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Tobacco-related risk perceptions, social influences and public smoke-free policies in relation to smoke-free home restrictions: findings from a baseline cross-sectional survey of Armenian and Georgian adults in a community randomised trial

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ABSTRACT

Objectives Given high prevalence of smoking and secondhand smoke exposure in Armenia and Georgia and quicker implementation of tobacco legislation in Georgia versus Armenia, we examined correlates of having no/partial versus complete smoke-free home (SFH) restrictions across countries, particularly smoking characteristics, risk perceptions, social influences and public smoking restrictions.

Design Cross-sectional survey study design.

Setting 28 communities in Armenia and Georgia surveyed in 2018.

Participants 1456 adults ages 18–64 in Armenia (n=705) and Georgia (n=751).

Measurements We used binary logistic regression to examine aforementioned correlates of no/partial versus complete SFH among non-smokers and smokers in Armenia and Georgia, respectively.

Results Participants were an average age of 43.35, 60.5% women and 27.3% smokers. In Armenia, among non-smokers, having no/partial SFHs correlated with being men (OR=2.63, p=0.001) and having more friend smokers (OR=1.23, p=0.002); among smokers, having no/partial SFHs correlated with being unmarried (OR=10.00, p=0.001), lower quitting importance (OR=0.82, p=0.010) and less favourable smoking attitudes among friends/family/public (OR=0.48, p=0.034). In Georgia, among non-smokers, having no/partial SFHs correlated with older age (OR=1.04, p=0.002), being men (OR=5.56, p<0.001), lower SHS risk perception (OR=0.43, p<0.001), more friend smokers (OR=1.49, p=0.002) and fewer workplace (indoor) restrictions (OR=0.51, p=0.026); among smokers, having no/partial SFHs correlated with being men (OR=50.00, p<0.001), without children (OR=5.88, p<0.001), daily smoking (OR=4.30, p=0.050), lower quitting confidence (OR=0.81, p=0.004), more friend smokers (OR=1.62, p=0.038) and fewer community restrictions (OR=0.68, p=0.026).

Strengths and limitations of this study

► This is among the first studies to explore correlates of having no or partial versus complete smoke-free home restrictions in Armenia and Georgia.
► Data from this large diverse sample of adults in Armenia and Georgia are derived from rigorous sampling methods.
► Generalisability of findings is a limitation, as the study sample may not be representative of all adults in these countries.
► The cross-sectional nature and self-reported assessments limit the ability to make causal attributions or account for bias.
► The results could be biased due to several factors, such as unmeasured variables associated with differential participation across countries.

Conclusions Private settings continue to lack smoking restrictions in Armenia and Georgia. Findings highlight the importance of social influences and comprehensive tobacco legislation, particularly smoke-free policies, in changing household smoking restrictions and behaviours.
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INTRODUCTION

Despite the undeniable evidence that secondhand smoke exposure (SHSe) can lead to various severe diseases such as cancer, cardiovascular and respiratory diseases, SHSe continues to be a significant public health concern worldwide.[1] People experience SHSe in various indoor and outdoor public and private places such as homes, vehicles, workplaces, bars, cafes, restaurants

and other settings.[2] The only evidence-based measure to adequately protect both smokers and non-smokers from the hazards of SHSe is through creating smoke-free environments by implementing comprehensive smoke-free policies.[1 3 4] Since the introduction of the Article 8 of the WHO Framework Convention on Tobacco Control (WHO FCTC), numerous countries have adopted and implemented smoke-free policies to decrease SHSe in various settings.[1] The number of countries adopting comprehensive smoke-free policies have increased over recent years, currently covering about 22% of the world's population.[1] Adoption of comprehensive smoke-free policies in places like workplaces and public places (eg, restaurants and bars) eventually results in decreased SHSe rates and ultimately in improved health outcomes.[4 5]

Nevertheless, SHSe among non-smokers and children in private settings like homes and cars continues to be prevalent, as smoke-free rules in such private settings are rarely implemented and exist mainly voluntarily.[1 6 7] Despite being the only measure for adequately protecting non-smokers from SHSe, smoke-free rules in private settings have numerous other benefits such as encouraging non-smoking behaviour, reducing the number of cigarettes smoked daily,[8 9] triggering smoking cessation,[8 9] preventing relapse among those who quit[10] and promoting an antismoking attitude among youth and decreasing the likelihood of initiating smoking.[2 11]

Tobacco use and SHSe are especially prominent in low and middle-income countries (LMICs)[1] such as Armenia and Georgia. Both Armenia and Georgia have high smoking rates among men (51.5% and 57.0%, respectively).[12 13] In contrast, smoking rates among women are much lower (1.8% and 7.0%, respectively).[12 13] Evidence indicated that both countries have also high rates of SHSe,[14 15] even in places where tobacco use was not allowed.[14] An estimated 56.4% of Armenian adults experience SHSe in the home past-month, with 26.6% experiencing SHSe in the workplace.[12] Similarly, an estimated 43.0% of Georgian adults experience daily SHSe in the home, with 15.8% experiencing daily SHSe in the workplace.[13]

Armenia and Georgia ratified the WHO FCTC in 2004 and 2006, respectively; however, few FCTC-recommended tobacco control policies had been implemented until recently. In 2004, Armenia introduced smoke-free policies in educational, cultural, healthcare, public transportation and other public places, except dining facilities (eg, bars and restaurants). In February 2020, Armenia adopted new legislation, which extended existing smoke-free policy restrictions to all public places including workplaces, dining facilities and to all types of tobacco products (eg, hookah, heated tobacco products, electronic cigarettes) to be in force in 2022. In 2017–2018, Georgia implemented new progressive tobacco control policies including comprehensive smoke-free prohibitions in a broad range of indoor and outdoor public places (including workplaces) that applied to all types of tobacco products.

It is suggested that comprehensive smoke-free policies help to educate the public about the hazards of SHSe and tend to encourage healthier behaviours. Particularly, many studies conclude that, after implementation of complete restrictions in workplaces and public places, the likelihood of voluntary introduction of smoke-free home (SFH) restrictions increases.[16–19] Implementation of comprehensive national smoke-free policies is one of the factors changing social acceptability of smoking behaviour and accelerating adoption of SFH restrictions,[20] although a delayed response to such policies.

