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Attitudes, Experiences, and Acceptance of Smoke-Free Policies Among US Multiunit Housing Residents

Andrea S. Licht, MS, Brian A. King, PhD, MPH, Mark J. Travers, PhD, Cheryl Rivard, MPH, and Andrew J. Hyland, PhD

We assessed factors related to smoke-free policies among a cross-sectional, nationally representative, random-digit-dial sample (landline and cell phone) of US multiunit housing residents (n = 418). Overall, 29% reported living in smoke-free buildings, while 79% reported voluntary smoke-free home rules. Among those with smoke-free home rules, 44% reported secondhand smoke incursions in their unit. Among all respondents, 56% supported smoke-free building policy implementation. These findings suggest that smoke-free building policies are needed to protect multiunit housing residents from secondhand smoke in their homes. (*Am J Public Health*. 2012;102:1868–1871. doi:10.2105/AJPH.2012.300717)

Secondhand smoke (SHS) contains hundreds of toxic or carcinogenic compounds and can cause significant morbidity and mortality among nonsmoking children and adults.^{1–3} Currently, there is a growing interest in adopting smoke-free policies in private settings, including multiunit housing (MUH). The home represents a major source of SHS exposure for many individuals,^{2,4–6} and MUH residents are particularly susceptible to SHS incursions from nearby units and shared areas.^{6–8} This cross-sectional study evaluated attitudes, experiences, and acceptance of smoke-free home rules and building policies among a nationally representative sample of US MUH residents.

METHODS

Data from 2 nationally representative random-digit-dial (RDD) samples of US adults living in MUH (apartment, duplex, double/multifamily home, condominium, or town house) were collected in 2 survey waves (landline: January–March 2010, n = 164; cell phone: October–December 2010, n = 254). Response rates were 44% and 31%, respectively, calculated by RR3 from the American Association for Public Opinion Research.⁹ Callback procedures were similar in each wave, with up to 10 attempts made to reach eligible respondents.

Outcomes included living in a smoke-free building, having a personal smoke-free home rule, experiencing an SHS incursion in the home, and supporting the implementation of smoke-free building policies. Living in a smoke-free building was defined as responding that smoking was “prohibited inside all areas of the building, including living units” to the question “Which of the following most accurately describes the official smoking policy in your building?” Having a smoke-free home rule was defined as answering “no” to the question “Do you allow smoking inside your residence?” Experiencing an SHS incursion was defined as answering “most of the time,” “often,” “sometimes,” or “rarely” to the question “In the past 12 months, how often has tobacco smoke entered your unit from somewhere else in or around your building?” Support for the implementation of smoke-free building policies was defined as answering “yes” to the question “Do you think landlords should prohibit smoking inside all areas of their building, including apartments and common areas?”

Multivariate binary logistic regression was used to assess predictors of each outcome. All analyses were performed using SPSS version 14.0 (SPSS Inc., Chicago, IL) and weighted to the gender, race, and age of the 2010 US MUH population.

RESULTS

Overall, 79% of MUH residents reported smoke-free home rules and 29% reported living in a smoke-free building. Smoke-free home rules were more likely among

TABLE 1—Self-Reported Presence of Smoke-Free Buildings and Voluntary Smoke-Free Home Rules Among US Multiunit Housing Residents, by Select Characteristics: United States, 2010

