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A Cross-Sectional Study Examining Adult Smoking Rates and Recent Quit Attempts in the Republic of Georgia

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BACKGROUND: Former Soviet Union countries have high tobacco use prevalence, with rates higher among men than women. However, there is limited research regarding correlates of smoking behaviors among Georgian adults. Thus, we examined correlates of current smoking among Georgian adults, and among smokers, correlates of past-year quit attempts.

METHODS: We conducted secondary analysis of the Georgia STEPS Survey of Chronic Disease Risk-factors data from 2010 (N=6,497). We examined correlates (sociodemographics, smoking history, comorbid health conditions) associated with current smoking and, among smokers, recent quit attempts among men and women, respectively.

RESULTS: Overall, 4.4% women and 53.0% men reported current smoking; 36.0% of smokers reported recent quit attempts. The multivariate regression examining correlates of current smoking among men included younger age (p<.001), being Georgian (p=.003), being employed (p=.050), being married/living with a partner (p=.050), and alcohol consumption (p<.001); among women, predictors included not being Georgian (p=.001), having a college education (p=.001), higher monthly income (p<.001), being single (p=.001), and using alcohol (p<.001). Correlates of having made a quit attempt among male smokers included younger age (p=.025) and more cigarettes smoked per day (p=.032), whereas the only correlate of having made a quit attempt among female smokers was younger age (p=.012).

CONCLUSIONS: The high smoking prevalence among Georgian adults, particularly men, and the low prevalence of recent quit attempts indicate the importance of addressing nicotine dependence and smoking-related morbidity and mortality.

KEYWORDS: health disparities, smoking, smoking cessation, tobacco control.

INTRODUCTION

Global prevalence of daily tobacco smoking in 2012 was roughly 31.1% for men and 6.2% for women (Ng et al., 2014). Cigarette smoking is the second leading risk factor for death worldwide (Ezzati & Lopez, 2003a; Ezzati, Lopez, Rodgers, Vander Hoorn, & Murray, 2002; Lopez, Mathers, Ezzati, Jamison, & Murray, 2006). More than six million people die every year as a consequence of tobacco smoking (World Health Organization [WHO], 2011). Four-fifths of current smokers live in low- and middle-income counties (LMICs) (WHO, 2011). Many LMICs are still in early stages of the tobacco epidemic; the number of smoking-related deaths in these nations is likely to increase (Ezzati & Lopez, 2003a, 2003b; Liu et al., 1998). Based on current trends, mortality will increase to 8.3 million a year by 2030, and 80% of these deaths will occur in LMICs (WHO, 2011). One high-risk region for tobacco use is the area of the former Soviet Union (Gilmore et al., 2004; Roberts et al., 2012). In a study of former Soviet Union countries (e.g., Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Ukraine), roughly 80% of men reported a history of smoking (Gilmore et al., 2004; Roberts et al., 2012), with some reductions in smoking among men since 2001 (Roberts et al., 2012). There are drastically different smoking rates

among men and women in these regions, with men having a much higher prevalence of smoking (Gilmore et al., 2004; Roberts et al., 2012).

Georgia, one former Soviet Union country and a lower middle-income country (The World Bank, 2007; WHO, 2008), has shown a record decrease in population over recent years, mainly attributed to premature mortality and migration (Bakhturidze, Magradze, Mirotadze, & Andguladze, 2008). The tobacco-related death toll in Georgia is estimated to be around 11,000 deaths per year (Bakhturidze et al., 2008). The 2012 Georgia STEPS report (WHO, 2012) indicated that 30.3% of Georgian adults are current smokers. Another study found that, among Georgian men, an estimated 54.9% were current daily smokers, 17.0% were less than daily smokers, and 28.1% were nonsmokers (past and never smokers) (Bakhturidze et al., 2008). Among Georgian women, an estimated 12.2% were current daily smokers, 6.4% were less than daily smokers, and 81.4% were nonsmokers (Bakhturidze et al., 2008). The high smoking prevalence, particularly among men, may be in part due to lagging tobacco control policies and practices in Georgia. Although Georgia ratified the WHO Framework Convention on Tobacco Control (FCTC) in 2005, cessation resources and youth prevention activities are scarce, only a partial national smoke-free policy is in place, and tobacco taxes are very low.

