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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии
საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

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GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman (Кириллица)**, для текста на грузинском языке следует использовать **AcadNusx**. Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - <http://www.spinesurgery.ru/files/publish.pdf> и http://www.nlm.nih.gov/bsd/uniform_requirements.html В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректур авторам не высылаются, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or computer-printed on a single side of standard typing paper, with the left margin of 3 centimeters width, and 1.5 spacing between the lines, typeface - **Times New Roman (Cyrillic)**, print size - 12 (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf

In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

**Articles that Fail to Meet the Aforementioned
Requirements are not Assigned to be Reviewed.**

ავტორთა საქურაღებოლ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დაიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx**. შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შედეგების ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფხიხლებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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ATTITUDES AND BEHAVIORS RELATED TO REDUCING SECONDHAND SMOKE EXPOSURE AMONG MEDICAL UNIVERSITY STUDENTS IN THE COUNTRY OF GEORGIA

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Abstract.

Introduction: Public smoke-free policy support can contribute to effective policy adoption, implementation, and impact. Furthermore, individuals may engage in behaviors to reduce secondhand smoke exposure (SHSe). This study examined factors associated with smoke-free policy support and behaviors to reduce SHSe.

Methods: We analyzed cross-sectional survey data among 261 students ($M_{age}=22.26$, $SD=2.76$; 55.6% female) at a large medical university in Tbilisi, Georgia. Multivariable regression analyses assessed sociodemographics, tobacco use, past-week SHSe, perceived risk of SHSe, and perceived smoke-free policy effectiveness in relation to smoke-free policy support; SHSe avoidance; and having asked others to put out cigarettes.

Results: Overall, 38.3% reported current smoking, 62.8% lived with someone who used tobacco, and the average number of days of SHSe was 4.07 ($SD=2.17$). Most common SHSe sources were open (58.2%) and closed public places (24.1%). The majority supported the smoking ban in closed (94.6%) and open public places (59.8%); 71.6% believed it should include other places. Average ratings were relatively high for perceived risk ($M=3.38$, 1=no–4=serious) but lower for perceived smoke-free policy effectiveness ($M=2.51$, 1=not–4=quite) and avoidance of SHSe ($M=3.32$, 1=never–5=always); 58.6% had asked someone to put out cigarettes. Greater smoke-free policy support, avoidance of SHSe, and having asked someone to put out cigarettes (respectively) were associated with nonsmoking status and greater perceived SHSe risk ($p's<.01$).

Conclusions: Despite general support for smoke-free policy and engagement in SHSe reduction behaviors in Georgia, additional efforts to reduce SHSe are needed (e.g., media campaigns to raise SHSe risk awareness, engaging nonsmoking adults in enforcement).

Key words. Attitude, behavior, smoke.

Introduction.

Low- and middle-income countries (LMICs) are disproportionately affected by tobacco-related diseases and deaths including those attributed to second-hand smoke exposure (SHSe) [1]. The World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC) requires implementing comprehensive smoke-free policies in countries that ratify the FCTC [2]. Smoke-free policies are effective in protecting nonsmokers from SHSe, reducing SHSe in restaurants, workplaces, and other public settings (mitigating harmful health effects), reducing opportunities to smoke, shifting social norms, and preventing youth from initiating tobacco use [2]. Unfortunately, ~80% of the world's population is not properly protected by these policies [1].

Smoke-free policies are especially important in LMICs [3]. For example, in Georgia, the male smoking prevalence is among the highest in the world (49.5%), while the female smoking prevalence is much lower (8.5%), contributing to high SHSe rates [4]. However, Georgia ratified the FCTC in 2006, and in 2017-2018, Georgia implemented progressive tobacco control laws, including comprehensive smoke-free bans in a wide range of indoor and outdoor public places, which likewise applied to all types of tobacco products. Thus, now is a pivotal time to catalyze the impact of these laws.

Public support and favorable attitudes toward smoke-free policies can contribute to effective policy adoption, implementation, and impact [5]. Despite general public support for smoke-free policies in LMICs, some studies show low levels of compliance with smoke-free policies [3]. Such compliance issues may be related to several factors, such as low perceived health risks of smoking [6] and social norms conducive to smoking [7-9]. Social norms may drive the extent to which smoking in certain places or around certain people is deemed more or less acceptable among both smokers and nonsmokers, and thus may influence how salient such behaviors are across contexts [7-9].