Characteristic	Smoke-Free Building Policy ^a		Smoke-Free Home Rule ^b	
	No. (Weighted %)	OR (95% CI)	No. (Weighted %)	OR (95% CI)
Type of multiunit housing				
Apartment building	208 (22.7)*	1.0 (Ref)	226 (75.8)	1.0 (Ref)
Duplex	38 (56.3)*	3.9 (1.7–9.2)	39 (81.8)	0.8 (0.3, 2.7)
Double/multifamily	43 (48.6)*	3.2 (1.3, 7.7)	45 (86.1)	2.2 (0.6, 8.2)
Condominium	54 (28.6)*	1.2 (0.5, 3.1)	60 (88.9)	2.5 (0.7, 8.8)
Town house	40 (25.0)*	1.2 (0.4, 3.2)	48 (79.5)	1.0 (0.3, 3.6)
Gender				
Male	163 (31.5)	1.0 (Ref)	174 (73.8)*	1.0 (Ref)
Female	215 (26.3)	0.6 (0.3, 0.9)	236 (83.8)*	1.6 (0.8, 3.3)
Age, y				
18–34	162 (32.4)	1.0 (Ref)	171 (80.4)	1.0 (Ref)
35–54	95 (21.8)	0.7 (0.3, 1.4)	102 (75.4)	0.6 (0.3, 1.4)
55–64	55 (26.2)	1.4 (0.6, 3.4)	59 (76.6)	1.3 (0.4, 4.1)
≥ 65	63 (40.0)	2.5 (0.97, 6.6)	73 (84.6)	1.3 (0.4, 4.7)
Race/ethnicity				
Non-Hispanic, White	230 (33.0)*	1.0 (Ref)	255 (78.7)	1.0 (Ref)
Non-Hispanic, Black	87 (18.0)*	0.6 (0.3, 1.1)	90 (75.0)	0.9 (0.4, 1.9)
Hispanic	35 (33.3)*	0.9 (0.3, 2.4)	35 (86.5)	1.8 (0.4, 7.3)
Other	21 (50.0)*	1.9 (0.7, 5.3)	25 (88.5)	1.2 (0.3, 5.3)
Education, y				
≤ 12	140 (21.7)	1.0 (Ref)	149 (67.3)*	1.0 (Ref)
13–15	78 (30.5)	2.0 (0.9, 4.4)	86 (81.8)*	3.1* (1.2, 7.8)
≥ 16	158 (33.8)	1.6 (0.8, 3.2)	172 (89.2)*	2.6* (1.1, 6.2)
Annual household income, \$				
≤ 17 500	99 (32.4)	1.0 (Ref)	107 (71.6)	1.0 (Ref)
17 501–40 000	98 (27.9)	0.5 (0.3, 1.1)	107 (80.8)	1.0 (0.4, 2.4)
40 001–65 000	62 (29.0)	0.7 (0.3, 1.7)	65 (85.7)	1.6 (0.6, 4.6)
> 65 000	72 (30.0)	0.5 (0.2, 1.2)	76 (80.6)	0.6 (0.2, 1.9)
US region				
Northeast	98 (35.9)*	1.0 (Ref)	110 (80.4)*	1.0 (Ref)
Midwest	98 (22.3)*	0.6 (0.3, 1.3)	103 (69.5)*	0.4 (0.2, 1.1)
South	103 (22.1)*	0.5 (0.2, 1.1)	114 (85.2)*	1.2 (0.4, 3.5)
West	79 (38.2)*	0.9 (0.4, 2.0)	83 (80.0)*	0.6 (0.2, 1.8)
Children aged < 18 y present in home				
No	261 (27.5)	1.0 (Ref)	288 (74.3)*	1.0 (Ref)
Yes	121 (32.3)	1.8 (0.96, 3.5)	129 (90.4)*	3.6* (1.5, 8.9)
Smoking status				
Smoker	81 (17.2)*	1.0 (Ref)	88 (43.0)*	1.0 (Ref)
Nonsmoker	302 (32.4)*	2.3* (1.1, 4.9)	330 (90.6)*	12.8* (6.1, 26.8)

Continued

nonsmokers, respondents with higher education, and those with children in the home. Respondents who lived in duplexes or double or multifamily homes, respondents with children in the home, and nonsmokers were more likely to report living in a smoke-free building, although report of living in a smoke-free building was less likely among female respondents (Table 1).

Among those with smoke-free home rules, 44% reported experiencing SHS incursions in their personal residence during the previous 12 months, 31% of whom reported such incursions occurred “most of the time” or “often.” Prevalence of experiencing SHS incursions differed significantly among respondents living in buildings with and without smoke-free policies (35% vs 48%, $P = .03$). SHS incursions in the home were more likely among female respondents and less likely among older individuals (Table 2).

