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Secondhand tobacco smoke exposure and susceptibility to smoking, perceived addiction, and psychobehavioral symptoms among college students

Chizimuzo T.C. Okoli, PhD, MPH, RN^a, Mary Kay Rayens, PhD^a, Amanda T Wiggins, PhD^a, Melinda J Ickes, PhD^b, Karen M Butler, DNP, RN^a, and Ellen J Hahn, PhD, RN, FAAN^a

^aUniversity of Kentucky College of Nursing, Lexington, KY 40536, USA

^bUniversity of Kentucky College of Education, Lexington, KY 40536, USA

Abstract

Objective—To examine the association of second hand smoke (SHS) exposure with susceptibility to smoking, perceived addiction and psychobehavioral effects of exposure among never- and ever- smoking college students.

Participants—Participants were 665 college students at a large, southeastern university in the United States.

Methods—This study is a secondary analysis of online cross-sectional survey data from randomly selected students in April 2013.

Results—Thirty-eight percent of the sample had moderate to high SHS exposure. Among never-smokers, SHS exposure was associated with increased susceptibility to initiating smoking. Among ever- smokers, SHS exposure was not associated with their perceived addiction to tobacco. In the total sample, SHS exposure was associated with greater psychobehavioral symptoms of exposure.

Conclusions—SHS exposure may increase the risk of smoking, especially among never-smoking college students. This study strengthens the need for prevention strategies that limit SHS exposure in college environments.

Keywords

Second hand smoke; cigarette addiction; smoking susceptibility; behavioral symptoms; college students

Secondhand tobacco smoke (SHS) exposure is associated with several adverse physical health effects, including coronary heart disease,^{1,2} respiratory illnesses,³⁻⁵ and cancer.^{6,7} In the U.S., the risks of SHS exposure persist with 40% of nonsmokers exposed between 2007-2008.⁸ Despite the increase in smoke-free legislation, SHS exposure continues to remain high among particular subsets of the population, including those enrolled in universities. Among the few studies that have examined SHS exposure among college-age

students, prevalence of past 7 day exposure from different sources (i.e., bars, restaurants, home, work) is estimated at about 80% to 83%.^{9,10} Understanding the risks associated with SHS exposure in such environments remains an important goal of tobacco control efforts.

Apart from the poor physical health outcomes associated with SHS exposure, a growing body of evidence points to important behavioral outcomes such as susceptibility to smoking¹¹⁻¹⁴ and increased risk for initiation¹⁵⁻¹⁹ among children and adolescents. This may be an important issue for college students because nearly one-quarter initiate smoking during their college years.^{20,21} Moreover, SHS exposure may potentiate nicotine addiction among adolescent and adult smokers²²⁻²⁵ and is associated with reporting of psychobehavioral symptoms of exposure and addiction among never- and naïve-smokers.²⁶⁻²⁹ However, few studies have examined the association between SHS exposure and smoking behaviors among college-age adults.

Understanding factors which increase the risk of smoking among those of college-age is a pressing issue. Tobacco industry marketing has targeted life transitions (such as entry into college) to enhance the uptake of tobacco products.³⁰ With the increased chances of high risk behaviors in the transition to college and during the college years,^{31,32} identifying and targeting factors associated with smoking can potentially mitigate subsequent tobacco-related health problems. Hence, the purpose of this study was to examine the association between SHS exposure and potential smoking behaviors among college students. Specifically, we examined the association between SHS exposure and: 1) susceptibility to smoking among never-smokers; 2) perceived addiction among ever-smokers; and 3) psychobehavioral exposure symptoms among never- and ever-smokers.

Methods

A cross-sectional online survey was administered to students attending a large university with a tobacco-free policy located in a city with a comprehensive smoke-free workplace ordinance in the southeastern United States. E-mail addresses of 5,000 randomly-selected students who were age 18 or older (including 4,050 undergraduate students and 950 graduate students), were obtained from the university registrar in April 2013. The sampling frame excluded part-time students and those enrolled in pre-professional programs; the email addresses were chosen from the 26,139 full-time students who were attending the university in that semester. The response rate was 14.8% for the full sample; the response rate based on usable surveys was 13.3%, with incomplete surveys counted as non-responders. Of the 741 students who responded to the survey, 76 (10.2%) were missing information on one or more responses to their tobacco use, the outcome measures, and/or SHS exposure information. As compared to the 665 retained respondents, those with missing information were less likely to be female (72.2% vs. 59.7%, $\chi^2=5.2$, $p=.023$).

