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**Do Restrictions on Smoking at Home,
at School and in Public Places Influence
Teenage Smoking? A Cross Sectional Study**

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Abstract

Objectives - To determine the relationship between extent of restrictions on smoking at home, at school and in public places, and smoking uptake and smoking prevalence by school students.

Design - Cross-sectional survey with merged records of extent of restrictions on smoking in public places.

Setting – United States.

Participants – 17,287 high school students.

Main outcome measures – Five-point scale of smoking uptake; 30-day smoking prevalence.

Results – More restrictive arrangements on smoking at home were associated with a greater likelihood of being in an earlier stage of smoking uptake ($p < .05$) and a lower 30-day prevalence ($p < .001$). These findings applied even where parents were smokers. More pervasive restrictions on smoking in public places were associated with a higher probability of being in a earlier stage of smoking uptake ($p < .05$) and lower 30-day prevalence ($p < .05$). School smoking bans were only related to a greater likelihood of being in an earlier stage of smoking uptake ($p < .05$) and lower prevalence ($p < .001$), when the ban was strongly enforced, as measured by instances when teenagers perceived that most or all students obeyed the rule.

Conclusions - These findings suggest that restrictions on smoking at home, more extensive bans on smoking in public places and enforced bans on smoking at school may reduce teenage smoking.



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Banning smoking in the home gives an unequivocal message to teenagers about the unacceptability of smoking, as do restrictions on smoking in public places and at school. This study sought to determine the relationship between smoking restrictions in the home, at school and in public places, and measures of smoking by teenagers.

Methodology

- **Survey of US school students in grades 9 to 12** (aged 14 to 17 years) administered in 1996. A multistage sampling strategy was used with the school consent rate being 73% and the student consent rate being 80%.
- **Smoking variables:** Respondents were classified according to smoking history and intentions to smoke in future, as ‘nonsusceptible nonsmokers’ ‘susceptible nonsmokers’, ‘early experimenters’, advanced experimenters’ and ‘established smokers’. Current smoking was defined having smoked in the past thirty days.
- **Home restrictions:** Home smoking restrictions were defined by responses to the question “how is cigarette smoking handled in your home?” with response options being a total ban, some restrictions, or no restrictions. **School restrictions:** Two measures of school smoking restrictions were constructed: whether a ban existed (school ban; no school ban) and whether a school ban was strong (a ban exists and most or all students comply) or weak (a ban exists but few or no students comply, or no ban). **Public places restrictions:** State, county and city laws relating to restrictions on smoking in 1996 were applied to the schools in the survey. ‘Strong restrictions’ = restrictions in private worksites *and* restaurants; ‘moderate restrictions’ = restrictions in private worksites *or* restaurants; ‘weak restrictions’ = restrictions in neither of these environments.
- **Analysis:** Thresholds of change analysis, allowing for some variables to have varying effects on each stage of uptake of smoking. Logistic regression analysis was used to examine the association between smoking restrictions and smoking status. Each analysis adjusted for school grade, gender, whether adults at home were smokers, and whether siblings smoked.