Additionally, little research has examined how smokers and nonsmokers interact regarding measures to reduce SHSe. Nonsmokers can be assertive about asking smokers to distance themselves or to stop smoking altogether, providing social enforcement for these policies [6,10,11]. With smoking so pervasive in Georgia and with striking sex differences in tobacco use, it is particularly important to understand how comfortable ordinary citizens feel engaging in social interactions that could influence SHSe and/or compliance with smoke-free policies.

The current study was informed by Social Cognitive Theory (SCT), [12] which posits that health-related behaviors (including efforts to alter SHSe) are impacted by a broad range of social, cognitive, and behavioral factors, for example, prior experiences with smoke-free policies and perceived risk of SHSe. Leveraging this perspective, we analyzed data among students at a large public university in Tbilisi, Georgia and examined sociodemographics, personal and household tobacco use, SHSe, perceived risks of SHSe, and perceived effectiveness of smoke-free policies in relation to 1) smoke-free policy support; 2) personal avoidance of SHSe; and 3) ever having asked others to put out cigarettes.

Materials and Methods.

Study Design and Participants:

This study analyzed cross-sectional survey data collected in April-May 2023 among students at Tbilisi State Medical University in Tbilisi, Georgia – a public university and the

largest medical university in Georgia (~9,400 students; ~6,000 Georgian students). Inclusion criteria for participants were being: (1) ≥ 18 years old; and (2) able to read Georgian. The university registrar's office randomly selected 1,500 students to be contacted to participate in the survey; 261 students fully completed the survey (participation rate: 17.4%).

Measures:

The survey was administered in Georgian, took about ~5-10 minutes to complete, and assessed the following factors.

Independent variables:

Sociodemographic characteristics. We assessed age and sex.

Tobacco use and second-hand smoke exposure. We assessed current smoking status (i.e., "Do you currently smoke?") and other household members who use tobacco ("Does anyone in your household consume tobacco products?") [13]. We also assessed SHSe ("In the last seven days, how many days have you been exposed to second-hand smoking?") and primary sources of exposure ("Where are you most exposed to secondhand smoke? home, closed public places, open public places, other") [13].

Perceived risk of SHSe and effectiveness of smoke-free policies. We asked, "How much risk does passive smoking put on a person's health?" (1=no risk to 4=serious risk) and "How effective are existing tobacco policies and regulations to reduce secondary smoke exposure in Georgia?" (1=not to 4=quite) [13].

Dependent variables.

Smoke-free policy support, SHSe avoidance, and asking others to extinguish cigarettes. We assessed smoke-free policy support by asking, "Do you: 1) support the ban on smoking in closed public places? 2) support ban on smoking in open public places? 3) believe ban should include other public places?" (yes/no) [13]. We created a policy support index score representing the number of "yes" responses (range: 0-3). We also asked, "Do you try to avoid exposure to secondary smoke?" (1=never to 5=always) and "Have you ever asked someone to put out cigarettes to avoid exposure to secondary smoke?" (yes/no) [13].

Data Analysis.

Descriptive and bivariate analyses were used to characterize participants overall and in relation to key outcomes, specifically smoke-free policy support, SHSe avoidance, and asking others to extinguish cigarettes. Next, multivariable regression was used to examine sociodemographics and tobacco use characteristics in relation to smoke-free policy support (linear regression), SHSe avoidance (linear regression), and asking others to extinguish cigarettes (logistic regression). Data were analyzed using SPSS v26.

Results.

In this sample (N=261), participants were an average of 22.26 (SD=2.76) years old and 55.6% female (Table 1). Overall, 38.3% reported current smoking, 62.8% lived with someone who used tobacco, and the average number of days of SHSe was 4.07 (SD=2.17) in the past 7 days. The places participants reported most often experiencing SHSe were open

public places (58.2%), closed public places (24.1%), at home (13.8%), and other (3.8%). Average ratings were relatively high for perceived risk (M=3.38, SD=0.72, 1=no to 4=serious risk) but lower for perceived effectiveness of smoke-free policy (M=2.51, SD=0.81, 1=not to 4=quite). The majority supported the ban on smoking in closed (94.6%) and open public places (59.8%); 71.6% believed the ban should include other public places. Additionally, average reports of avoidance of SHSe were relatively high (M=3.32, SD=1.38); 58.6% had ever asked someone to put out cigarettes.