SFH restrictions are more common among those with children in the home (especially children less than 5 years old[21] and with non-smoking family members in the home.[22] Increased knowledge and perception of the harms of SHSe are also shown to be associated with more favourable attitudes towards smoke-free environments,[23] better efforts to reduce exposure[24 25] and adoption of complete SFH restrictions.[16 20] Indeed, Georgia-based research indicates that, while the majority of adults believe that SHSe is harmful, homes continue to be a primary source of SHSe[15] and common efforts to reduce its impact include partial restrictions (eg, limiting rooms where smoking is allowed).[26] Another relatively less studied factor described in the literature is knowledge and perception of harms of thirdhand smoke exposure (THSe), which are associated with stricter SFH and smoke-free car restrictions.[27 28]

Given that smokers are less likely to implement complete SFH restrictions[16 20 29] compared with non-smokers, countries with high prevalence of men smoking such as Armenia and Georgia are at greater risk of SHSe in private settings. Additionally, considering that both countries have introduced comprehensive smoke-free policies rather recently (Georgia relatively earlier than Armenia), SHSe in private settings in Armenia and Georgia remains a prominent issue. The extent to which people in Armenia and Georgia perceive the impacts of SHSe and THSe as harmful may limit the extent to which they are likely to implement SFH restrictions. Moreover, understanding the home context, the nuanced nature of who has implemented complete SFH restrictions versus partial or no restrictions, places in the home where smoking is most likely to be allowed, who are the main sources of the exposure in homes, and how family members discuss and negotiate SFH policies are critical to informing SFH interventions.

Accordingly, the current study examined correlates of having no or partial versus complete SFH restrictions among non-smokers and smokers in 28 communities across Armenia and Georgia within the context of a community randomised controlled trial (RCT) examining the impact of local coalitions promoting smoke-free air. This study draws from a socioecological framework,[30] which highlights multilevel influences on health outcomes, including individual-level, interpersonal, community-level and policy-level factors. In this study, we are analysing data from Armenia and Georgia

separately to account for the policy-level differences in public smoke-free restrictions. Among survey participants in each country, we explored (1) individual factors (ie, sociodemographics, tobacco use characteristics, tobacco-related risk perceptions), (2) interpersonal factors (ie, social influences) and (3) community-level factors (ie, exposure to smoking restrictions in one's community—at work, in restaurants/bars) as correlates of SFH status. We further characterise the nature of SFH restrictions as well as household vehicle restrictions and SHSe across SFH restriction levels.

METHODS

Ongoing study overview

The Institutional Review Boards of Emory University (IRB00097093), the National Academy of Sciences of the Republic of Armenia (IRB00004079), the American University of Armenia (AUA-2017–013) and the National Center for Disease Control and Public Health of Georgia (IRB00002150) approved this study. The ongoing parent study is more fully described elsewhere[31] and briefly described here. This study uses a matched-pairs community RCT to examine the effectiveness of local coalitions in promoting smoke-free air and reducing SHSe in Armenia and Georgia. We purposively selected 14 'communities' (ie, municipalities) per country with small to medium populations. Communities were paired in each country based on region (and distance from Yerevan or Tbilisi), population size and local public health branch/centre budget, then randomly assigned to intervention versus control conditions.

Data collection

Among all 28 intervention and control communities, population-level surveys (ie, of community member) were conducted before the launch of the coalition member trainings (October–November 2018) and then will be conducted at the culmination of coalition activity (Spring 2022). Current analyses focus on baseline population-level surveys conducted in October–November 2018. The target sample size was 50 surveys/community in order to address the parent study aims of detecting changes in SHSe from baseline to follow-up in a two-arm community RCT of 28 communities; this sample was also well powered to address the current research questions. The sampling strategies were different in the two countries because of availability of household data in Armenia (but not in Georgia) and the utility of 'clusters' (ie, geographically defined areas of 150 households) in Georgia (but not in Armenia). In both countries, we obtained census data for all households within the municipality limits from the Bureau of Statistics. In each household, the KISH method[32] was used to identify target participants. Individuals ages 18–64 within selected households were eligible to be selected as participants. We approached study participants in-person at their homes, provided a study description, obtained written informed consent and administered the survey via electronic tablets.

In *Armenia*, addresses in each city were randomly ordered; assessments began at the beginning of the list and continued until the target recruitment in each city (n=50) was reached. Overall, 1128 households were visited, of which 27.4% (n=309) were ineligible (9.3% no household member ≥18 eligible, 10.6% closed door/not home/do not live there anymore, 6.6% non-existing address). Among the 819 eligible, 705 (86.1%) participated.

In *Georgia*, multistage cluster sampling was used to select study participants. In step 1, five clusters per city were identified. In step 2, 15 households per cluster were selected using a random walking method: the total number of households was divided by *15* (assuming ~75% response rate) to determine how many households needed to be skipped before arriving at the next designated household (eg, if the municipality included 150 households, the data collector would go from the first selected household to the 10th). Overall, 958 households were visited, of which 5.0% (n=48) were ineligible (no household member ≥18 reachable or eligible). Among the 910 eligible, 751 (82.5%) participated.

Measures

The following variables were included in the current analyses. The complete survey questionnaire is provided in online supplemental file 1.

Correlates of interest

We examined: (1) individual-level factors, specifically sociodemographics, tobacco use characteristics and tobacco-related risk perceptions; (2) interpersonal-level factors or social influences; and (3) community-level factors, specifically exposure to public smoke-free restrictions.

Individual-level factors: sociodemographics, tobacco use characteristics and risk perceptions. In terms of *sociodemographics,* current analyses included age, sex, education level, employment status, marital status and children under the age of 18 in the home.

Regarding *tobacco use characteristics,* we asked all participants about their lifetime cigarette use. We asked: 'Have you smoked at least 100 cigarettes in your life? 0=no; 1=yes'. Among lifetime cigarette users, we assessed past 30-day cigarette smoking: '0=everyday; 1=some days; 2=not at all'. Among past 30-day smokers (ie, current smokers, those reporting smoking on some days or everyday), we assessed number of days smoked, cigarettes smoked per day, readiness to quit (indicating readiness to quit in the next 30 days or in the next 6 months), past-year quit attempts (reporting any vs no quit attempt in the past year) and importance and confidence in quitting (0=not at all to 10=extremely important or extremely confident).

Risk perceptions were assessed using multiple measures. Participants were asked, 'How harmful to your health do you think the use of cigarettes is, on a scale of 1=not at all harmful

to 7=extremely harmful?' Participants were also asked, 'Do you think or know that *smoking* is the cause of the following diseases and conditions: stroke (brain haemorrhage); heart attack; cervical cancer; lung cancer; mouth cancer; addiction; Parkinson's disease; bronchitis; tuberculosis; obesity or none of these. We also asked, 'Based on what you know or believe, to what extent does breathing other people's smoke cause serious illness in non-smokers?' and 'To what extent do you think inhaling tobacco smoke when somebody else is smoking is harmful to you?' with response options of: 0=not at all; 1=a little; 2=somewhat or 3=extremely harmful. We also asked, 'To what extent do you agree with this statement: after someone smokes in a room, dangerous particles are left behind in the dust, air and surfaces in the room: strongly disagree; somewhat disagree; somewhat agree or strongly agree'. For the purposes of creating a single index score across these three items, we averaged the score across the three items (Cronbach's alpha=0.86). Additionally, we asked participants, 'Do you think or know that *exposure to secondhand smoke* is the cause of the following diseases: lung cancer in non-smokers; heart attack in non-smokers; asthma in children; middle ear infection in children or none of these'.