Surveys were administered using Qualtrics (Qualtrics Labs, Inc., Provo, UT). Qualtrics maintained anonymity by assigning potential participants a unique code identifier; this code was used to track completed surveys and to send reminder emails at one and two weeks after the initial request. Those who did not complete the survey after the two-week reminder were classified as non-responders. Those who completed the survey were entered into a drawing

to win a \$25 gift card. The study was approved by the university's Institutional Review Board.

Demographic and personal characteristics included gender ('Female' or 'Male') and race/ethnicity ('White/non-Hispanic,' 'Black/non-Hispanic,' 'Hispanic or Latino,' 'Asian or Pacific Islander,' 'American Indian, Alaskan Native, or Native Hawaiian,' 'Middle Eastern,' 'Biracial or Multiracial,' and 'Other'). Because relatively few participants identified as a minority racial/ethnic group, we dichotomized to 'White/non-Hispanic' and 'Other' for analysis.

Respondents indicated their academic status with five options for 'First-year undergraduate' through 'Fifth-year undergraduate,' as well as 'Graduate or professional.' First- and second-year undergraduates were combined to form 'Lower undergraduate' and third-, fourth- and fifth-year undergraduate students were categorized as 'Upper undergraduate.' Those who endorsed 'Graduate or professional' were classified as 'Graduate.'

Smoking history was obtained in response to the question, 'Have you ever smoked a cigarette in your lifetime, even a puff?', participants who endorsed 'yes' were considered 'Ever' smokers [including *current smokers* who 'smoked a cigarette even a puff in the last 30 days' (30.6%) and *former smokers* who 'had ever smoked a cigarette, even a puff, but not in the last 30 days' (69.3%)], while those who indicated 'no' were classified 'Never' smokers.

Smoking exposure was obtained by asking, 'Do you currently live with any smokers?' (yes/no response) and 'Did your mother smoke when she was pregnant with you?' (yes/no/don't know; only 6% of the sample indicated they didn't know, and these were combined with the 'no' group). The number of smokers in the respondent's life was determined with the question 'Do any of the following people in your life currently smoke cigarettes:' with separate yes/no/NA response options for each of 'Husband,' 'Wife,' 'Partner (boyfriend/girlfriend),' 'Mother/Step-mother,' 'Father/Step-father,' 'Any sibling (brothers or sisters),' 'Children,' and 'Roomates/Housemates.' The number of 'yes' responses determined the number of smokers in the respondent's life.^{33,34}

SHS exposure was measured with the opening stem, 'In the past seven days how often were you exposed to SHS in ...' with individual responses to each of 7 locations including: 'in a restaurant, café or bar,' 'in a car,' 'in your house,' 'in someone else's house,' 'at a mall/shopping center,' 'at/near school' and 'at work'.³⁵ Responses to each location rating ranged from 'Never' (0) to 'A lot' (4) and were summed over the seven locations to determine the overall cumulative SHS exposure score; the potential scores ranged from 0 to 28. Given the skewed distribution of the measure, scores were dichotomized at the median value of 3 prior to analysis, yielding one category with low or no SHS exposure (0-3) and the other with moderate to high exposure (4-28).

Perceived addiction was measured with the question 'Have you ever felt like you were addicted to smoking?' (yes/no). This measure is based on studies of tobacco addiction among youth^{36,37} and has been used in other research.³³ Susceptibility to smoking was assessed using the Pierce et al.³⁸ measure by summing three items including: 1) 'If someone

close to you were to offer you a cigarette would you smoke it?' 2) 'Do you think you will be smoking any time in the next 12 months?' and 3) 'How likely is it that you will ever smoke in the future?' ['definitely not' (0), 'probably not' (1), 'probably yes' (2), and 'definitely yes (3)']. The total score was dichotomized with 0 indicating not susceptible to smoking and 1 or greater indicating susceptibility to smoking. The psychobehavioral symptoms score was assessed using a checklist of 7 possible items adapted from symptoms of nicotine withdrawal based on the Diagnostic and Statistical Manual for Mental Disorders (DSM-IV)³⁹. The prompt for the overall question was 'After you have spent time in an environment with tobacco smoke, have you ever had the following...' including 'depressed mood,' 'trouble sleeping,' 'feeling irritable,' 'feeling anxious,' 'trouble concentrating,' 'feeling restless,' and 'increased appetite/weight gain.' The potential range of number of symptoms was 0-7. Because the mean and median numbers of symptoms were both 0, this item was dichotomized as any symptoms (1-7) versus none (0).