Results of bivariate analyses are shown in Table 1. In multivariable regression analyses (Table 2), greater smoke-free policy support was associated with nonsmoking status and greater perceived risk of SHSe (p 's<.001). Avoidance of SHSe was associated with nonsmoking status, greater perceived risk of SHSe, and greater smoke-free policy support (p 's<.001). Ever having asked someone to put out a cigarette was associated with nonsmoking status (p =.008), greater perceived risk of SHSe (p <.001), and greater smoke-free policy support (p =.008).

Discussion.

The literature suggests that, once implemented, comprehensive smoke-free policies eventually become socially acceptable, public support increases [14,15], compliance among smokers increases [14,15], and nonsmokers become more assertive in advocating for reduced SHSe [6]. Thus, Georgia is in a pivotal time to enhance the potential of its smoke-free policy in reducing SHSe. Current findings indicate that individuals in Georgia are generally supportive of the current smoke-free policy and its expansion to additional public places. Specifically, almost all supported the ban on smoking in closed public places, and over 70% believed the ban should include other public places. However, fewer (~60%) supported the bans applied to open public places, and the perceived effectiveness of the smoke-free policy was modest. Additionally, participants advocated for their personal reduction to SHSe, with nearly 60% reporting they had previously asked someone to put out cigarettes to reduce SHSe.

Factors associated with greater smoke-free policy support, SHSe avoidance, and asking others to put out cigarettes included greater perceived risk of SHSe and nonsmoking status. These findings underscore the need to increase individuals' awareness of the risks of SHSe, as well as to engage nonsmokers in policy advocacy and efforts to enhance compliance. Prior research suggests that women, who largely represent the nonsmoking community in Georgia, may be particularly crucial in leading social enforcement of smoke-free air policies because of disparities in smoking prevalence and SHSe, as well as women's role in protecting children [8,16]. Furthermore, greater exposure to anti-tobacco messaging and community-based action predicts greater support for smoke-free policies [17]. Thus, intervention efforts to encourage pro-policy interactions could model peer-to-peer social enforcement via mini dialogues on the radio or public service announcement campaigns. In addition, more visible, active government enforcement would promote greater confidence among individuals to advocate for SHSe and policy compliance [16].

Table 1. Participant characteristics and bivariate analyses assessing factors associated with smoke-free policy support, SHSe avoidance, and asking others to put out cigarettes.

Variables	Total N=261	Smoke-free policy support		Avoidance of SHSe *		Asked someone to put out cigarettes		
		M (SD) or N (%) *	r or M (SD) *	P	r or M (SD) *	P	No	Yes
Sociodemographics								
Age, M (SD) or r	22.26 (2.76)	0.02		0.09	.167	22.12 (2.85)	22.35 (2.69)	.503
Sex, N (%) or M (SD)			.115		.002			.011
Male	116 (44.4)	2.16 (0.92)		3.02 (1.46)		58 (53.7%)	58 (37.9%)	
Female	145 (55.6)	2.34 (0.85)		3.56 (1.26)		50 (46.3%)	95 (62.1%)	
Tobacco use and SHSe related characteristics								
Current smoking status, N (%) or M (SD)			<.001		<.001			<.001
No	161 (61.7)	2.59 (0.69)		3.89 (1.15)		43 (39.8%)	118 (77.1%)	
Yes	100 (38.3)	1.73 (0.91)		2.39 (1.20)		65 (60.2%)	35 (22.9%)	
Other household member who uses tobacco, N (%) or M (SD)			<.001		<.001			<.001
No	97 (37.2)	2.51 (0.71)		3.82 (1.17)		25 (23.1%)	72 (47.1%)	
Yes	164 (62.8)	2.12 (0.95)		3.02 (1.40)		83 (76.9%)	81 (52.9%)	
Number of days of SHSe, past 7 days, M (SD) or r	4.07 (2.17)	-0.24	<.001	-0.37	<.001	5.80 (2.40)	4.67 (2.37)	<.001
Perceptions of SHSe and related policies, M (SD) or r								
Perceived risk of SHSe §	3.38 (0.72)	0.33	<.001	0.46	<.001	3.07 (0.77)	3.59 (0.59)	<.001
Perceived effectiveness of smoke-free policy ^	2.51 (0.81)	-0.02	.737	-0.08	.190	2.62 (0.79)	2.44 (0.82)	.074
Policy support score items, N (%) or M (SD)								
Support ban on smoking in closed public places ^F					.013			.095
No	14 (5.4)	--	--	2.43 (1.16)		9 (8.3%)	5 (3.3%)	
Yes	247 (94.6)	--	--	3.37 (1.37)		99 (91.7%)	148 (96.7%)	
Support ban on smoking in open public places					<.001			<.001
No	105 (40.2)	--	--	2.77 (1.31)		59 (54.6%)	46 (30.1%)	
Yes	156 (59.8)	--	--	3.69 (1.30)		49 (45.4%)	107 (69.9%)	
Believe ban should include other public places					<.001			<.001
No	74 (28.4)	--	--	2.20 (1.18)		49 (45.4%)	107 (69.9%)	
Yes	187 (71.6)	--	--	3.76 (1.19)		53 (49.1%)	134 (87.6%)	
Policy support index score (0-3), M (SD) or r	2.26 (0.89)	--	--	0.48	<.001	1.86 (0.93)	2.54 (0.73)	<.001
I try to avoid exposure to secondary smoke, M (SD) or r *	3.32 (1.38)	0.48	<.001	--	--	2.33 (1.17)	4.01 (1.05)	<.001
Ever asked someone to put out cigarettes, N (%) or M (SD)			<.001		<.001	--	--	--
No	108 (41.4)	1.86 (0.93)		2.33 (1.17)		--	--	--
Yes	153 (58.6)	2.54 (0.73)		4.01 (1.05)		--	--	--