Similar to the trends of the other former Soviet Union countries (Roberts, Gilmore, et al., 2013; Roberts et al., 2012), smoking prevalence is higher among men with lower education and lower income and those who live in smaller settlements (Bakhturidze et al., 2008), whereas the smoking prevalence among women is higher among the more educated and affluent and those who live in larger cities (Bakhturidze et al., 2008). This may be a sign of the growing tobacco epidemic among Georgian women; rates of smoking among women grew from roughly 24% in 1997 to 34% in 2007 in Tbilisi, with the greatest increases among those under 40 years of age (Bakhturidze et al., 2008).

In terms of health-related factors, a large amount of literature has documented the association between cigarette use and alcohol use (Acosta, Eissenberg, Nichter, Nichter, & Balster, 2008; Botvin & Botvin, 1992; Roberts, Chikovani, Makhashvili, Patel, & McKee, 2013; Torabi, Bailey, & Majd-Jabbari, 1993). In addition, vast research has documented that cigarette use is a contributing factor to hypertension, high cholesterol, diabetes, cardiovascular disease, stroke, and cancer (Roberts, Chikovani, et al., 2013; U.S. Department of Health and Human Services [USDHHS], 1983, 1990, 2010, 2014; USDHHS, 2004). Despite these findings, little other research has documented these health-related factors in relation to tobacco use in LMICs or specifically in Georgian adults.

Furthermore, in developed countries, a large proportion of smokers want to stop smoking and many try to stop (Centers for Disease Control and Prevention [CDC], 2011), but the corresponding proportions in LMICs countries are low (Gupta, 2000). Quit rates are also low in many developing countries (Gajalakshmi, Jha, & Ranon, 2000). Unfortunately, specific estimates of quit rates, quit attempts, and readiness to quit have been largely understudied in LMICs, particularly in the former Soviet Union countries. However, Footman and colleagues (Footman et al., 2013) found that, in this region, quit ratios varied from 10.5% in Azerbaijan to 37.6% in Belarus in 2010. Roughly two-thirds of smokers in this study expressed a desire to quit or had taken action to stop (Footman et al., 2013). Only 12.6% of participants reported using help to quit (Footman et al., 2013). Correlates of successful cessation included being female, older age, higher education, poorer health, lower alcohol dependency, higher knowledge of tobacco's health effects, and support for tobacco control; correlates of readiness to quit smoking among current smokers included younger age, poorer health, greater knowledge of tobacco's health effects, and support for tobacco control (Footman et al., 2013).

The aforementioned literature suggests high rates of tobacco use in the former Soviet Union, with limited research specifically examining prevalence and correlates of cigarette smoking or identifying factors associated with making quit attempts in Georgia. As such, the specific aims of this study were to 1) examine the prevalence of tobacco use and sociodemographic and health-related factors (i.e., alcohol use, tobacco-related comorbidities) associated with tobacco use, particularly cigarette use, in a sample of Georgian men and women, respectively; and 2) examine sociodemographic and health-related factors related to having made a quit attempt in the past year among current male and female smokers in this sample, respec-

tively. We hypothesized that 1) distinct sociodemographic factors (e.g., education, income level) will be associated with current smoking among men and women; 2) alcohol use and having a tobacco-related comorbidity are associated with current smoking; and 3) no alcohol consumption and having a comorbid health condition are associated with having made a recent quit attempt.

METHODS

The current study is secondary analysis of STEPS Survey of Chronic Disease Risk-factors in Georgia. STEPS survey in Georgia, which was approved by the National Center for Disease Control and Public Health Institutional Review Board, was carried out from August to December 2010. The study aimed to find the spread and characteristics of non-communicable diseases risk-factors in Georgian population. STEPS survey in Georgia was a population-based survey of adults aged 18–64. A multi-stage, clustered sample design was used to produce representative data for that age range in Georgia. The study was conducted country-wide – in the capital city and 10 regions. Georgian population 2002 database was used for sampling frame. Stratification was done by regions; each region was divided in two strata – 22 overall. Sample size was calculated proportionately by the number of households in regions.