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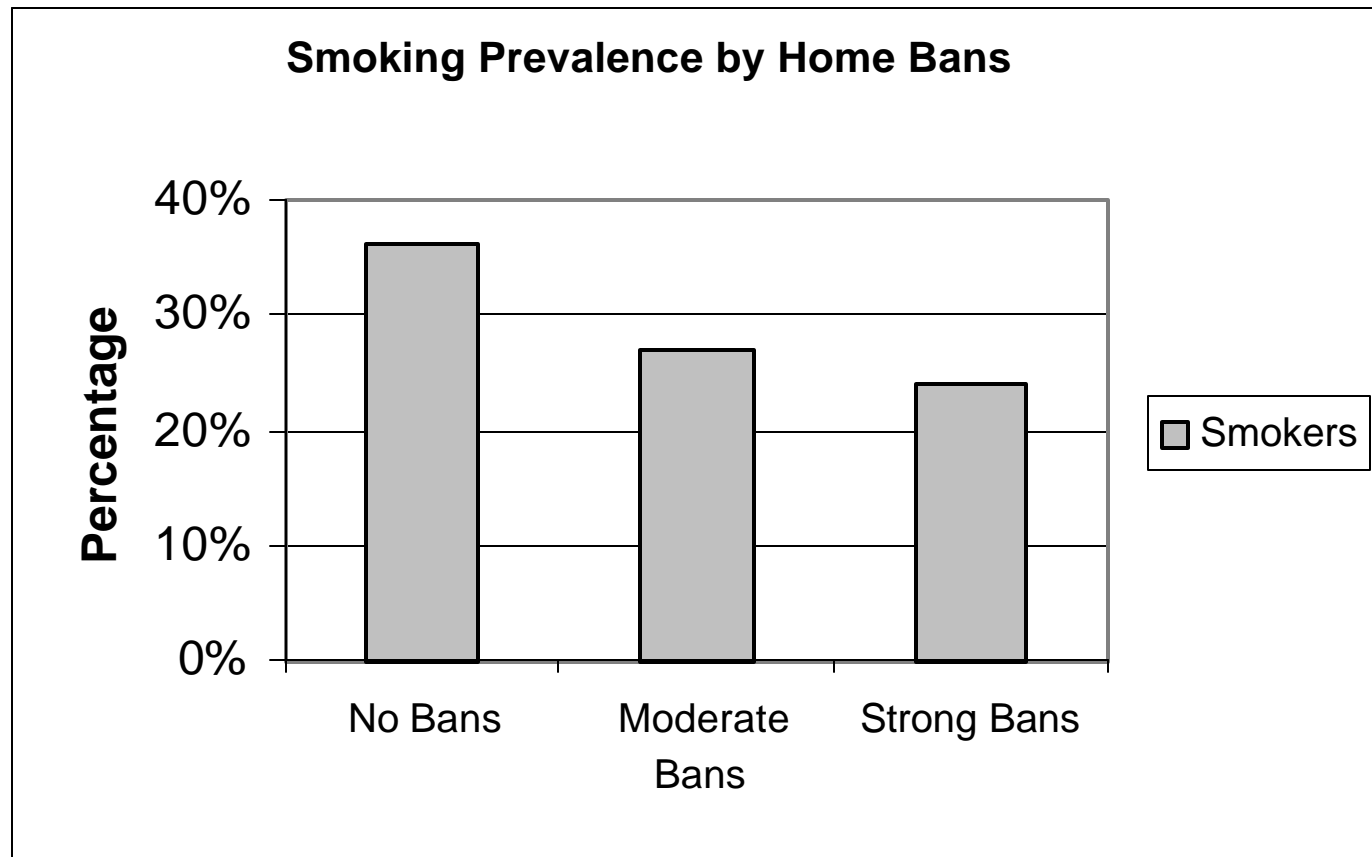
Summary of Results

Table 1 shows the characteristics of respondents and the prevalence of smoking restrictions. In addition, 28% of teenagers (n=14,746) had smoked in the past 30 days.

Table 1: Characteristics of Respondents		
	Number	Percent
Grade at school:		
9	3,912	25.5
10	4,357	28.4
11	3,835	25.0
12	3,252	21.2
Gender:		
Male	7,134	46.5
Female	8,207	53.5
Race/ethnicity:		
White	7,226	47.1
African American	3,084	20.1
Hispanic	3,590	23.4
Other	1,457	9.5
Restrictions in public places:		
Strong restrictions	8,760	57.1
Moderate restrictions	2,899	18.9
Weak restrictions	3,682	24.0
Restrictions at home:		
Total ban	7,394	48.2
Some restrictions	4,173	27.2
No restrictions	3,774	24.6
School ban:		
Ban exists	14,083	91.8
Ban does not exist	1,258	8.2
School ban enforcement:		
Strong ban	4,342	28.3
Weak or no enforcement of ban	10,999	71.7
Stage of smoking uptake:		
Nonsusceptible nonsmoker	3,954	26.4
Susceptible nonsmoker	1,902	12.7
Early experimenter	2,876	19.2
Advanced experimenter	3,235	21.6
Established smoker	3,010	20.1



