29 (0.80, 2.07)	1.29 (0.73, 2.30)
Spouse/partner current smoking			
Yes	1.59 (0.77, 3.29)	3.46 (1.54, 7.74)**	4.99 (1.79, 13.91)**
No (ref.)	1.00	1.00	1.00
Past-year intimate partner violence			
Yes	1.05 (0.56, 1.98)	0.81 (0.35, 1.84)	0.89 (0.31, 2.56)
No (ref.)	1.00	1.00	1.00

Abbreviations: CI, confidence interval; OR, odds ratio.
*$P < .05$; **$P < .01$.

For couple-related factors, having a spouse/partner who was a current smoker was linked with current, moderate, and heavier smoking among men, and with current, light, and moderate/heavier smoking among women. Cessation programs may be more effective if they take a couples' approach to treatment and emphasize the importance of treating both members of the dyad.[35] Among women, any past-year IPV was related to current smoking, light, and moderate/heavier smoking. The relationship between IPV and smoking may be causal or through shared associations with factors linked to both behaviors, such as impulsivity.[36] Although ED-initiated cessation interventions have been shown to be effective,[37] IPV-involved women smokers may need additional counseling and referral. Finally, being part of a same-gender couple was related to current smoking and moderate/heavier smoking. Unique factors may contribute to smoking among sexual minorities[38]; they may also face additional barriers to cessation compared with heterosexual smokers.[39] For example, coping responses to minority stress associated with discrimination and coming out may need to be incorporated into cessation treatment.[39] Overall, the findings suggest that couple-related factors are more strongly related to women's than men's smoking behaviors. The results provide nuanced information about some of the gender-specific factors that may need to be addressed to help patients achieve successful cessation.

These findings contribute to the knowledge gap on gender differences in smoking prevalence and correlates among urban ED patients. Future research in this population should address

Table 4. Multinomial logistic regression results—women.

	LIGHT SMOKING VS NO SMOKING	MODERATE/HEAVIER SMOKING VS NO SMOKING
	OR (95% CI)	OR (95% CI)
Age	1.00 (0.96, 1.03)	1.05 (0.99, 1.10)
Race/ethnicity		
Hispanic/Latina	0.19 (0.07, 0.56)**	0.18 (0.03, 1.22)
African American	0.35 (0.12, 0.98)*	0.48 (0.10, 2.44)
Other	0.32 (0.10, 1.06)	0.99 (0.17, 5.63)
White (ref.)	1.00	1.00
Unemployed		
Yes	1.62 (0.86, 3.04)	4.50 (1.76, 11.49)**
No (ref.)	1.00	1.00
Food insufficiency		
Sometimes/often	1.49 (0.76, 2.90)	1.66 (0.57, 4.81)
Never (ref.)	1.00	1.00
Frequency of intoxication	1.05 (0.81, 1.36)	1.32 (0.98, 1.78)
Days of marijuana use	1.10 (0.96, 1.27)	1.40 (1.15, 1.70)***
Days of cocaine use	1.60 (0.99, 2.59)	1.62 (0.89, 2.93)
Days of amphetamine use	2.46 (1.37, 4.41)**	2.85 (1.52, 5.34)**
Days of prescription drug (opioid) misuse	3.08 (0.82, 11.61)	3.13 (0.68, 14.46)
Spouse/partner current smoking		
Yes	3.81 (2.03, 7.15)***	3.47 (1.29, 9.35)*
No (ref.)	1.00	1.00
Past-year intimate partner violence		
Yes	2.22 (1.13, 4.35)*	2.79 (1.08, 7.26)*
No (ref.)	1.00	1.00
Same-gender couple		
Yes	2.89 (0.96, 8.64)	4.91 (1.10, 21.95)*
No (ref.)	1.00	1.00

Abbreviations: CI, confidence interval; OR, odds ratio.
*$P < .05$; **$P < .01$; ***$P < .001$.

potential gender differences in motivations for quitting; effectiveness of gender-tailored cessation interventions and message-framing strategies; and gender-specific concerns about cessation (eg, weight gain) that should be discussed in the ED.[14]

Limitations

Study limitations should be noted. First, the cross-sectional observational design precludes making causal inference about the findings; it is not possible to determine the temporal ordering of behaviors. Smoking, for example, may have pre-dated

other substance use. Second, the sample was obtained from 1 urban ED, which may limit the generalizability of findings. The findings also may not generalize to patients without the same sample characteristics (non-emergent patients ages 18-50, English or Spanish speakers, and married, cohabiting, or in a dating relationship). Furthermore, selection bias is a potential concern as subject recruitment was limited to weekdays 9 a.m. to 9 p.m.; this may have precluded enrollment of participants with other substance use issues. Third, no information was collected as to whether participants presented to

the ED with a smoking-related concern. Fourth, because smoking was not the focus of the original study, comprehensive tobacco information (daily or intermittent use, nicotine dependence, quit attempts) was not collected. Moreover, bio-chemical verification of substance use was not obtained. Recall bias may have differentially affected participants' self-reports about their ATOD use. Finally, we did not ask participants about their sexual orientation. Those who reported a same-gender partner were categorized as being in a same-gender couple, but there were too few male same-gender couples in the sample to include the variable in the multinomial analysis of smoking intensity. Similarly, there were too few transgender participants to include in the analysis.

Conclusions

This study contributes to a more detailed understanding of gender differences in prevalence of current smoking and smok-ing intensity levels among a sample of urban ED patients. The data suggest that clinicians should consider several factors when screening underserved patients for smoking and formu-lating cessation treatment plans. First, they will need to address potential polysubstance use among patients who smoke. Second, they may need to help ameliorate socioeconomic stressors faced by some patients, such as unemployment and food insufficiency, that may interfere with successful cessation. Third, dual-smoker couples may need a dyadic approach to treatment. Fourth, women in same-gender relationships and those who have experienced IPV involvement may face unique obstacles to cessation and therefore require additional referral.

Author Contributions

CBC conceived the overall study, obtained research funding, and led all steps in data collection. HJA was involved with CBC in sampling and data collection and contributed to writ-ing and interpretation of findings. JL, AP, and RC contributed to writing and interpretation of findings. CBC drafted the manuscript and analyzed the data. All authors contributed sub-stantially to its revision. CBC takes responsibility for the paper as a whole.

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Supplemental Material

Supplemental material for this article is available online.

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