Among 22 strata, 243 clusters were formed so that at least 25 interviews could be conducted in each one. "Random walk" method was used for selecting the households within the cluster. One 18–64 year-old respondent in each household was selected using the Kish sampling method. Of the 7,802 visits performed countrywide, only 6,839 households met eligibility criteria (i.e., age range) and were able to be contacted during the study period. A total of 6,497 adults participated in the survey. The overall response rate was 95%.

Measures

The WHO STEPS standardized instrument was used and adapted to the Georgian environment and limited resources. The questionnaire contained core items, extended items, and country-specific items. Core items were used to calculate basic variables; expanded items asked more detailed information. The questionnaires were accompanied by showcards developed by WHO and adapted to the Georgian context.

For the current analyses, sociodemographics, tobacco use variables, alcohol use, and medical comorbidities were included. Our primary outcomes included: 1) current (past 30-day) cigarette smoking status; and 2) past year quit attempts among current smokers. Our primary predictors of interest in relation to current smoking status included: 1) sociodemographic characteristics (i.e., age, sex, ethnicity, educational level, income level, employment status, marital status); 2) past 30-day alcohol use; and 3) medical comorbidities (i.e., history of hypertension, high cholesterol, diabetes, myocardial infarction, stroke, or cancer). Our primary predictors of interest in relation to past year quit attempts among current smokers included these factors as well as daily smoking status, smoking level (i.e., cigarettes smoked per day [cpd]), and age of smoking initiation. To characterize tobacco use in Georgia, we also report other tobacco use variables including lifetime cigarette use, current smokeless tobacco use, and prior use of cessation resources among current cigarette smokers.

Data Analyses

Participant characteristics were summarized using descriptive statistics. Because of the large difference between men versus women in smoking prevalence, we examined our primary outcomes in relation to our predictors of interest separately among men and women. Bivariate analyses were conducted comparing current (past 30-day) cigarette users versus nonusers. Then, among current cigarette users, bivariate analyses were conducted comparing those making a quit attempt in the past year versus those that did not. Chi-squared tests were used for categorical variables, and independent samples t-tests and ANOVAs were used for continuous variables. Finally, multivariate binary logistic regression was used to examine factors associated with current cigarette use and, among current users, having made a past year quit attempt, respectively, with analyses also examining these outcomes separately among men and women. Factors associated with the respective outcomes of interest at the $p<.20$ were entered using backwards stepwise entry. While the official 2010 Georgia STEPS report (WHO, 2012) weighted the data based on the 2002 Census data, due to significant changes in the composition of the Georgian population during that time (The World Bank, 2015), we chose not to weight the data in the current study. This decision was made because: 1) it is uncertain how reflective of the actual 2010 population our results would be if the data were weighted based on

Table 1. Participant characteristics and bivariate analyses comparing current smokers versus nonsmokers among all participants and among men and women, respectively

	Total	Men (N=1873)			Women (N=4569)		
	(N=6442)	Nonsmoker	Current Smoker		Nonsmoker	Current Smoker	
Variable	M (SD) or N (%) N=6442 (100.0%)	M (SD) or N (%) N=880 (47.0%)	M (SD) or N (%) N=993 (53.0%)	p	M (SD) or N (%) N=4368 (95.6%)	M (SD) or N (%) N=201 (4.4%)	p
Sociodemographics							
Age (SD)	45.32 (13.56)	45.62 (15.08)	42.44 (12.96)	<.001	45.96 (13.33)	43.71 (12.58)	.019
Ethnicity (%)				.103			<.001
Georgian	5623 (87.3)	741 (84.2)	879 (85.5)		3831 (87.7)	172 (85.6)	
Ossetian	63 (1.0)	10 (1.1)	10 (1.0)		42 (1.0)	1 (0.5)	
Azerbaijani	266 (4.1)	60 (6.8)	42 (4.2)		161 (3.7)	3 (1.5)	
Armenian	368 (5.7)	59 (6.7)	50 (5.0)		251 (5.7)	8 (4.0)	
Russian	59 (0.9)	2 (0.2)	3 (0.3)		40 (0.9)	14 (7.0)	
Other	63 (1.0)	8 (0.9)	9 (0.9)		43 (1.0)	3 (1.5)	
Years of education (%)				.092			<.001
<High school	514 (8.0)	79 (9.0)	63 (6.3)		366 (8.4)	6 (3.0)	
High school graduate	3686 (57.2)	447 (50.8)	528 (53.2)		2637 (60.4)	74 (36.8))	
≥College graduate	2242 (34.8)	354 (40.2)	402 (40.5)		1365 (31.3)	121 (60.2)	<.001
Income (SD)	318.80 (403.29)	313.53 (271.79)	379.28 (747.47)	.023	298.28 (296.82)	490.49 (440.61)	
Employment status (%)				<.001			<.001
Employed	2235 (34.7)	379 (43.2)	512 (51.6)		1260 (28.8)	84 (41.8)	
Other	4204 (65.3)	499 (56.8)	480 (48.4)		3108 (71.2)	117 (58.2)	
Marital status (%)				.117			.003
Married/living with partner	4150 (64.4)	568 (64.5)	675 (68.0)		2799 (64.1)	108 (53.7)	
Other	2292 (35.6)	312 (35.5)	318 (32.0)		1569 (35.9)	93 (46.3)	
Among Current Smokers							
Daily smoking (%) a	--	--		--	--		--
No			80 (8.1)			37 (18.4)	
Yes			913 (91.9)			164 (81.6)	
Cigarettes per day (SD) a	--	--	20.88 (11.03)	--	--	13.74 (6.87)	--
Smoking initiation age (SD) a	--	--	18.52 (4.15)	--	--	24.83 (9.45)	--