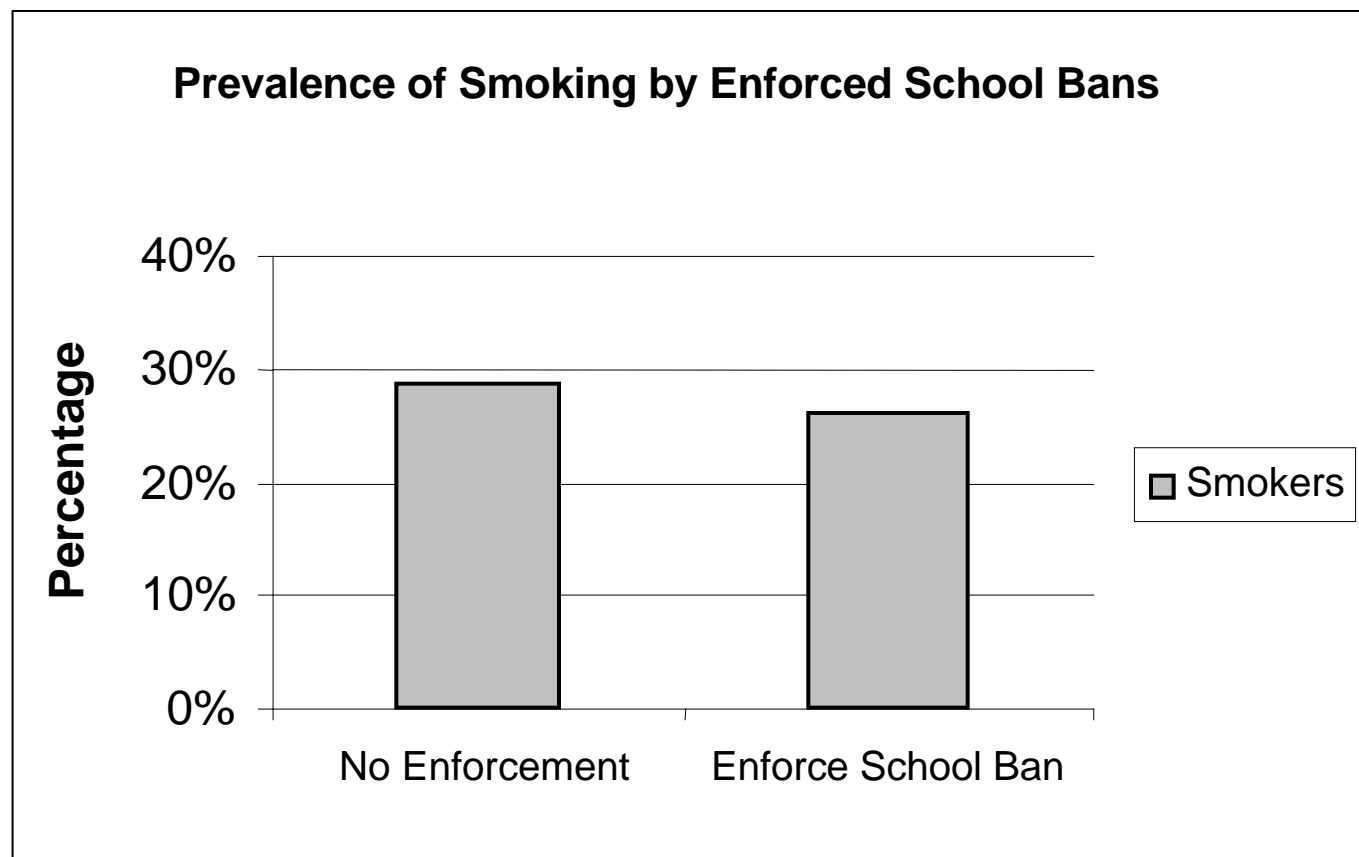
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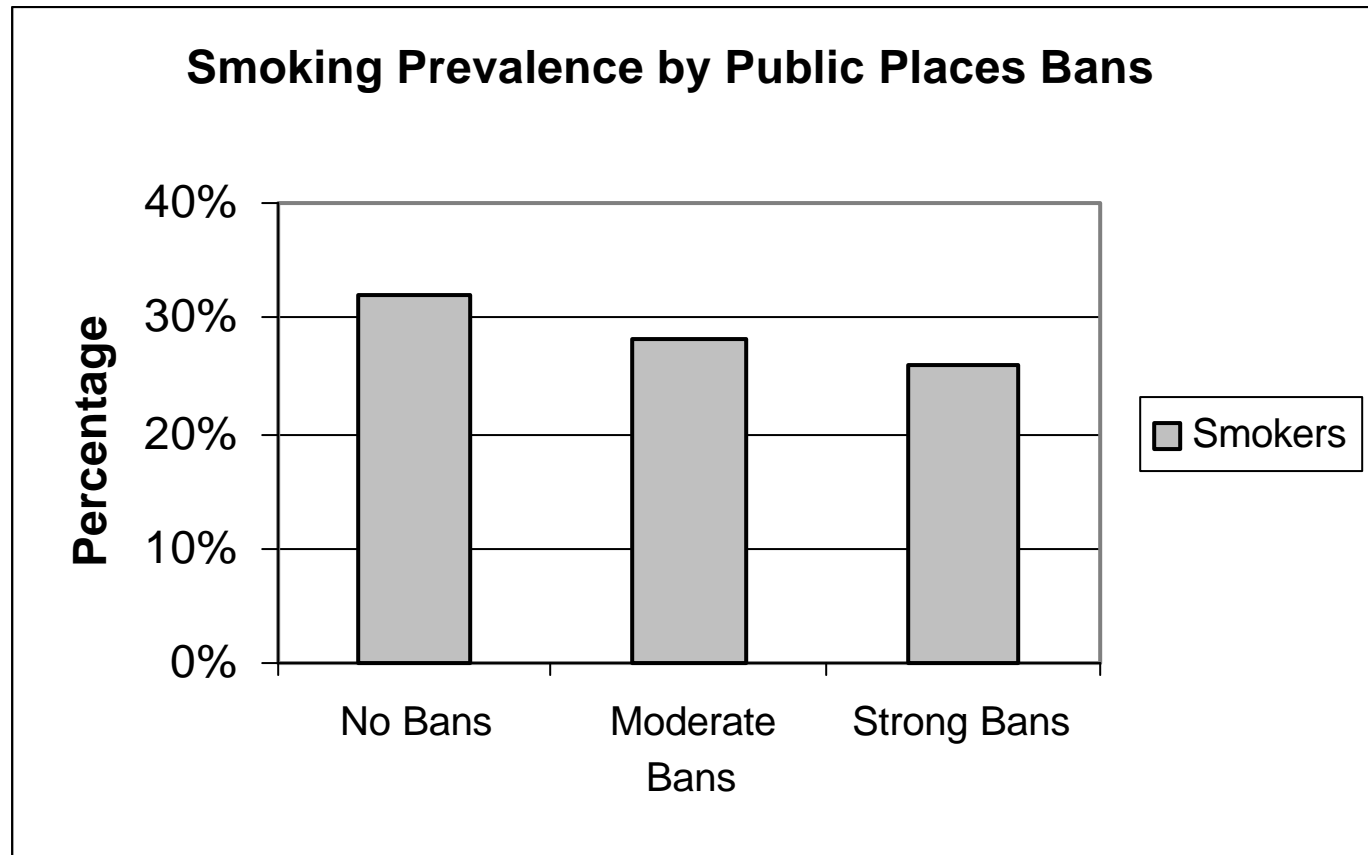
Home smoking restrictions (adjusted OR=(0.85 (0.74 to 0.95), p<.01) and total bans (adjusted OR=0.79 (0.67-0.91), p<.001), had a significantly protective effect on smoking prevalence. These results applied even when parents were smokers. In addition, stronger public places bans were associated with being in an earlier stage of uptake (p<.05).