Descriptive statistics, including frequency distributions and means (*M*) and standard deviations (*SD*) were used to summarize study variables. Unadjusted bivariate associations between SHS exposure level and other study variables were assessed using the chi-square test of association or the two-sample t-test. Multivariate logistic regression models tested the associations between SHS exposure and each of the endpoints (susceptibility to smoking, perceived addiction, and psychobehavioral symptoms), controlling for sociodemographic characteristics. Each model included the following covariates: gender, race/ethnicity, live with smoker(s), mother smoked while pregnant, and the number of smokers in life. Since the psychobehavioral symptoms model was the only one to include both never- and ever-smokers, smoking history was an additional covariate. The Hosmer-Lemeshow goodness-of-fit test was used to evaluate overall model fit and variance inflation factors were used to assess multicollinearity. All analyses were conducted using SAS v. 9.3; an alpha level of .05 was used throughout.

Results

A majority of participants were female, White non-Hispanic, and in their first two years of undergraduate education (see Table 1). Most did not live with a smoker, and few reported that their mother smoked while she was pregnant with them. The average number of smokers in their lives was less than 1 ($M=0.70$), and nearly three-quarters of participants scored 3 or less on the SHS exposure measure. As compared to never-smokers, ever-smokers were more likely to be in the upper graduate or graduate classification (47% vs. 32%, $p<.001$), to live with smoker(s) (22% vs. 11%, $p<.001$), to report a greater average number of smokers in their life ($M=0.88$ vs. $M=0.53$; $p<.001$), and to indicate moderate or higher SHS exposure level (44% vs. 33%, $p<.01$). There was no difference between never-and ever-smokers on sex, race/ethnicity, or whether their mother smoked while pregnant with them.

There was a significant bivariate association between level of SHS exposure and susceptibility among never-smokers. Never-smokers with at least moderate SHS exposure were more likely to endorse susceptibility to smoking as compared to never-smokers with little or no exposure (20% vs. 10%, $p=.006$). Never-smokers who indicated susceptibility to smoking had a significantly greater average number of smokers in their life compared to

those without susceptibility to smoking ($M=0.93$ vs. $M=0.48$, $p=.035$). Susceptibility to smoking among never-smokers was unrelated to sex, race/ethnicity, academic status, whether they lived with smokers, or whether their mother smoked while pregnant with them.

The susceptibility to smoking logistic regression model was significant overall ($\chi^2=28.3$, $p<.001$, see Table 2). Those with at least moderate SHS exposure were nearly 150% more likely to indicate susceptibility to smoking, compared to those with little or no exposure ($p=.015$). Relative to those from other racial/ethnic categories, White, non-Hispanic participants were 72% less likely to indicate susceptibility to smoking ($p<.001$). Among never-smokers, susceptibility to smoking was not associated with sex, academic status, living with smoker(s), maternal smoking during pregnancy, or number of smokers in life. The variance inflation factors were small (<1.6 for each), and the model fit the data well ($\chi^2=4.6$, $p=.71$).

Among ever-smokers, perceived addiction (yes/no) was associated with academic status, whether they live with smoker(s), whether their mother smoked while pregnant with them, and the number of smokers they have in their life. Compared to those without perceived addiction, ever-smokers with perceived addiction were more likely to have higher academic status (28% graduate vs. 23% upper undergraduates vs. 11% lower undergraduates; $p=.002$). Compared to ever-smokers without perceived addiction, those with perceived addiction were more likely to live with a smoker(s) (20% vs. 32%, respectively; $p=.043$), report that their mother had smoked while pregnant (3% vs. 14%; $p<.001$), and report a greater average number of smokers in their life ($M=0.8$ vs. $M=1.5$; $p<.001$). Perceived addiction was unrelated to sex, race/ethnicity, or SHS exposure.

