

Trends in tobacco smoking and smoking cessation in Russia with a focus on Indigenous populations: A narrative review



Alexander Merkin ^{a,*}, Artem Nikolaev ^b, Igor Nikoiforov ^a, Alexander Komarov ^c, Marewa Glover ^d

^a Academy for Postgraduate Education, Moscow, Russia

^b Medical Company "Lab of the Future", Moscow, Russia

^c National Centre for Development of Social Support and Rehabilitation, Moscow, Russia

^d Centre of Research Excellence: Indigenous Sovereignty & Smoking, Auckland, New Zealand

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ABSTRACT

Introduction: Tobacco smoking is one of the main preventable causes of illness and premature death. Globally, more than 7 million people die annually from diseases associated with smoking, and this number is projected to increase to 8 million per year by 2030. Wide disparities in smoking prevalence exist by gender, age, socioeconomic status, rurality and ethnicity. In several countries, smoking is disproportionately high among the Indigenous populations.

Objective: This review assesses the prevalence and harm of smoking and current trends in smoking cessation among the diverse multi-ethnic populations of Russia, with a particular emphasis on Indigenous populations.

Data sources: We systematically searched health, nursing, social science and grey literature databases and bibliographies for relevant studies. Search strings combined keywords related to smoking prevalence and smoking cessation with keywords related to Russia and the Indigenous populations of Russia.

Study selection: Studies were included if they were published between 1 January 2005 and 14 October 2020, and if they reported prevalence of tobacco smoking and/or activities and outcomes of a smoking cessation programme or ban in the Russian Federation.

Conclusions: Tobacco smoking is significant in the entire Russian population, a higher prevalence of smoking in Indigenous populations compared to the dominant Russian (Slavic) ethnic group is common. Smoking prevalence data for most of the Indigenous ethnic groups of Russia remains unclear. Tobacco control interventions for Indigenous groups are underdeveloped even though they have the potential to deliver proportionately greater reduction in smoking harm.

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* Corresponding author.

E-mail address: narkolog.ipk@mail.ru (A. Merkin).

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Introduction

Smoking tobacco is one of the main preventable causes of illness and premature mortality from non-communicable diseases (NCDs) [1] and it is the second largest contributor to global disability-adjusted life-years (DALYs) after high systolic blood pressure [2]. Smoking is associated with a number of diseases including mental health conditions and kills more than 7 million people annually, and this number is expected to reach 8 million by 2030 [1,3]. The global economic costs of smoking-attributable diseases are US\$1911 billion per year, which is more than four times higher than the global tobacco tax receipts (US \$473 billion per year) [4]. In countries with the highest consumption of cigarettes – especially the USA, Russia and Germany – the disproportion is even higher [4]. In Russia, premature deaths associated with tobacco use is estimated to be 400,000 people annually [5]. Smoking is the second leading risk factor to death from cardio-vascular diseases among males in Russia [6] and respiratory diseases rank first in the overall incidence among Indigenous people in Russia across all age groups [7].

Wide disparities in smoking prevalence exist by age, sex, socioeconomic status, rurality and ethnicity across the world and within nations. Smoking prevalence is disproportionately high among Indigenous peoples compared to the dominant ethnic group in nations such as the USA and Canada, [8] Australia, New Zealand [9,10], and Greenland [11]. In contrast, smoking prevalence disparities between the national populations of Norway, Sweden and Finland and the resident Saami populations reportedly do not exist [12]. In Taiwan, socioeconomic and demographic factors, rather than ethnicity, account for disparities in smoking status between Indigenous and non-Indigenous Taiwanese [13].

Smoking is common in Russia, especially in rural areas and in all circumpolar populations, which is where most Indigenous peoples reside [14]. Indigenous populations of Russia are located mostly in the Far North and Far East regions. Forty seven distinct ethnic groups, comprising about 260,000 persons, have been officially recognised as Indigenous populations, and there are more than 160 distinct ethnic groups living across the territories of contemporary Russia [15,16]. Ethnic Russians account for 80% of the total population and the Tatars, a Turkic ethnic group native to the Volga-Ural region, are the second-largest ethnic group [15].

Russia is among the countries, which are implementing the World Health Organization (WHO) Framework Convention of Tobacco Control (FCTC). The FCTC encourages countries to take measures to promote the participation of Indigenous people in the development, implementation and evaluation of tobacco control programmes to ensure such programmes are socially and culturally appropriate to their needs and perspectives [17]. A number of signatories to the FCTC have trialled smoking cessation interventions aimed at reducing smoking among Indigenous people, such as Australia, Canada, New Zealand, the USA [18–24]. Little is known about anti-smoking policies and interventions for Indigenous people in Russia. Furthermore, there is a paucity of research available to evaluate the effectiveness of smoking cessation interventions directed at Indigenous people in Russia. This scarcity of publications relates to the state's national policy towards ethnic minorities.