Notes: * Categorical variables, N (%) or M (SD) as indicated. * 1=never to 5=always. § 1=no to 4=serious. ^ 1=not to 4=quite. ^F Fisher's exact test for cell sizes ≤5.

Table 2. Multivariable regression models examining factors associated with smoke-free policy support, avoidance of SHSe, and ever asking someone to put out their cigarette (N=261).

	Smoke-free policy support			Avoidance of SHSe *			Ever asked someone to put out cigarettes		
	B	95% CI	p	B	95% CI	p	aOR	95% CI	p
Sociodemographics									
Age	0.02	-0.02, 0.05	.392	0.05	0.00, 0.09	.056	1.05	0.95, 1.17	.348
Female (ref: male)	-0.08	-0.28, 0.12	.444	0.02	-0.26, 0.29	.904	1.22	0.66, 2.23	.529
Tobacco use and SHSe related characteristics									
Current smoking status (ref: no)	-0.81	-1.05, -0.57	<.001	-0.89	-1.25, -0.54	<.001	0.35	0.16, 0.76	.008
Other tobacco user in the home (ref: no)	-0.04	-0.25, 0.17	.699	-0.16	-0.44, 0.13	.272	0.60	0.31, 1.14	.117
Number of days of SHSe, past 7 days	0.01	-0.04, 0.06	.592	-0.05	-0.11, 0.02	.166	1.00	0.87, 1.16	.962
Perceptions of SHSe and related policies									
Perceived risk of SHSe §	0.30	0.17, 0.44	<.001	0.56	0.36, 0.75	<.001	2.19	1.42, 3.37	<.001
Perceived effectiveness of smoke-free policy ^	-0.02	-0.13, 0.10	.777	-0.11	-0.26, 0.05	.181	0.72	0.50, 1.03	.073
Smoke-free policy support index score	--	--	--	0.31	0.14, 0.48	<.001	1.63	1.14, 2.35	.008

Notes: Adjusted R-square=.265, Adjusted R-square=.439, Nagelkerke R-square=.340, respectively. * 1=never to 5=always. § 1=no risk to 4=serious risk. ^ 1=not to 4=quite.

Limitations.

The study results might not be generalizable to the adult population of Georgia as the study participants were drawn from a large public medical university and given the low response rate. Additionally, the small sample size and the use of self-reported measures, and cross-sectional nature of the study have implications for study findings (e.g., modest power, potential bias, unable to investigate causal relationships). Finally, not all potentially relevant factors were assessed.

Conclusion.

This sample of Georgian adults were generally supportive of public smoke-free policy, and the majority actively engaged in behaviors to reduce SHSe. However, findings underscore the need for additional efforts to reduce SHSe. Thus, such efforts might catalyze the impact of smoke-free policies might involve media campaigns and other public health strategies to increase awareness of the risks of SHSe and engage nonsmokers to promote policy support and compliance.