Table 1. Participant characteristics and bivariate analyses comparing current smokers versus nonsmokers among all participants and among men and women, respectively: continuation

	Total	Men (N=1873)			Women (N=4569)		
	(N=6442)	Nonsmoker	Current Smoker		Nonsmoker	Current Smoker	
Variable	M (SD) or N (%) N=6442 (100.0%)	M (SD) or N (%) N=880 (47.0%)	M (SD) or N (%) N=993 (53.0%)	p	M (SD) or N (%) N=4368 (95.6%)	M (SD) or N (%) N=201 (4.4%)	p
Past year quit attempts (%) a	--	--		--	--		--
No			617 (62.2)			147 (73.1)	
Yes			375 (37.8)			54 (26.9)	
Health-related Factors							
Alcohol use, past 30 days (%)				<.001			<.001
No	4456 (69.2)	488 (55.5)	318 (32.0)		838 (19.2)	81 (40.3)	
Yes	1986 (30.8)	392 (44.5)	675 (68.0)		3530 (80.8)	120 (59.7)	
Hypertension (%)				<.001			.014
No	4179 (64.3)	533 (60.6)	732 (73.7)		2712 (62.1)	142 (70.6)	
Yes	2323 (35.7)	347 (39.4)	261 (26.3)		1656 (37.9)	59 (29.4)	
High cholesterol (%)				.002			.181
No	6283 (96.6)	828 (94.2)	963 (97.1)		4292 (98.3)	200 (99.5)	
Yes	157 (2.4)	51 (5.8)	29 (2.9)		76 (1.7)	1 (0.5)	
Diabetes (%)				.001			.236
No	6038 (92.9)	794 (90.2)	938 (94.5)		4055 (92.8)	191 (95.0)	
Yes	464 (7.1)	86 (9.8)	55 (5.5)		313 (7.2)	110 (5.0)	
Myocardial infarction (%)				<.001			.080
No	6331 (97.4)	847 (96.4)	984 (99.2)		4305 (98.6)	195 (97.0)	
Yes	109 (1.7)	32 (3.6)	8 (0.8)		63 (1.4)	6 (3.0)	
Stroke (%)				.002			.281
No	6342 (97.5)	853 (97.0)	982 (99.0)		4307 (98.6)	200 (99.5)	
Yes	98 (1.5)	26 (3.0)	10 (1.0)		61 (1.4)	1 (0.5)	
Cancer (%)				.456			.235
No	6356 (97.8)	870 (99.0)	985 (99.3)		4301 (98.5)	200 (99.5)	
Yes	84 (1.3)	9 (1.0)	7 (0.7)		67 (1.5)	1 (0.5)	

a Among current smokers.

2002 Census data; and 2) we are primarily looking at correlates of our two primary outcomes (i.e., current smoking status, past year quit attempts among smokers), which would not be largely impacted by data weighting. The major concern regarding weighting was related to sex; as such, our presentation of data separately by sex largely addressed this concern. SPSS 21.0 was used for all data analyses.