The overall multivariate logistic regression with perceived addiction among ever-smokers as the outcome was significant ($\chi^2=45.9$, $p<.001$; see Table 2). While there was no relationship between SHS exposure and perceived addiction, significant predictors in this model included race/ethnicity, academic status, maternal smoking during pregnancy, and number of smokers in life. White, non-Hispanic participants were more than 200% more likely to report perceived addiction ($p=.027$) compared to those with other racial/ethnic backgrounds. With graduate students as the referent category, lower level undergraduate students were 73% less likely to indicate perceived addiction ($p<.001$); there was no difference between graduate students and upper level undergraduate students. Those who indicated their mother had smoked while pregnant with them had an increase in likelihood of perceived addiction of more than 300% compared with those who said 'no' or 'don't know' about maternal smoking ($p=.03$). Finally, for each additional person in their life who was a smoker, the likelihood of perceiving addiction increased by over 100% ($p<.001$). Perceived addiction among ever-smokers was unrelated to sex and living with smoker(s). The variance inflation factors for this model were all less than 1.7, suggesting multicollinearity did not influence parameter estimates. The Hosmer-Lemeshow goodness-of-fit test was not significant ($\chi^2=3.7$, $p=.81$), indicating the model fit the data well.

There was a significant bivariate association between level of SHS exposure and one or more psychobehavioral symptoms among all respondents. Among all participants, 41% of those with moderate or greater SHS exposure reported they had experienced at least one

psychobehavioral symptom, compared to 32% of those with no or low SHS exposure ($p=.015$).

Among all respondents, academic status was associated with the presence of one or more psychobehavioral symptoms. There was a greater proportion of graduate students among those reporting one or more psychobehavioral symptoms as compared to those reporting no symptoms (32% vs. 20%, $p=.003$). Psychobehavioral symptoms status was unrelated to sex, race/ethnicity, whether the respondent lived with smoker(s), whether his/her mother smoked while pregnant, or the number of smokers in life.

The overall psychobehavioral symptoms model was significant ($\chi^2=21.6$, $p<.001$, see Table 2). Level of SHS exposure was a significant predictor. Compared to those reporting little or no exposure in the past week, those with at least moderate exposure were over 50% more likely to indicate the presence of one or more psychobehavioral symptoms after spending time exposed to tobacco smoke. The only other significant predictor in the model was academic status. Compared to graduate students, freshmen and sophomores were 49% less likely to report psychobehavioral symptoms after being around tobacco smoke ($p=.001$). There was no difference in psychobehavioral symptoms between graduate and upper undergraduate students. This outcome was also unrelated to sex, race/ethnicity, smoking history status, living with smoker(s), mother having smoked during pregnancy, and number of smokers in life. There was little evidence of multicollinearity (i.e., variance inflation factors all smaller than 1.6) and the model fit the data well (Hosmer-Lemeshow $\chi^2=5.3$, $p=.73$).

Comment

It is estimated that up to 80% of college students report SHS exposure.^{9,10} At 38%, our current sample had lower estimates than those observed in other studies. Although SHS exposure was positively and significantly associated with susceptibility to smoking (among never-smokers) and psychobehavioral symptoms (in the total sample), it was not associated with perceived addiction among ever-smoking college students. These findings confirm those of earlier studies and have significant implications for research examining SHS exposure among college students.

Our finding that SHS exposure among never-smokers is associated with more than double the likelihood of being susceptible to initiating smoking is in accord with previous studies. Kalkhoran et al.⁴⁰ found that past 7-day SHS exposure was associated with increased risk of susceptibility to smoking initiation among nonsmoking young adult bar patrons. Also Andreeva, Krasovsky, & Semenova¹⁹ found that frequent SHS exposure in childhood was associated with earlier age of smoking initiation among young adults. These findings suggest that SHS exposure can pose similar risks for initiation among college students.

The role of race/ethnicity in susceptibility to smoking initiation in college students is not well established. Whereas some studies have shown that smoking susceptibility risk varies by differential environmental and psychosocial variables among ethnically diverse college youth,^{41,42} other studies have found that race/ethnicity is not associated with smoking

initiation among college students,^{20,43} and others have found that White college students are more likely to initiate smoking than minority students.⁴⁴ Our findings support the notion that susceptibility to smoking initiation is greater among non-White college students; however our sample size was too small to examine specific racial categories. Future studies are needed to further quantify the potential risk that SHS exposure confers in smoking susceptibility among racially diverse college students. Our findings further suggest the need to develop and test tailored prevention strategies for racial/ethnic subsets of the college student population.