Declarations.

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Competing interests.

The authors report no conflicting interests.

Authors' contributions.

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L. Gumbaridze: Conceptualization, Supervision, Investigation, Methodology, Writing - Review & Editing.

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L. Sturua: Conceptualization, Funding acquisition, Writing - Review & Editing

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Ethics approval.

This study was approved by the Tbilisi State Medical University Institutional **Review Board**.

Consent to participate. All participants provided informed consent.

Consent to publish. N/A.

Availability of data and materials.

The datasets used and/or analyzed in the current study are available from the corresponding author on reasonable request.

REFERENCES

1. World Health Organization. Tobacco Fact Sheet. World Health Organization. <https://www.who.int/news-room/fact-sheets/detail/tobacco>
2. World Health Organization. Framework Convention on Tobacco Control: <https://fctc.who.int/who-fctc/overview>. 2022.
3. Byron MJ, Cohen JE, Frattaroli S, et al. Implementing smoke-free policies in low- and middle-income countries: A brief review and research agenda. *Tob Induc Dis*. 2019;17:60.
4. Kakutia N. Tobacco use prevalence among the adult population in Georgia, 2020. National Center for Disease

- Control and Public Health: <https://www.ncdc.ge/#/pages/file/fa339295-6e09-4139-9d89-2ed16a91fe82>. 2020.
5. Dearing J, Rogers E. *Agenda-setting* Thousand Oaks. CA: Sage Publications D'Haenens, L y de Lange, M (2001) Framing of asylum seekers in Dutch regional newspapers *Media, Culture and Society*. 1996;23:847-860.
 6. Lazuras L, Zlatev M, Rodafinos A, et al. Smokers' compliance with smoke-free policies, and non-smokers' assertiveness for smoke-free air in the workplace: a study from the Balkans. *Int J Public Health*. 2012;57:769-75.
 7. Berg CJ, Smith SA, Bascombe TM, et al. Smoke-Free Public Policies and Voluntary Policies in Personal Settings in Tbilisi, Georgia: A Qualitative Study. *Int J Environ Res Public Health*. 2016;13:156.
 8. Harutyunyan A, Hayrumyan V, Sargsyan Z, et al. Smokers' and nonsmokers' experiences with and interactions to reduce secondhand smoke exposure in Armenia and Georgia. *Tobacco Prevention and Cessation*. 2021;7.
 9. Hayrumyan V, Harutyunyan A, Torosyan A, et al. 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. *BMJ Open*. 2022;12:e055396.
 10. Poland BD, Cohen JE, Ashley MJ, et al. Heterogeneity among smokers and non-smokers in attitudes and behaviour regarding smoking and smoking restrictions. *Tobacco Control*. 2000;9:364-371.
 11. Poland BD, Stockton L, Ashley MJ, et al. Interactions between smokers and non-smokers in public places: a qualitative study. *Can J Public Health*. 1999;90:330-3.
 12. Bandura A. Health promotion by social cognitive means. *Health education & behavior : the official publication of the Society for Public Health Education*. 2004;31:143-64.
 13. Global Adult Tobacco Survey Collaborative Group. *Global Adult Tobacco Survey (GATS): Sample Design Manual*. Atlanta, GA: Centers for Disease Control and Prevention. 2020.
 14. Li Q, Hyland A, O'Connor R, et al. Support for smoke-free policies among smokers and non-smokers in six cities in China: ITC China Survey. *Tobacco Control*. 2010;19:i40-i46.
 15. Fong GT, Hyland A, Borland R, et al. Reductions in tobacco smoke pollution and increases in support for smoke-free public places following the implementation of comprehensive smoke-free workplace legislation in the Republic of Ireland: findings from the ITC Ireland/UK Survey. *Tob Control*. 2006;15:iii51-8.
 16. Kaufman MR, Merritt AP, Rimbatmaja R, et al. 'Excuse me, sir. Please don't smoke here'. A qualitative study of social enforcement of smoke-free policies in Indonesia. *Health Policy Plan*. 2015;30:995-1002.
 17. LoParco CR, Sargsyan Z, Topuridze M, et al. Associations Between Pro/Anti-Tobacco Media and Messaging Exposure and Knowledge and Support of Smoke-Free Policy Among Adults in Armenia and Georgia. *Journal of Public Health Management and Practice*. 2024;30:501-511.