Interpersonal factors: social influences. Participants were asked, 'How many of your closest friends (who might include relatives and coworkers) smoke cigarettes? 0=none; 1=almost none; 2=less than half; 3=about half; 4=more than half; 5=almost all; 6=all'. This item was operationalised as a continuous variable for analysis (range: 0–6). We also asked current smokers, 'What do *people who are important to you, like your friends and family*, think about you smoking cigarettes?' and 'What do you think the *general public's attitude* is towards smoking cigarettes?' with response options of: '0=all or nearly all disapprove; 1=most disapprove; 2=about half approve and half disapprove; 3=most approve; 4=all or nearly all approve'. These two items were operationalised as a friend/family/public attitude index score by calculating the average rating across items (range: 0–4) (Cronbach's alpha=0.59).

Community-level factors: exposure to public smoke-free restrictions. To assess smoke-free restrictions at work, we first asked participants whether they worked outside of the home, and if so, whether their workplace included an indoor setting. Among those indicating that their workplace included an indoor setting, we asked, 'Which of the following best describes the policy regarding smoking in indoor areas at your work: 0=smoking is permitted everywhere, 1=smoking is permitted only in certain indoor areas, 2=smoking prohibited in all indoor areas or 3=there is no policy?'. We created a three-level restriction 'dose' variable (0=allowed/no rules, 1=partial restrictions, 2=complete restrictions). We recoded those who were unemployed (N=743) or employed without indoor settings (N=31) as 'allowed/no rules', as this represents the lack of a setting with smoking restrictions.

To assess restrictions about restaurants and bars in participants' communities, participants were asked, 'Which of the following best describes the rules about smoking in (1) restaurants in the community where you

live? and (2) drinking establishments such as a pub or bar in the community where you live?' Response options include: smoking is allowed in all indoor areas; smoking is allowed only in some indoor areas; smoking is not allowed in any indoor area or every (restaurant/bar) has its own rules'. Each of these items were converted to single three-level restrictions 'dose' variables (0=allowed/ no rules, 1=partial restrictions/each has its own rules, 2=complete restrictions). We then created a single three-level restriction for both restaurants and bars (Cronbach's alpha=0.94).

Outcome: SFH restrictions
Participants were asked, 'Which of the following statements best describes the smoking rules in your home: 0=smoking in your home is allowed, 1=smoking in your home is generally not allowed with certain exceptions, 2=smoking in your home is never allowed or 3=there are no rules about smoking in your home?' We then created a three-level restrictions 'dose' variable (0=allowed/no rules, 1=partial restrictions, 2=complete restrictions).

To further characterise factors related to restrictions in private settings and SHSe, we included additional measures. To more fully assess *restrictions in personal settings*, participants were asked, 'How much do the people you live with help to enforce the rules regarding smoking in the home? not at all; a little; somewhat; a lot or we do not have rules about smoking in the home'. To assess restrictions in cars, participants were asked, 'Which statement best describes the rules about smoking in *your household vehicles* (cars or trucks)? allowed in all vehicles; sometimes allowed in some vehicles; never allowed in any vehicle; no rules about smoking in the vehicles; or don't own a vehicle'. We created a three-level restrictions 'dose' variable (0=allowed/no rules, 1=partial restrictions, 2=complete restrictions).

We assessed *SHSe* by asking, 'In the past 30 days, on how many days did you breathe the smoke from someone else's smoking?' To assess smoking in the home and car, we asked, 'In the past 30 days, on how many days did someone smoke in your home?' and 'In the past 30 days, on how many days did someone smoke in your car?' Additionally, we asked, 'Who are the primary sources of secondhand smoke you inhale? (Check up to three): spouse/partner/significant other; parents; siblings; children; extended family; friends; people at work; other'. Current smokers were also asked, 'How much do you try to minimise the amount that non-smokers are exposed to your cigarette smoke? not at all; a little; somewhat; or a lot'.

Data analysis
We first conducted descriptive analyses to characterise participants. Then, we conducted bivariate analyses to examine differences in sociodemographics, smoking-related characteristics and our primary correlates of interest (ie, sociodemographics, tobacco use characteristics, risk perceptions, social influences, exposure to public smoke-free restrictions): (1) between Armenia and

Georgia and (2) across participants reporting no, partial and complete SFH restrictions.

We then built a multivariable binary logistic regression identifying correlates of no/partial SFH restrictions versus complete restrictions (referent group). The models included sociodemographics, smoking-related characteristics (as appropriate) and our correlates of interest. (Regression analysis was also conducted using multilevel modelling to account hierarchical structure of the data (ie, participants at the individual level nested in communities)[33–35]; all intraclass correlations ranged from 0 to 0.01, and findings were not significantly different. Thus, we chose to present the simpler models accounting for country.) All analyses were conducted in SPSS V.26, and alpha was set at 0.05.

Patient

Community members were not involved in setting the research question or the outcome measures, but they were intimately involved in design and implementation of the intervention of the ongoing parent study.

RESULTS
Participant characteristics in relation to SFH status

Across both countries, participants were on average 43.35 years old, 60.5% were women, 32.1% with a college education and 49.0% employed. Overall, 54.2% of Armenians reported having no SFH restrictions, 21.9% partial and 23.9% complete (table 1). In contrast, only 16.8% of Georgians reported having no SFH restrictions, 30.9% partial and 52.3% complete. In both countries, having fewer SFH restrictions was associated with having a lower education level (p <0.050) and smoking more cigarettes per day among smokers (p <0.050). In Georgia, having fewer SFH restrictions was also associated with being men (p=0.002), and less importance and confidence in quitting among smokers (p <0.001).

Bivariate analysis (table 2) showed that, among Armenians, correlates of having fewer SFH restrictions included: reporting less frequently that smoking is associated with heart attack (p=0.006), cervical cancer (p=0.001) and tuberculosis (p=0.005); less belief that inhaling tobacco smoke is harmful (p=0.019); and reporting less frequently that SHSe is associated with lung cancer in non-smokers (p=0.048) and middle ear infection in children (p=0.006). Among Georgians, correlates of having fewer SFH restrictions included: lower perceived harm of smoking to smoker's health (p<0.001); reporting less frequently that smoking is associated with stroke (p<0.001), heart attack (p<0.001), cervical cancer (p=0.041), lung cancer (p<0.001), addiction (p<0.001) and bronchitis (p=0.005); lower perceived risk of SHSe and THSe (p<0.001); and reporting less frequently that SHSe is associated with lung cancer and heart attack in non-smokers or asthma in children (p <0.001).