Approximately 56% of respondents would support the implementation of smoke-free building policies. Support was more likely among nonsmoking respondents (odds ratio = 3.4; 95% confidence interval = 1.9, 6.1; data not shown).

DISCUSSION

This study indicates that a majority of MUH residents have implemented smoke-free home rules, but many remain involuntarily exposed to SHS in this environment. Accordingly, smoke-free building policies are needed in MUH to protect all residents from SHS exposure in their homes.

Although early studies (2001) estimated that fewer than 10% of residents live in smoke-free buildings,^{10,11} a 2008–2009 study of MUH operators revealed that the prevalence of such policies increased from 14%¹² to 19% in 1 year.¹³ The estimate from our study (28%) is consistent with this trend; however, MUH residents may overestimate their building’s smoking restrictions.¹¹ Similar to previously reported estimates, nearly half of all respondents with smoke-free home rules reported SHS incursions in their home,^{10,11,14} with those living in nonapartment MUH structures being less likely to experience SHS incursions.^{6,14}

TABLE 1—Continued

Study				
Landline	146 (26.9)	1.0 (Ref)	164 (75.8)	1.0 (Ref)
Cell phone	237 (30.1)	1.4 (0.8, 2.8)	254 (81.7)	2.1 (0.95, 4.9)

Note. CI = confidence interval; OR = odds ratio. Univariate analyses compare those who do and do not report living in a smoke-free building or do and do not have smoke-free home/unit policies with each characteristic. Multivariate models for self-report of living in a smoke-free building based on n = 325 respondents. Multivariate model of having a smoke-free home rule based on n = 347 respondents.

^aReported that smoking was “prohibited inside all areas of the building, including living units” to the question “Which of the following most accurately describes the official smoking policy in your building?”

^bReported “no” to the question “Do you allow smoking inside your residence?”

*Significant at χ^2 test $\alpha = 0.05$.

TABLE 2—Self-Reported Presence of SHS Incursions in the Home Among US Multiunit Housing Residents With a Smoke-Free Home Policy, by Select Characteristics: United States, 2010

Characteristic	SHS Incursion in the Home ^a	
	Unweighted No. (Weighted %)	OR (95% CI)
Overall	339 (43.5)*	
Type of multiunit housing		
Apartment building	177 (51.3)*	1.0 (Ref)
Duplex	32 (29.2)*	0.4 (0.1, 1.02)
Double/multi-Family	37 (43.3)*	0.5 (0.2, 1.2)
Condominium	53 (31.3)*	0.4 (0.1, 1.02)
Town house	40 (27.3)*	0.4 (0.2, 1.1)
Gender		
Male	136 (34.3)*	1.0 (Ref)
Female	200 (50.0)*	2.5* (1.4, 4.6)
Age, y		
18–34	144 (39.5)*	1.0 (Ref)
35–54	79 (56.4)*	2.0 (0.99, 4.1)
55–64	45 (54.2)*	1.4 (0.6, 3.4)
≥ 65	63 (24.1)*	0.2* (0.1, 0.6)
Race/ethnicity		
Non-Hispanic, White	208 (38.2)*	1.0 (Ref)
Non-Hispanic, Black	69 (55.6)*	1.9 (0.96, 3.6)
Hispanic	32 (50.0)*	2.0 (0.7, 5.7)
Other	22 (17.4)*	0.3 (0.1, 1.1)
Education, y		
≤ 12	107 (50.5)	1.0 (Ref)
13–15	72 (42.9)	0.9 (0.4, 2.0)
≥ 16	155 (39.6)	0.9 (0.4, 2.0)
Annual household income, \$		
≤ 17 500	82 (53.2)	1.0 (Ref)
17 501–40 000	87 (37.5)	0.5 (0.2, 1.0)
40 001–65 000	56 (42.4)	0.6 (0.3, 1.5)
> 65 000	65 (38.8)	0.5 (0.2, 1.5)

Continued

In contrast to previous literature,¹⁴ no socio-demographic differences were observed for smoke-free building policy implementation. Although promising from a disparities view, this could be attributed to geographic or demographic differences within these 2 studies.