RESULTS

Participants were an average age of 45.32 (SD=13.56) years old, 70.9% were female, 87.3% were Georgian, 34.8% were college educated, 34.7% were employed, and 64.4% were married (Table 1). In terms of smoking behavior, among men, 53.0% reported current cigarette use, with 91.9% of these individuals reporting daily smoking. Among male current smokers, 37.8% reported at least one quit attempt in the past year. Among women, 4.4% reported current cigarette use, with 81.6% of these individuals reporting daily smoking. Among female current smokers, 26.9% reported at least one quit attempt in the past year. There was very little use of cessation resources in the past year among those that made a past-year quit attempt: 0.1% (n=5) used consultation; 0.1% (n=5) used nicotine replacement therapy; 0.1% (n=4) used other pharmacotherapy; and 0.9% (n=56) used other resources.

Current Smoking Status

In bivariate analyses among participants overall, factors associated with being a current (past 30-day) smoker included younger age (p<.001), being more educated (p<.001), higher income levels (p<.001), being employed (p<.001), and alcohol consumption (p<.001). Those with hypertension (p<.001), diabetes (p=.005), stroke (p=.035), and cancer (p=.017) were less likely to be current smokers.

Table 1 displays the distinct correlates of current smoking among men and women, respectively. The multivariate regression examining correlates of being a current smoker among men (not shown) included younger age (OR=0.98, CI 0.97, 0.99, p<.001), being Georgian vs. other (OR=1.62, CI 1.18, 2.21, p=.003), being employed (OR=1.23, CI 1.01, 1.51, p=.050), being married or living with a partner (OR=1.26, CI 1.01, 1.60, p=.050), and alcohol consumption (OR=2.40, CI 1.96, 2.96, p<.001). The multivariate regression examining correlates of being a current smoker among women (not shown) included not being Georgian (OR=0.47, CI 0.31, 0.73, p=.001), having a college education (vs. less than a high school education; OR=4.56, CI 1.94, 10.71, p=.001), higher monthly income (OR=1.01, CI 1.01, 1.01, p<.001), being unmarried or without a live-in partner (OR=0.58, CI 0.43, 0.80, p=.001), and using alcohol in the past 30 days (OR=3.31, CI 2.19, 4.13, p<.001).

Recent Quit Attempts

In bivariate analyses (Table 2), factors associated with having made a recent quit attempt among current smokers included being younger (p=.047), being male (p=.002), and recent alcohol use (p=.043); no comorbid condition was associated with recent quit attempts (not shown). Table 2 also presents bivariate analyses examining correlates of past-year quit attempts among men and women, respectively. In the multivariate regressions (not shown), correlates of having made a quit attempt among male smokers included younger age (OR=0.98, CI 0.97, 0.99, p=.025) and more cigarettes smoked per day (OR=1.02, CI 1.01, 1.02, p=.032), whereas the only correlate of having made a quit attempt among female smokers was younger age (OR=0.96, CI 0.93, 0.99, p=.012).

DISCUSSION

The current study documented a high smoking prevalence among Georgian men, as found in prior research (Bakhturidze et al., 2008; Gilmore et al., 2004; Pomerleau, Gilmore, McKee, Rose, & Haerpfer, 2004; Roberts, Gilmore, et al., 2013; Roberts et al., 2012). Moreover, we documented distinct sociodemographics, substance use, and health-related factors associated with smoking status and whether recent quit attempts were made specifically among men and women. Of particular note, results indicated a low prevalence of recent cessation attempts.

First, we documented some distinct correlates of current smoking status among men and women. While our bivariate analyses indicated that younger age was associated with smoking among men and women, as found in prior research (Bakhturidze et al., 2008; Gilmore et al., 2004; Pomerleau et al., 2004; Roberts, Gilmore, et al., 2013; Roberts et al., 2012), multivariate analyses indicated that age was only associated with smoking among men, perhaps because other correlates of smoking among women such as higher education and income accounted for younger age. While higher education and income was associated with being a

current smoker among women, being employed was a correlate of being a smoker among men. Additionally, women who were not Georgian were more likely to be current smokers. Also of note, men who were married or living with a partner were more likely to be smokers, whereas women who were not married or living with a partner were more likely to be smokers. As such, it seems as though women in less traditional Georgian roles may be more likely to smoke. In addition, among both men and women, using alcohol was a correlate of being a current smoker (Pinsker et al., 2013; Roberts, Gilmore, et al., 2013; Roberts et al., 2012; Sutfin et al., 2012)