Regarding social influences, in both countries, having fewer SFH restrictions was associated with having more friends who smoked (p<0.001). In Georgia, having fewer SFH restrictions was also associated with smokers

perceiving more approval of their smoking (p<0.001). In terms of exposure to public smoke-free restrictions, in Georgia, having fewer SFH restrictions also was associated with having fewer workplace smoke-free restrictions (p<0.001).

Bivariate analyses (table 3) indicated that correlates of fewer SFH restrictions in both countries included: less support from household members in enforcing rules (p <0.001); fewer household vehicle smoke-free restrictions (p <0.001); increased SHSe (p <0.001); more days where smoking occurred in the home and in the car in the past 30 days (p <0.001); having as primary sources of SHSe include one's spouse/partner/significant other and friends (p <0.050); and fewer efforts to minimise SHSe among smokers (p=0.001). In Armenia, having fewer SFH restrictions also was associated with having as primary sources of SHSe include one's siblings (p=0.015) and extended family (p=0.020). In Georgia, having fewer restrictions also was associated with having as primary sources of SHSe include one's children (p=0.018) and others (p<0.001).

Multivariable regression results

Binary logistic regression analyses (table 4) indicated that, among non-smokers in Armenia, having no/partial SFHs correlated with being men (OR=0.38, p=0.001) and having more friend smokers (OR=1.23, p=0.002). Among smokers in Armenia, having no/partial SFHs correlated with being unmarried (OR=0.10, p=0.001), lower quitting importance (OR=0.82, p=0.010) and less favourable smoking attitudes among friends/family/public (OR=0.48, p=0.034).

In Georgia, among non-smokers, having no/partial SFHs correlated with older age (OR=1.04, p=0.002), being men (OR=0.18, p<0.001), lower SHS risk perception (OR=0.43, p<0.001), more friend smokers (OR=1.49, p=0.002) and fewer workplace (indoor) restrictions (OR=0.51, p=0.026). Among smokers, having no/partial SFHs correlated with being men (OR=0.02, p<0.001), not having children in the home (OR=0.17, p<0.001), daily smoking (OR=4.30, p=0.050), lower quitting confidence (OR=0.81, p=0.004), more friend smokers (OR=1.62, p=0.038) and fewer community restrictions (OR=0.68, p=0.026).

DISCUSSION

Data from this sample of Armenian and Georgian adults in 28 communities in a community RCT indicated alarmingly high national estimates of smoking prevalence.[12 13] Historically, former Soviet Union countries including Armenia and Georgia have had among the highest tobacco use prevalence in the world among men, although relatively low among women.[36] In countries with such high prevalence, SHSe in private settings such as homes and cars is particularly concerning, as those are the places where most SHSe occurs.[37] Over half of the respondents (54.2%) from Armenia reported having no

Table 1 Participant characteristics and bivariate analyses examining sociodemographics and tobacco use characteristics in relation to smoke-free home restriction levels among Armenian and Georgian adults (2018)

Variable	Armenia					Georgia				
		Smoke-free home restrictions					Smoke-free home restrictions			
	Total	None	Partial	Complete	P value	Total	None	Partial	Complete	P value
	N=703 (100%)	N=381 (54.2%)	N=154 (21.9%)	N=168 (23.9%)		N=751 (100%)	N=126 (16.8%)	N=232 (30.9%)	N=393 (52.3%)	
Sociodemograhics										
Age, M (SD)	42.58 (13.39)	43.10 (13.43)	41.02 (13.26)	42.83 (13.41)	0.261	44.08 (13.53)	46.37 (14.06)	43.72 (13.13)	43.56 (13.55)	0.113
Sex, N (%)					0.788					0.002
Male	208 (29.6)	110 (28.9)	49 (31.8)	49 (29.2)		365 (48.6)	65 (51.6)	132 (56.9)	168 (42.7)	
Female	495 (70.4)	271 (71.1)	105 (68.2)	119 (70.8)		386 (51.4)	61 (48.4)	100 (43.1)	225 (57.3)	
Education, N (%)					0.021					<0.001
<High school	161 (22.9)	87 (22.8)	32 (20.8)	42 (25.0)		62 (8.3)	24 (19.0)	14 (6.0)	24 (6.1)	
High school to some college	317 (45.1)	187 (49.1)	71 (46.1)	59 (35.1)		447 (59.5)	75 (59.5)	149 (64.2)	223 (56.7)	
≥College degree	225 (32.0)	107 (28.1)	51 (33.1)	67 (39.9)		242 (32.2)	27 (21.4)	69 (29.7)	146 (37.2)	
Employed, N (%)	310 (44.1)	174 (45.7)	62 (40.3)	74 (44.0)	0.521	402 (53.5)	65 (51.6)	141 (60.8)	196 (49.9)	0.027
Married/cohabitating, N (%)	533 (75.8)	286 (75.1)	122 (79.2)	125 (74.4)	0.529	527 (70.2)	72 (57.1)	176 (75.9)	279 (71.0)	0.001
Children under 18 in the home, N (%)	385 (56.6)	204 (55.6)	85 (58.6)	96 (57.1)	0.813	345 (45.9)	35 (27.8)	118 (50.9)	192 (48.9)	<0.001
Tobacco use characteristics										
Current smoking status, N (%)					0.102					<0.001
Non-smokers	560 (79.7)	294 (77.2)	123 (79.9)	143 (85.1)		497 (66.2)	54 (42.9)	127 (54.7)	316 (80.4)	
Current smokers	143 (20.3)	87 (22.8)	31 (20.1)	25 (14.9)		254 (33.8)	72 (57.1)	105 (45.3)	77 (19.6)	
Current smoking frequency, N (%) *					0.162					0.196
Every day	129 (90.2)	80 (92.0)	29 (93.5)	20 (80.0)		221 (87.0)	67 (93.1)	89 (84.8)	65 (84.4)	
Some days	14 (9.8)	7 (8.0)	2 (6.5)	5 (20.0)		33 (13.0)	5 (6.9)	16 (15.2)	12 (15.6)	
Cigarettes smoked/day, M (SD) *	21.57 (11.23)	23.76 (10.37)	18.13 (12.66)	18.10 (10.44)	0.017	21.02 (10.62)	25.23 (10.80)	19.73 (9.66)	18.78 (10.72)	<0.001
Importance of quitting, M (SD) *†	6.50 (3.69)	5.89 (3.86)	7.38 (3.10)	7.55 (3.50)	0.054	5.33 (2.86)	4.32 (3.10)	5.25 (2.48)	6.44 (2.75)	<0.001
Confidence in quitting, M (SD) *†	4.82 (3.88)	4.41 (3.98)	5.97 (3.49)	4.68 (3.88)	0.153	4.79 (2.73)	3.75 (2.81)	5.14 (2.77)	5.34 (2.31)	<0.001
Past-year quit attempt, N (%) *	42 (6.0)	21 (5.5)	12 (7.8)	9 (5.4)	0.565	31 (4.1)	6 (4.8)	10 (4.3)	15 (3.8)	0.885
Readiness to quit, next 6 months, N (%) *	23 (16.9)	11 (13.3)	8 (25.8)	4 (18.2)	0.278	25 (10.4)	4 (5.6)	12 (12.5)	9 (12.3)	0.277