Given that approximately 80 million US residents live in MUH,^{15,16} we estimate that more than 30 million MUH residents with smoke-free home rules may still be exposed to SHS in their home. However, this may be underestimated because respondents with lower socioeconomic status, who may be more likely to experience SHS incursions,¹⁴ could be underrepresented by this sampling scheme.

To our knowledge, this is the first nationally representative study of MUH residents. Nonetheless, some limitations exist, including self-reported data, recall bias, a lower response rate, and a relatively small sample size. However, all analyses were weighted to demographic characteristics of the US MUH population. In addition, this study included a cell phone sample, which likely increases its generalizability to other MUH populations.

Separation of smokers and nonsmokers is not sufficient to eliminate SHS exposures.^{6,8,9,17,18} Therefore, smoke-free building policies are the most effective method to eliminate SHS in MUH.^{2,19} Accordingly, public health organizations should educate MUH operators and residents about the dangers of SHS exposure. Following the example of the US Department of Housing and Urban Development,¹⁹ all MUH owners and managers should also be encouraged to implement smoke-free building policies. This, along with comprehensive tobacco control programs, represent effective and sustainable options for increasing smoke-free home rules²⁰ and reducing SHS exposure in the United States. ■

About the Authors

At the time of the study, Andrea S. Licht, Brian A. King, Mark J. Travers, Cheryl Rivard, and Andrew J. Hyland were with the Department of Health Behavior, Roswell Park Cancer Institute, Buffalo, NY. Andrea S. Licht is also with the Department of Social and Preventive Medicine, State University of New York at Buffalo.

Correspondence should be sent to Andrea S. Licht, MS School of Public Health and Health Professions, Department of Social and Preventive Medicine, Farber Hall, Rm. 270, Buffalo, New York, 14214 (e-mail: aslicht@buffalo.edu). Reprints can be ordered at <http://www.ajph.org> by clicking the “Reprints” link.

This article was accepted January 30, 2012.

TABLE 2—Continued

US Region		
Northeast	93 (50.6)	1.0 (Ref)
Midwest	75 (34.7)	0.4 (0.2, 1.1)
South	98 (41.7)	0.5 (0.2, 1.1)
West	70 (46.0)	1.1 (0.4, 2.8)
Children aged < 18 y present in home		
No	226 (41.5)	1.0 (Ref)
Yes	112 (48.2)	0.7 (0.4, 1.4)
Smoking status		
Smoker	45 (39.0)	1.0 (Ref)
Nonsmoker	294 (44.2)	1.4 (0.6, 3.2)
Study type		
Landline	124 (43.8)	1.0 (Ref)
Cell phone	215 (43.3)	1.1 (0.6, 2.1)

Note. CI = confidence interval; OR = odds ratio; SHS = secondhand smoke. Univariate analyses compared those who had and had not experienced SHS incursions in the past 12 months with each characteristic. The multivariate model was based on 282 respondents.

^aAnswered “most of the time”, “often”, “sometimes,” or “rarely” to the question “In the past 12 months, how often has tobacco smoke entered your unit from somewhere else in or around your building?”

*Significant at χ^2 test $\alpha = 0.05$.

Contributors

A. S. Licht led the data analysis and writing of the brief. B. A. King provided contributions to the data analysis and advice on content, data analysis, and inclusion of results. C. Rivard and M. J. Travers provided advice on interpretation of results and writing of the brief. A. J. Hyland originated the study and contributed advice to data analysis and policy implications. All authors reviewed the final brief.

Acknowledgments

Funding for this study was provided by the Flight Attendant Medical Research Institute (to A. J. H.). Funding was also supported, in part by from the National Cancer Institute (NCI; award number R25CA113951).

Note. The content is solely the responsibility of the authors and does not represent the official views of the NCI or the National Institutes of Health.

Human Subjects Protection

The institutional review board at Roswell Park Cancer Institute approved all aspects of this study.

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