In terms of recent quit attempts, being younger, being married, and more cigarettes smoked per day were associated with having made a quit attempt among all participants; the finding regarding younger age held true for both men and women, more cigarettes smoked per day held true for men, and the marital factor held true for neither, likely due to smaller sample sizes included for the separate sex analyses. Prior research has documented that younger smokers are more likely to attempt to quit (Footman et al., 2013; Kviz, Clark, Crittenden, Freels, & Warnecke,

Table 2. Bivariate comparisons of those who have made versus those who have not made a quit attempt in the past year among all current smokers and among male and female current smokers, respectively

	Men (N=992)			Women (N=201)		
Variable	No M (SD) or N (%) N=617 (62.2%)	Yes M (SD) or N (%) N=375 (37.8%)	p	No M (SD) or N (%) N=147 (73.1%)	Yes M (SD) or N (%) N=54 (26.9%)	p
Sociodemographics						
Age (SD)	42.96 (13.08)	41.85 (12.76)	.191	44.69 (12.39)	41.04 (12.82)	.068
Ethnicity (%)			.283			.253
Georgian	536 (86.9)	342 (91.2)		127 (86.4)	45 (83.3)	
Ossetian	8 (1.3)	2 (0.5)		1 (0.7)	0 (0.0)	
Azerbaijani	32 (5.2)	10 (2.7)		3 (2.0)	0 (0.0)	
Armenian	34 (5.5)	16 (4.3)		7 (4.8)	1 (1.9)	
Russian	2 (0.3)	1 (0.3)		8 (5.4)	6 (11.1)	
Other	5 (0.8)	4 (1.1)		1 (0.7)	2 (3.7)	
Years of education (%)			.833			.011
<High school	41 (6.6)	22 (5.9)		2 (1.4)	4 (7.4)	
High school graduate	330 (53.5)	198 (52.8)		49 (33.3)	25 (46.3)	
≥College graduate	246 (39.9)	155 (41.3)		96 (65.3)	25 (46.3)	
Income (SD)	344.62 (288.96)	440.42 (1180.68)	.072	504.72 (411.62)	451.88 (513.86)	.474
Employment status (%)			.074			.141
Employed	304 (49.4)	207(55.2)		66 (44.9)	18 (33.3)	
Other	312 (50.6)	168 (44.8)		81 (55.1)	36 (66.7)	
Marital status (%)			.383			.341
Married/living with partner	413 (66.9)	2261 (69.6)		76 (51.7)	32 (59.3)	
Other	204 (33.1)	114 (30.4)		71 (48.3)	22 (40.7)	
Substance Use Variables						
Daily smoking (%)			.507			.227
No	570 (92.4)	342 (91.2)		117 (79.6)	47 (87.0)	
Yes	47 (7.6)	33 (8.8)		30 (20.4)	7 (13.0)	
Cigarettes per day (SD)	20.42 (11.33)	21.64 (10.50)	.122	14.27 (7.39)	12.42 (5.22)	.128
Smoking initiation age (SD)	18.35 (3.93)	18.79 (4.48)	.128	24.97 (8.60)	24.46 (11.40)	.754
Alcohol use, past 30 days (%)			.271			.688
No	412 (66.8)	263 (70.1)		58 (39.5)	23 (42.6)	
Yes	205 (33.2)	112 (29.9)		89 (60.5)	31 (57.4)	