Continued

Table 1	Continued										
	Armenia						**Georgia**				
	Smoke-free home restrictions						Smoke-free home restrictions				
	Total	None	Partial	Complete	P value		Total	None	Partial	Complete	P value
Variable	N=703 (100%)	N=381 (54.2%)	N=154 (21.9%)	N=168 (23.9%)			N=751 (100%)	N=126 (16.8%)	N=232 (30.9%)	N=393 (52.3%)	

P-value is from omnibus tests by country.
*Among current smokers only.
†On a scale of 0=not at all to 10=extremely.
M, mean; N, number.

SFH restrictions, thus leaving it as a prominent source of SHSe for the Armenian population. Considering 2016–2017 the national estimate of SHSe in the home in Armenia (56.4%), almost no progress has been made in this regard until recently in the country.[12] In contrast, a smaller percentage of respondents (16.8%) from Georgia reported having no SFH restrictions. It is well documented that comprehensive tobacco control policies play an important role in shifting smoking behaviours and increasing the likelihood of introducing voluntary smoke-free restrictions in private settings such as homes,[16–20 38 39] and these observed major differences in SFH restriction levels can be explained by the differences in tobacco control measures across the two countries. Comprehensive tobacco control policies have been implemented in Georgia earlier (2017–2018) and were already enforced at the time of the survey.[31] In contrast, Armenia adopted such tobacco control policies only recently (2020), and comprehensive indoor smoke-free policies are to be in full effect in 2022.[40] These differences in tobacco control measures across countries may also explain the findings that, in Georgia, no or partial SFH restrictions were also associated with fewer SFH restrictions in indoor workplaces and community. Studies conducted worldwide suggested that although smoke-free laws aimed to limit the SHSe in the indoor public places including workplaces (one of the main sources of SHSe in Armenia and Georgia), many studies showed an association between those laws and voluntary introduction of SFH restrictions.[17 19 38 39] It is suggested that smoke-free laws in public settings and workplaces are one of the most effective ways to make people more aware of the dangers of SHS and stimulate adoption of SFHs. Additionally, people tend to eventually increase their support towards implemented smoke-free laws and, as a result, the likelihood of adoption such policies in their homes.[23] Given that private homes are the main source of SHSe in both Armenia and Georgia, our study once again underscored the importance of such policies and their potential in changing smoking norms and behaviour such as implementing SFHs.

Both in Armenia and Georgia, one of the correlates of having no or partial SFHs was being men. This finding is in line with the current literature and can be explained by various facts. Prior research indicated that, in general, women are more supportive of smoke-free restrictions compared with men.[41] Women also play the most important role in initiating SFH restrictions.[22 42] Additionally, both in Armenia and Georgia, there is a substantial gender disparity regarding men (51.5% and 57.0%) and women (1.8% and 7.0%) smoking prevalence.[12 13] Hence, many households in Armenia and Georgia continue to allow smoking in the home, which may be because smokers are less likely to introduce SFH restrictions[16 20 29] and women (who are far less likely to smoke) may have limited authority to implement SFH restrictions and change smoking behaviour of others in their homes.[43] The study showed that those respondents who were older,

Table 2 Bivariate analyses examining tobacco-related risk perceptions, social influences and exposure to public smoke-free restrictions in relation to smoke-free home restriction levels among Armenian and Georgian adults (2018)

	Armenia					Georgia				
		Smoke-free home restrictions					Smoke-free home restrictions			
Variable	Total	None	Partial	Complete	P value	Total	None	Partial	Complete	P value
	N=703 (100%)	N=381 (54.2%)	N=154 (21.9%)	N=168 (23.9%)		N=751 (100%)	N=126 (16.8%)	N=232 (30.9%)	N=393 (52.3%)	
Tobacco-related risk perceptions										
Harm of Smoking to Smoker's Health, M (SD) *	5.74 (2.18)	5.71 (2.16)	5.89 (2.07)	5.70 (2.32)	0.646	6.09 (1.71)	5.20 (1.91)	5.87 (1.85)	6.51 (1.40)	<0.001
Associated with smoking, N (%) [a]										
Stroke (brain haemorrhage)	498 (71.6)	271 (72.1)	103 (66.9)	124 (74.7)	0.285	404 (53.8)	41 (32.5)	124 (53.4)	239 (60.8)	<0.001
Heart attack	517 (74.3)	284 (75.5)	100 (64.9)	133 (80.1)	0.006	533 (71.0)	68 (54.0)	162 (69.8)	303 (77.1)	<0.001
Cervical cancer	268 (38.5)	128 (34.0)	55 (35.7)	85 (51.2)	0.001	154 (20.5)	16 (12.7)	47 (20.3)	91 (23.2)	0.041
Lung cancer	594 (85.3)	320 (85.1)	127 (82.5)	147 (88.6)	0.301	631 (84.0)	88 (69.8)	194 (83.6)	349 (88.8)	<0.001
Mouth cancer	417 (59.9)	216 (57.4)	93 (60.4)	108 (65.1)	0.247	267 (35.6)	33 (26.2)	87 (37.5)	147 (37.4)	0.055
Addiction	528 (75.9)	277 (73.7)	114 (74.0)	137 (82.5)	0.071	279 (37.2)	33 (26.2)	70 (30.2)	176 (44.8)	<0.001
Parkinson's disease	197 (28.3)	109 (29.0)	35 (22.7)	53 (31.9)	0.172	35 (4.7)	3 (2.4)	7 (3.0)	25 (6.4)	0.066
Bronchitis	429 (61.6)	227 (60.4)	92 (59.7)	110 (66.3)	0.369	278 (37.0)	44 (34.9)	68 (29.3)	166 (42.2)	0.005
Tuberculosis	333 (47.8)	175 (46.5)	62 (40.3)	96 (57.8)	0.005	106 (14.1)	18 (14.3)	23 (9.9)	65 (16.5)	0.071
Secondhand and Thirdhand Smoke Beliefs Score, M (SD)	2.49 (0.63)	2.45 (0.65)	2.48 (0.64)	2.57 (0.57)	0.159	2.34 (0.89)	1.71 (1.11)	2.22 (0.85)	2.61 (0.70)	<0.001
Breathing SHS cause non-smoker illness § [b]	2.51 (0.67)	2.48 (0.68)	2.52 (0.67)	2.57 (0.65)	0.338	2.56 (0.70)	2.07 (0.97)	2.47 (0.68)	2.74 (0.52)	<0.001
Inhaling tobacco smoke is harmful § [c]	2.52 (0.71)	2.49 (0.74)	2.47 (0.75)	2.66 (0.57)	0.019	2.50 (0.74)	1.92 (1.05)	2.42 (0.67)	2.72 (0.55)	<0.001
Belief in THS § [d]	2.55 (0.75)	2.49 (0.79)	2.57 (0.77)	2.66 (0.61)	0.057	2.51 (0.75)	2.04 (1.01)	2.37 (0.77)	2.72 (0.54)	<0.001
Associated with Secondhand Smoke Exposure, N (%) [e]										