Enforced school smoking restrictions were associated with a lower smoking prevalence (OR=0.86 (0.77-0.94), p<.001), and additionally, earlier stage of uptake of smoking (p<.05).

There were no significant interactions between parental smoking and home bans, or between bans in different environments, on the smoking outcome variables.



Smoking prevalence significantly declined with increasing strength of public places bans (adjusted OR=0.91 (0.83-0.99), p=0.03) In addition, smoking restrictions in public places were significantly associated with being in an earlier stage of smoking uptake (p<.05).



DISCUSSION

STUDY LIMITATIONS

- % cross-sectional study, so difficulty in attributing direction of causality between variables, so longitudinal studies required;
- % used a previously untested three-point measure for extensiveness of public places laws, although it correlated highly with a more widely used, although outdated, measure;
- % no information about the duration of the restrictions in any of the environments we examined, and it may be that effects change over time as teenagers accommodate to a more restrictive environment;
- % no measures of actual enforcement of, or compliance with, laws restricting smoking in public places. However, studies of restrictions on smoking at work and in other public places such as restaurants, suggest that they have high levels of compliance.

MAIN IMPLICATIONS

- % even if parents are unable to quit smoking to set a good example for their children, banning smoking in the home may reduce the likelihood of teenage smoking uptake;
- % stronger public places restrictions are likely to have a modest, albeit significant, effect on teenage smoking;
- % protective effects were only observed on teenage smoking when there were strong school bans, underscoring the importance of enforcing smoke-free policies in schools.

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