We also found that SHS exposure was significantly associated with reporting one or more psychobehavioral symptoms among never- and ever-smoking college students. Only one prior study has examined these associations between SHS exposure and psychobehavioral symptoms of exposure. Okoli et al.²⁷ found that SHS exposure was significantly associated with increased reporting of psychobehavioral symptoms among nonsmoking bar and restaurant workers. It has been posited that nicotine exposure from SHS is an important mechanism that may explain psychobehavioral effects from SHS exposure. For example, nonsmokers are more sensitive to the aversive effects of acute nicotine exposure on mood compared to smokers.⁴⁵ Furthermore, higher SHS exposure increases sensitivity to positive symptoms (e.g., good, dizzy, relaxed, high) of the initial cigarette experience⁴⁶. It is interesting that smoking status did not affect the relationship between SHS exposure and psychobehavioral symptoms; however this finding may be confounded by the low number of current smokers (14.5%) relative to former smokers (32.8%) in our total sample. Nonetheless, these findings suggest the need to further explore mechanisms whereby SHS exposure affects psychobehavioral symptoms among college students.

Moreover, we found that SHS exposure was not associated with perceived addiction among ever-smoking college students. These findings are in contrast to findings that SHS exposure is positively and independently associated with higher scores on the Fagerstrom Tolerance Questionnaire (FTQ) in a general population of smokers,²⁴ higher DSM-IV nicotine dependence scores among African American smokers,²⁵ and greater Fagerstrom Test For Nicotine Dependence (FTND) scores among male smokers with a substance use disorder and/or mental illness⁴⁷. Yet, our findings are consistent with those by Grana et al.⁴⁸ who demonstrated that SHS exposure is not significantly associated with modified Fagerstrom Tolerance Questionnaire (mFTQ) scores among adolescent and adult smokers (age 13-25). It is important to point out, though, that the lack of association between SHS exposure and perceived addiction in our study may also result from the relatively small proportion of current smoking (30.6%) among our subsample of ever-smokers. Future studies are needed for a more detailed examination of the association between SHS exposure and perceived addiction by current smoking status.

Additionally, we found that maternal smoking during pregnancy was associated with increased likelihood of perceived addiction; which is consistent with studies that have shown smoking during pregnancy increases risk of tobacco dependence among children.⁴⁹⁻⁵¹ In a similar fashion, the greater number of smokers in participants' lives was associated with perceived addiction; this is consistent with other studies which have found that a greater number of smokers in a child's life is associated with nicotine dependence symptoms.²⁹ Yet,

more studies with robust measures of nicotine dependence (such as FTND or DSM-V) will be required to further examine the relationship between SHS exposure and tobacco dependence among college students.

Limitations

A few important considerations are necessary in interpreting the findings of our study. *First*, the low response rate (13.3% after excluding incomplete responses) may limit the generalizability of our study. However, this response rate is similar (i.e., 15.4%) to recent studies of e-mailed surveys to university students.⁵² Studies have also shown that in-class surveys on smoking have greater response rates than e-mailed surveys (91% vs. 24%) and that non-responders are more likely to be current smokers⁵³. *Second*, the sample was drawn from a tobacco-free campus located in a city with a comprehensive smoke-free workplace ordinance, which may have limited students' SHS exposure and accounted for the lower exposure rates (38%) we observed relative to other studies.^{9,10} *Third*, our measure of perceived addiction, although used in previous studies among adolescents,^{33,36,54} has not previously been used with college students. More robust tobacco dependence measures may have strengthened the validity of study findings. *Fourth*, no biological marker of SHS exposure (such as cotinine or hair nicotine) was employed in the study. Although, the questions used for SHS exposure have been used in previous studies,³⁵ a gold standard marker could have strengthened the validity of our findings. *Fifth*, we had a small proportion of current smokers in our ever-smoker subsample and large proportion of never regular smokers which could have underpowered our analysis. *Finally*, the cross-sectional nature of the survey limits our ability to determine causal directions in the findings. Future studies in this area would benefit from at least a short-term follow-up assessment to determine how changes to SHS exposure may influence these outcomes over time.

Conclusions

In conclusion, SHS exposure was associated with increased susceptibility to smoking among never-smokers and psychobehavioral symptoms of exposure among all college students in our sample, but not perceived addiction in ever-smoking college students. SHS exposure is a concern among college students placing them at increased risk for known adverse physical health outcomes. The study findings suggest that such SHS exposure may increase risk for behavioral consequences leading to smoking initiation. This risk suggests the need for prevention strategies that limit SHS exposure in college environments. As such, our findings strengthen the rationale for the need for Tobacco-Free Campus initiatives due to the potential for smoking initiation and increased adverse behavioral health risks resulting from SHS exposure. Moreover, our findings may be relevant for smoking prevention interventions for college students by taking into consideration differences in academic status and racial/ethnic categories. However future longitudinal research is needed to examine how SHS exposure over time affects the trajectories of behavioral health outcomes related to initiation of tobacco use among college students.