Continued

Table 2 Continued

	Armenia					Georgia				
		Smoke-free home restrictions					Smoke-free home restrictions			
Variable	Total	None	Partial	Complete	P value	Total	None	Partial	Complete	P value
	N=703 (100%)	N=381 (54.2%)	N=154 (21.9%)	N=168 (23.9%)		N=751 (100%)	N=126 (16.8%)	N=232 (30.9%)	N=393 (52.3%)	
Lung cancer in non-smokers	462 (66.4)	236 (62.8)	104 (67.5)	122 (73.5)	0.048	504 (67.1)	66 (52.4)	155 (66.8)	283 (72.0)	<0.001
Heart attack in non-smokers	370 (53.2)	194 (51.6)	81 (52.6)	95 (57.2)	0.474	396 (52.7)	43 (34.1)	106 (45.7)	247 (62.8)	<0.001
Asthma in children	536 (77.0)	283 (75.3)	122 (79.2)	131 (78.9)	0.494	487 (64.8)	52 (41.3)	157 (67.7)	278 (70.7)	<0.001
Middle ear infection in children	254 (36.5)	131 (34.8)	46 (29.9)	77 (46.4)	0.006	60 (8.0)	7 (5.6)	17 (7.3)	36 (9.2)	0.389
Tobacco-related social influences										
Number of friend smokers index, M (SD)†	2.94 (1.40)	3.10 (1.34)	3.07 (1.32)	2.47 (1.49)	<0.001	2.23 (1.38)	2.78 (1.44)	2.27 (1.32)	2.03 (1.35)	<0.001
Friend/family/public attitude index, M (SD) (*smokers*) ‡	0.93 (0.83)	0.92 (0.87)	0.81 (0.80)	1.14 (0.66)	0.366	1.20 (0.63)	1.49 (0.62)	1.17 (0.58)	0.97 (0.61)	<0.001
Exposure to public smoke-free restrictions										
Workplace (indoor) restrictions, N (%)					0.135					<0.001
Allowed/no restrictions	82 (11.7)	54 (14.2)	14 (9.1)	14 (8.3)		110 (14.6)	29 (23.0)	48 (20.7)	33 (8.4)	
Partial restrictions	41 (5.8)	24 (6.3)	11 (7.1)	6 (3.6)		38 (5.1)	11 (8.7)	19 (8.2)	8 (2.0)	
Complete restrictions	159 (22.6)	80 (21.0)	32 (20.8)	47 (28.0)		231 (30.8)	20 (15.9)	60 (25.9)	151 (38.4)	
Unemployed/employed without indoor	421 (59.9)	223 (58.5)	97 (63.0)	101 (60.1)		372 (49.5)	66 (52.4)	105 (45.3)	201 (51.1)	
Work restrictions dose, M (SD)	0.51 (0.84)	0.48 (0.82)	0.49 (0.82)	0.60 (0.90)	0.325	0.67 (0.92)	0.41 (0.75)	0.60 (0.87)	0.79 (0.97)	<0.001
Restaurants in your community, N (%)					0.447					0.043

Continued

Table 2 Continued

Variable	Armenia					Georgia				
	Total	Smoke-free home restrictions			P value	Total	Smoke-free home restrictions			P value
		None	Partial	Complete			None	Partial	Complete	
	N=703 (100%)	N=381 (54.2%)	N=154 (21.9%)	N=168 (23.9%)		N=751 (100%)	N=126 (16.8%)	N=232 (30.9%)	N=393 (52.3%)	
Allowed/no restrictions/do not know	277 (39.6)	151 (39.6)	58 (37.7)	68 (41.2)		114 (15.2)	24 (19.0)	34 (14.7)	56 (14.2)	
Partial restrictions/ each has its own rules	388 (55.4)	216 (56.7)	85 (55.2)	87 (52.7)		52 (6.9)	15 (11.9)	10 (4.3)	27 (6.9)	
Complete restrictions	35 (5.0)	14 (3.7)	11 (7.1)	10 (6.1)		584 (77.9)	87 (69.0)	187 (81.0)	310 (78.9)	
Bars in your community, N (%)					0.275					0.217
Allowed/no restrictions/do not know	341 (48.7)	184 (48.3)	81 (52.6)	76 (46.1)		147 (19.6)	27 (21.4)	46 (19.9)	74 (18.8)	
Partial restrictions/ each has its own rules	333 (47.6)	187 (49.1)	67 (43.5)	79 (47.9)		37 (4.9)	11 (8.7)	8 (3.5)	18 (4.6)	
Complete restrictions	26 (3.7)	10 (2.6)	6 (3.9)	10 (6.1)		566 (75.5)	88 (69.8)	177 (76.6)	301 (76.6)	
Community restrictions dose, M (SD)	1.20 (1.05)	1.18 (1.02)	1.21 (1.06)	1.25 (1.10)	0.802	3.19 (1.49)	2.98 (1.60)	3.23 (1.46)	3.22 (1.46)	0.250

Do not know was: a. n=49 (3.4%); b. n=63 (4.3%); c. n=51 (3.5%); d. n=84 (5.8%); and e. n=158 (10.9%). Do not know recoded as 0 to create SHS and THS Beliefs score. Other variables not equaling column totals due to missing data.

P-value is from omnibus tests by country.

*On a scale of 0=not at all to 7=extremely.

†On a scale of 0=none to 6=all.

‡On a scale of 0=all/nearly all disapprove to 4=all/nearly all approve; average across two items.

§On a scale of 0=not at all or strongly disagree to 3=a lot/extremely or strongly agree.

M, mean; N, number.