1994); however, other research has found the opposite (Ayanian & Cleary, 1999). As some of these studies were conducted in other countries, this suggests that there may be cultural factors that differentially impact interest in cessation among specific subsets of certain cultures. For example, the high prevalence of smoking in Georgia, particularly among men, alongside weak tobacco control policies might create social norms that imply a greater social acceptability, and potentially lower health risk, related to smoking. In addition, our finding that being married was associated with having made a quit attempt aligns with prior research (Chen, White, & Pandina, 2001; Footman et al., 2013; Zhu et al., 2010). This might suggest that social support or pressure to quit smoking among spouses of smokers promotes cessation attempts (Berg et al., 2010; Hyland et al., 2006; Westmaas, Bontemps-Jones, & Bauer, 2010). Finally, our finding that higher level of cigarette consumption is associated with a greater likelihood of having attempted to quit is particularly interesting. Prior research has documented similar findings (Berg, Wen, Cumming, Ahluwalia, & Druss, 2013; Fagan et al., 2007), which may be a reflection of greater perceived risk related to their level of smoking (Lyna, McBride, Samsa, & Pollak, 2002; Strecher, Kreuter, & Kobrin, 1995). This might also be a reflection of the fact that we examined recent quit attempts only among current smokers; as such, those who successfully quit may have demonstrated different smoking characteristics, such as lower baseline smoking level. Also of note, our sample of smokers reported very low use of assistance in quitting, within the range previously documented (Footman et al., 2013).

Our hypotheses that having a tobacco-related comorbidity would be associated with current smoking status and with cessation attempts among smokers were not supported in the multivariate analyses. However, each of the comorbidities (with the exceptions of high cholesterol and myocardial infarction) was associated with current smoking status in the bivariate analyses but in the counterintuitive direction. It is possible that many of these comorbidities go under- or undiagnosed. Engagement in the healthcare system in Georgia is a challenge, as the healthcare system has been in flux in the last decade due to frequent political change that has impacted the structure of the healthcare system (e.g., public versus private) and ultimately access to healthcare. Another possibility is that those diagnosed with such comorbidities quit smoking; however, this is doubtful given that, among the current smokers in this sample, having a comorbid condition was not associated with recent quit attempts and quit ratios are quite low in this region (Footman et al., 2013). More research is needed to clarify why these associations were not found. Additionally, our hypotheses that alcohol consumption would be related to not attempting to quit was not supported in the multivariate analyses; however, this association was found in the bivariate analyses. It is possible that sociodemographic factors associated with tobacco use similarly are related to alcohol use.

An important consideration in interpreting these findings is that there were differences in tobacco use prevalence in this study versus prior studies. As stated previously, the 2012 Georgia STEPS report (WHO, 2012) indicated a higher prevalence of current smoking (30.3%), as it used 2002 Census data to weight the 2010 STEPS data. This approach has specific limitations given the changes in the Georgian population (e.g., ethnicity, age, socioeconomic status) that occurred during this time (The World Bank, 2015). The primary weighting concern is the overrepresentation of women in this sample; as such, our findings should be interpreted by sex.

The current findings have important implications for research and practice. Research should examine additional correlates of smoking among Georgian adults, given the limited scope of factors included in this data. Specifically, examining sociocontextual factors and sex differences contributing to smoking initiation and maintenance is critical. Moreover, the social norms and impact of comorbidities in relation to smoking and cessation attempts should be examined. Practitioners should use the clinical encounters as opportunities to promote cessation, particularly among smokers with comorbid conditions. Finally, the high smoking prevalence among Georgian men indicates the importance of addressing nicotine dependence and smoking-related morbidity and mortality in this context.

Limitations

Study limitations include the potential lack of generalizability of this data to specific regions within Georgia, to other parts of the former Soviet Union, or more broadly. Relatedly, given that only 2002 Georgia Census data is available for weighting the 2010 STEPS

data, it is difficult to estimate what the actual overall tobacco use prevalence was. Rather than weighting the data in relation to this 2002 Census data, we chose to report the prevalence within the sample stratified by men and women, which more accurately reflects the actual prevalence across the sexes.

Another limitation is the cross-sectional nature of this secondary data analysis, limiting our ability to determine the directionality of the relationships documented and the number of correlates examined. Finally, because recent quit attempts were only assessed among current smokers, our data do not reflect quit attempts that were successful. Despite these limitations, these findings are important given the dearth of published research on correlates of smoking and recent quit attempts among Georgian adults.

CONCLUSIONS

Smoking prevalence is quite high among Georgian men, and a minority of current smokers have attempted to quit smoking in the past year. Moreover, very few smokers have used any type of cessation resources to aid in their attempts. Finally, having a medical comorbidity was not associated with having made a quit attempt, which is concerning as these individuals are particularly vulnerable to the health implications of smoking. Policies and practices must be put into place in order to promote cessation, particularly among those with medical comorbidities impacted by tobacco use.

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