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Table 1
Sociodemographic characteristics of the study sample by smoking history

	Smoking history			<i>p</i>
	Full sample (<i>N</i> = 655)	Ever smokers (<i>n</i> = 310)	Never smokers (<i>n</i> = 345)	
	<i>n</i> (%) or <i>mean</i> (<i>SD</i>); <i>range</i>	<i>n</i> (%) or <i>mean</i> (<i>SD</i>); <i>range</i>	<i>n</i> (%) or <i>mean</i> (<i>SD</i>); <i>range</i>	
Gender				.22
Male	182 (27.8%)	93 (30.1%)	89 (25.8%)	
Female	472 (72.2%)	216 (69.9%)	256 (74.2%)	
Race/ethnicity				.33
White/non-Hispanic	519 (79.4%)	251 (81.0%)	268 (77.9%)	
Other	135 (20.6%)	59 (19.0%)	76 (22.1%)	
Academic status				<.001
Lower undergraduate	399 (61.0%)	165 (53.2%)	234 (68.0%)	
Upper undergraduate	91 (14.0%)	56 (18.1%)	35 (10.2%)	
Graduate/other	164 (25.0%)	89 (28.7%)	75 (21.8%)	
Live with smoker(s)				<.001
Yes	107 (16.4%)	68 (22.0%)	39 (11.4%)	
No	544 (83.6%)	241 (78.0%)	303 (88.6%)	
Mother smoked while pregnant				.63
Yes	29 (4.4%)	15 (4.8%)	14 (4.1%)	
No/Don't know	626 (95.6%)	295 (95.2%)	331 (95.9%)	
Number of smokers in life	0.70 (0.97); 0-5	0.88 (1.03); 0-5	0.53 (0.88); 0-5	<.001
SHS exposure level				.006
Moderate or higher (4-28)	249 (38.0%)	135 (43.6%)	114 (33.0%)	
Low/none (0-3)	406 (62.0%)	175 (56.5%)	231 (67.0%)	

Table 2
Multivariate logistic regression results modeling the association between SHS exposure and perceived addiction, susceptibility to smoking and psychobehavioral symptoms, controlling for demographic and personal variables

	Susceptibility to Smoking among Never Smokers (n = 326)			Perceived Addiction among Ever Smokers (n = 297)			Psychobehavioral Symptoms Among all Respondents (n = 618)		
	Estimated Odds Ratio (OR)	95% CI for OR	p	Estimated Odds Ratio (OR)	95% CI for OR	p	Estimated Odds Ratio (OR)	95% CI for OR	p
Gender									
Male	1.07	0.48 – 2.40	.87	1.88	0.94 – 3.77	.075	0.94	0.64 – 1.38	.76
Female (referent)	1.0	--		1.0	--		1.0	--	
Race/ethnicity									
White, non-Hispanic	0.28	0.13 – 0.60	<.001	3.17	1.14 – 8.86	.027	0.92	0.61 – 1.40	.71
Other (referent)	1.0	--		1.0	--		1.0	--	
Academic status									
Lower undergraduate	1.67	0.66 – 4.22	.28	0.27	0.12 – 0.58	<.0	0.51	0.35 – 0.77	.001
Upper undergraduate	0.68	0.12 – 3.84	.66	0.62	0.25 – 1.51	.01	0.67	0.38 – 1.16	.15
Graduate/other (referent)	1.0	--		1.0	--	.29	1.0	--	
Smoking status									
Ever	--	--		--	--		1.00	0.71 – 1.41	.99
Never (referent)	--	--		--	--		1.0	--	
Live with smoker(s)									
Yes	1.04	0.33 – 3.31	.95	0.69	0.28 – 1.72	.43	0.62	0.34 – 1.07	.085
No (referent)	1.0	--		1.0	--		1.0	--	
Mother smoked while pregnant									
Yes	2.31	0.49 – 10.97	.29	4.16	1.12 – 15.42	.030	1.05	0.45 – 2.41	.92
No/Don't know (referent)	1.0	--		1.0	--		1.0	--	
Number of smokers in life									
SHS exposure level	1.39	0.94 – 2.06	.096	2.13	1.48 – 3.08	<.001	1.18	0.95 – 1.45	.13
Moderate or higher (4-28)									
Moderate or higher (4-28)	2.47	1.20 – 5.10	.015	0.92	0.45 – 1.84	.81	1.56	1.10 – 2.22	.013
Low/None (0-3) (referent)	1.0	--		1.0	--		1.0	--	