Table 3 Bivariate analyses examining secondhand smoke exposure in relation to smoke-free home restriction levels among Armenian and Georgian adults (2018)

Variable	Armenia					Georgia				
	Smoke-free home restrictions					Smoke-free home restrictions				
	Total N=703 (100%)	None N=381 (54.2%)	Partial N=154 (21.9%)	Complete N=168 (23.9%)	P value	Total N=751 (100%)	None N=126 (16.8%)	Partial N=232 (30.9%)	Complete N=393 (52.3%)	P value
Smoke-free restrictions										
Household helps enforce rules, N (%) *					<0.001					<0.001
Not at all	63 (9.0)	46 (12.1)	12 (7.8)	5 (3.0)		33 (4.4)	30 (23.8)	2 (0.9)	1 (0.3)	
A little	37 (5.3)	24 (6.3)	5 (3.2)	8 (4.8)		16 (2.1)	13 (10.3)	2 (0.9)	1 (0.3)	
Somewhat	91 (12.9)	44 (11.5)	39 (25.3)	8 (4.8)		121 (16.1)	20 (15.9)	89 (38.4)	12 (3.1)	
A lot	256 (36.4)	35 (9.2)	89 (57.8)	132 (78.6)		503 (67.0)	3 (2.4)	127 (54.7)	373 (94.9)	
No rules	241 (34.3)	223 (58.5)	5 (3.2)	13 (7.7)		71 (9.5)	57 (45.2)	11 (4.7)	3 (0.8)	
Household vehicle restrictions, N (%)					<0.001					<0.001
Allowed/no restrictions	191 (27.2)	143 (37.5)	28 (18.2)	20 (11.9)		125 (16.6)	50 (39.7)	44 (19.0)	31 (7.9)	
Partial restrictions	32 (4.6)	7 (1.8)	15 (9.7)	10 (6.0)		88 (11.7)	6 (4.8)	60 (25.9)	22 (5.6)	
Complete restrictions	138 (19.6)	40 (10.5)	43 (27.9)	55 (32.7)		152 (20.2)	5 (4.0)	22 (9.5)	125 (31.8)	
Do not own a vehicle	342 (48.6)	191 (50.1)	68 (44.2)	83 (49.4)		386 (51.4)	65 (51.6)	106 (45.7)	215 (54.7)	
Secondhand smoke exposure (SHSe)										
Any SHSe, past 30 days, N (%) *	529 (79.5)	303 (83.2)	120 (85.7)	106 (65.8)	<0.001	475 (68.9)	113 (95.8)	171 (84.2)	191 (51.9)	<0.001
Number of days, past 30 days, M (SD)										
SHSe	15.09 (12.70)	18.01 (12.54)	15.99 (12.38)	7.73 (10.23)	<0.001	8.77 (10.92)	21.35 (10.46)	8.16 (9.13)	5.08 (8.84)	<0.001
Smoking occurred in home	11.86 (13.57)	16.35 (13.82)	11.29 (13.25)	2.38 (6.58)	<0.001	3.54 (8.37)	18.02 (12.56)	1.97 (3.33)	0.05 (0.33)	<0.001
Smoking occurred in car	6.03 (10.62)	8.97 (12.13)	4.34 (9.56)	1.97 (5.66)	<0.001	3.73 (7.98)	10.30 (12.02)	4.53 (8.13)	1.28 (4.41)	<0.001
Primary sources of SHSe, N (%)										
Spouse/partner/significant other	199 (28.3)	127 (33.3)	47 (30.5)	25 (14.9)	<0.001	92 (12.3)	26 (20.6)	47 (20.3)	19 (4.8)	<0.001
Parents	52 (7.4)	34 (8.9)	12 (7.8)	6 (3.6)	0.085	21 (2.8)	6 (4.8)	8 (3.4)	7 (1.8)	0.162
Siblings	64 (9.1)	40 (10.5)	18 (11.7)	6 (3.6)	0.015	23 (3.1)	8 (6.3)	6 (2.6)	9 (2.3)	0.062
Children	74 (10.5)	45 (11.8)	18 (11.7)	11 (6.5)	0.156	33 (4.4)	11 (8.7)	11 (4.7)	11 (2.8)	0.018
Extended family	88 (12.5)	52 (13.6)	25 (16.2)	11 (6.5)	0.020	111 (14.8)	18 (14.3)	31 (13.4)	62 (15.8)	0.703
Friends	293 (41.7)	142 (37.3)	66 (42.9)	85 (50.6)	0.013	370 (49.3)	65 (51.6)	145 (62.5)	160 (40.7)	<0.001
People at work	122 (17.4)	70 (18.4)	21 (13.6)	31 (18.5)	0.387	117 (15.6)	21 (16.7)	39 (16.8)	57 (14.5)	0.696
Other	104 (14.8)	51 (13.4)	21 (13.6)	32 (19.0)	0.204	203 (27.0)	17 (13.5)	50 (21.6)	136 (34.6)	<0.001
Try to minimise SHSe (*smokers*), N (%) †					0.001					<0.001
Not at all	16 (11.9)	15 (18.5)	1 (3.2)	0 (0.0)		31 (13.3)	21 (30.4)	8 (8.7)	2 (2.8)	

Continued

Table 3 Continued

Variable	Armenia					Georgia				
	Smoke-free home restrictions					Smoke-free home restrictions				
	Total	None	Partial	Complete	P value	Total	None	Partial	Complete	P value
	N=703 (100%)	N=381 (54.2%)	N=154 (21.9%)	N=168 (23.9%)		N=751 (100%)	N=126 (16.8%)	N=232 (30.9%)	N=393 (52.3%)	
A little	13 (9.7)	9 (11.1)	4 (12.9)	0 (0.0)		28 (12.0)	15 (21.7)	8 (8.7)	5 (6.9)	
Somewhat	52 (38.8)	36 (44.4)	7 (22.6)	9 (40.9)		102 (43.8)	26 (37.7)	52 (56.5)	24 (33.3)	
A lot	53 (39.6)	21 (25.9)	19 (61.3)	13 (59.1)		72 (30.9)	7 (10.1)	24 (26.1)	41 (56.9)	

P-value is from omnibus tests by country.
*Do not equal column total due to 'do not know' or 'prefer not to answer' responses.
†Among current smokers only.
M, mean; N, number.

unmarried or not cohabitating were more likely to have no or partial SFH restrictions. Additionally, those households having no children in the home were less likely to have SFH restrictions. Various studies conducted in different countries documented that such demographic characteristics have the potential of changing household smoking habits and introducing SFHs.[43] Having children in the family is considered a strong motivator for households, especially for women, to implement SFHs.[43] Even in cases when women are unable to achieve a complete SFH, they are likely to introduce some strategies to reduce possible SHSe.[43]

People's increased knowledge and beliefs regarding SHS and THS harms are shown to be strong correlates of smoke-free bans in the homes.[23 27 28] Our findings add to the knowledge about the association between SHS and THS risk perceptions and SFH restrictions, indicating that with increasing knowledge about the dangers of SHS and THS and related risk perceptions, the likelihood of adopting SFH restrictions increases particularly among non-smokers. The reason that this pattern was observed in Georgia only may be due to having more advanced smoke-free regulations in place in various public places at the time of the survey compared with Armenia, which may resulted in better awareness about the harms of SHS and THS in Georgia. Because many national smoke-free policies do not include the broad range of private settings (eg, cars, homes), interventions targeting education about the risks of SHSe and THSe are a key strategy, which may lead to alteration of perceptions of risks and beliefs. A clinical trial demonstrated that such interventions focusing on the education of household members about the harms of SHSe had a great potential to reduce children's SHSe in homes and promoting SFH restrictions in Armenia.[44]

Consistent with the literature, one of the correlates of having no or partial SFH restrictions was having more friends who smoke.[45 46] It is more likely that those who are repeatedly exposed to smoking by their friends and community members are less likely to create SFH restrictions. In cultures where tobacco use is highly prevalent such as Armenia and Georgia, smoking behaviour is not yet denormalised and is considered socially acceptable behaviour. This, in its turn, affects one's motivation to create and maintain SFH restrictions.[43] In contrast, our study revealed that less favourable attitudes towards smoking among friends, family members and the general public were associated with no or partial SFH restrictions among Armenian smokers. The reason for this unexpected finding may be the differences in perceptions and social norms towards smoking across Armenia and Georgia.

The current study findings have important implications for research and practice. These findings are particularly important for understanding the home context and revealing some critical windows for possible targeted interventions for creating SFHs in LMICs. The study indicated that people in certain demographic groups such as

Table 4 Binary logistic regression analyses examining correlates of having no or partial household smoking restrictions compared with complete restrictions among nonsmokers and smokers in Armenia and Georgia (2018) (ref: complete restrictions)

| Variable | Armenia: outcome of no/partial smoke-free home restrictions | | | | | | Georgia: outcome of no/partial smoke-free home restrictions | | | | | |
| | Non-smokers | | | Smokers | | | Non-smokers | | | Smokers | | |
	OR	CI	P	OR	CI	P	OR	CI	P	OR	CI	P
Sociodemograhics												
Age	1.01	1.00 to 1.03	0.148	1.04	1.00 to 1.08	0.075	1.04	1.01 to 1.07	0.002	0.99	0.96 to 1.03	0.714
Female (ref: male)	0.38	0.22 to 0.67	0.001	2.31	0.23 to 23.21	0.477	0.18	0.07 to 0.45	<0.001	0.02	0.00 to 0.09	<0.001
Unemployed (ref: employed)	1.53	0.87 to 2.69	0.137	1.90	0.65 to 5.56	0.243	1.57	0.57 to 4.31	0.382	1.54	0.63 to 3.78	0.344
Married/cohabitating	1.09	0.68 to 1.72	0.729	0.10	0.03 to 0.37	0.001	0.91	0.46 to 1.83	0.798	0.71	0.30 to 1.67	0.438
Children in the home	0.82	0.54 to 1.24	0.342	1.82	0.68 to 4.87	0.233	0.84	0.42 to 1.67	0.609	0.17	0.07 to 0.43	<0.001
Smoking characteristics												
Smoke every day (ref: some days)	–	–	–	0.82	0.14 to 4.73	0.820	–	–	–	4.30	1.00 to 18.44	0.050
Quitting importance	–	–	–	0.82	0.71 to 0.95	0.010	–	–	–	0.89	0.77 to 1.03	0.125
Quitting confidence	–	–	–	1.00	0.88 to 1.13	0.943	–	–	–	0.81	0.71 to 0.94	0.004
Tobacco-related risk perceptions												
Perceived harm to smoker's health	1.01	0.93 to 1.10	0.882	0.89	0.71 to 1.13	0.332	0.88	0.74 to 1.05	0.153	0.85	0.66 to 1.10	0.219
Secondhand and thirdhand smoke beliefs	0.92	0.66 to 1.28	0.612	0.93	0.46 to 1.89	0.843	0.43	0.29 to 0.62	<0.001	0.88	0.53 to 1.46	0.619
Tobacco-related social influences												
Number of friends who smoke index	1.23	1.08 to 1.40	0.002	1.22	0.82 to 1.83	0.322	1.49	1.15 to 1.92	0.002	1.62	1.03 to 2.57	0.038
Friend/family/public attitude index	–	–	–	0.48	0.24 to 0.95	0.034	–	–	–	1.99	0.96 to 4.10	0.064
Exposure to public smoke-free restrictions (doses)												
Workplace (indoor) restrictions	0.83	0.60 to 1.14	0.245	0.66	0.37 to 1.19	0.167	0.51	0.29 to 0.92	0.026	1.04	0.61 to 1.75	0.897
Community restrictions	1.05	0.88 to 1.25	0.594	0.70	0.45 to 1.08	0.105	1.16	0.94 to 1.44	0.173	0.68	0.49 to 0.96	0.026
Nagelkerke R²	.062			0.343			0.232			0.496		

p, p value.

older adults, men, those unmarried or not cohabitating and not having children require better-targeted interventions. Women should be considered as change agents and be assisted with better interventions addressing strategies to improve their ability to discuss and negotiate SFH policies. Interventions should also include education component aiming to increase knowledge regarding SHS and THS exposures by emphasising their harmful impact on the health of children. Further enforcement of comprehensive smoke-free policies is needed to accelerate positive changes in community norms towards protected and smoke-free environments, particularly in private settings.

Limitations

This sample may not represent the general adult populations of these countries; however, the cities involved in this study account for about a third of each countries' populations, respectively, but do not include: (1) the two largest cities—Yerevan and Tbilisi, where the smoking prevalence may be lower among men but higher among women; or (2) more rural areas, where the smoking prevalence may be higher among men but lower among women.[12 13] Additionally, the sampling/recruitment methods across countries differed by necessity and yielded different composition by sex and smoking status. Our results could also be biased due to several factors, such as unmeasured variables associated with differential participation. Finally, the cross-sectional nature and self-reported assessments limit the ability to make causal attributions or account for bias. Relatedly, there were seeming contradictory responses to some questions (eg, home smoke-free restrictions and family member help in enforcing rules) that are difficult to interpret. Thus, these results must be cautiously interpreted.

CONCLUSIONS

Current results provide estimates on SFH restrictions in 28 communities in Armenia and Georgia and documented that private settings, particularly private homes, are lacking restrictions and remain major sources of SHSe. The findings revealed important correlates of having no or partial SFH restrictions and some cross-country differences, including some demographic and smoking characteristics, people's perceptions and beliefs about the harms of SHS and THS exposures as well as lack of enforced smoke-free restrictions in some public places. These findings are important for improving and targeting interventions to protect people from SHSe and to reduce harms of smoking in former Soviet Union countries with similar tobacco control histories. The current findings also highlight the importance of comprehensive smoke-free bans in changing household smoking behaviours.

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