At an international level, the rights of Indigenous people have been receiving increased attention thanks in part to the United Nations Declaration on the Rights of Indigenous People [25]. One of the main tasks of the state's national policy is to promote the development of communities and other forms of self-governance of the Indigenous people in the Russian Federation. The Russian Constitution and national legislation recognises the rights of Indigenous people, named as “indigenous minority peoples of the North” [15]. Despite this, there has been recognition by some public figures and political organisations, including the Russian Parliament, that the needs of Indigenous people have been not fully attended to [26,27]. There are numerous regional, local and interregional Indigenous organisations, and the Act – from 2000 Nr.104-FZ “On the general principles of the organization of communities of Indigenous peoples of the North, Siberia and the Far East of the Russian Federation” – provides local Indigenous bodies a multitude of opportunities for self-management. Notwithstanding, they act under tight state control and, at the same time, the state institutions often underestimate problems related to the protection of the rights and interests of the Indigenous populations of the Russian North through their own associations [28], which may contribute to the lack of smoking cessation programmes designed by the Indigenous people.

The aim of this research was to assess the prevalence of smoking, incidence of smoking-related illness and trends in smoking cessation across the diverse multi-ethnic population of the Russian Federation, with a focus on Indigenous groups.

Materials and methods

Search strategy

We identified primary studies in any language by searching medical, nursing, social science and grey literature databases for research published between 1 January 2005 and 14 October 2020. We did not limit our searches by study design and we also examined bibliographies and conference proceedings, as was done in a narrative review of smoking in pregnancy among Indigenous women in high income countries [8].

Data extraction and quality assessment

We systematically searched international databases, accessed through ScienceDirect, PubMed, Google Scholar and EBSCO, as well as 17 Russian databases, including the metasearch engine eLIBRARY.ru [29], Scholar.ru, единый каталог Российской государственной библиотеки (the Joint Electronic Catalogue of the Russian State Library), Российская национальная библиотека (the Russian National Library), библиотека Российской академии наук (the Library of the Russian Academy of Sciences), библиотека по естественным наукам (the Library of Environmental Sciences) and others.

Search strings pertained to smoking prevalence, population and intervention, and did not place any restriction on study design or outcome. The search string used was: (smoking prevalence) OR (smoking-attributable disease) OR (smoking-attributable mortality) OR (smoking disability-adjusted life-years DALYs) OR (smoking

cessation) OR (smoking intervention) OR (smoking ban) OR (antismoking) OR (smoking-related diseases) OR (smoking co-morbidity) OR (smoking harmful effects) OR (tobacco control) OR (tobacco use government policy) OR (smoking Indigenous population) OR (smoking ethnic group) AND (Russia) OR (Russian Federation). The search string used in Russian language was: (курение) OR (табакокурение) OR (распространённость курения) OR (курение смертность) OR (заболевания, связанные с курением) OR (курение сопутствующие заболевания) OR (курение инвалидность) OR (последствия курения) OR (прекращение курения) OR (мероприятия по прекращению курения) OR (контроль за употреблением табака) OR (табака) OR (курение коренные народы) OR (курение этническая группа) AND (Россия) OR (Российская Федерация). The search was limited to title and abstract and included journal articles, conference papers, dissertations and grey literature such as reports and government documents. We also used the backward snowballing technique by searching the reference lists of included articles for identifying new articles.

Titles and abstracts were extracted, and the quality and methodological rigour of each study were assessed against Standard Operating Procedures (SOPs) and Good Clinical Practice (GCP) (where applicable) independently by two reviewers. Any discrepancies were resolved through discussion and, where necessary, the involvement of a third reviewer.

Inclusion and exclusion criteria

We included studies of any design that assessed prevalence of smoking in different ethnic populations in Russia, or that evaluated health outcomes of smoking and associated accompanying disorders in Russia, or examined population-level tobacco control interventions in smokers for individuals or groups with different demographic or socioeconomic characteristics, especially among Indigenous populations. We excluded studies that reported prevalence and interventions conducted exclusively within closed settings (for example in military facilities, addiction centres, professional societies and religious groups) because this review was interested in smoking cessation in the wider population.

Results

Search results

An initial search located 7261 references through all databases. Of these 7261, we identified 1740 potentially eligible papers and finally included 45 publications for review. The publication retrieval process is detailed in Figs. 1 and 2. These 45 studies were conducted by researchers from Australia, Russia, Switzerland, the UK and the USA, but the focus was Russia. All Russian databases had significant limitations in number of keywords in search strings in search queries as well as availability of full-text articles due to the nature of the search engines. Therefore, the search using the Russian metasearch engines was conducted several times applying different keywords.

Our review of smoking prevalence and cessation in Russia covers two substantive areas: (i) 27 studies reported prevalence of smoking and smoking-attributable diseases in Russia overall and 12 of these papers discussed smoking prevalence in Indigenous populations; (ii) 19 studies evaluated a smoking cessation programme or an element of the programme and none of these studies assessed a smoking cessation programme in Indigenous populations. The studies reported outcomes by race or ethnicity, age, sex, place of residence, educational level or income. Studies that reported a smoking cessation programme were mostly devoted to the effects of restrictions on smoking in workplaces, public places, schools, effects of rising taxes on tobacco products and restrictions on sales to minors. Table 1 presents a summary of the main studies that have researched smoking prevalence in Indigenous populations in Russia.

Prevalence of smoking among diverse populations in Russia

During 30 years (from the mid-70s to the mid-2000s) smoking prevalence in males was fairly stable, hovering around 60% [30]. In females smoking prevalence varied by age – at younger ages smoking prevalence had been increasing until the mid-2000s and declined later, while in females above the age of 55 the prevalence raised two folded from very low levels (less than 5%) [30]. In 2010 the Russian

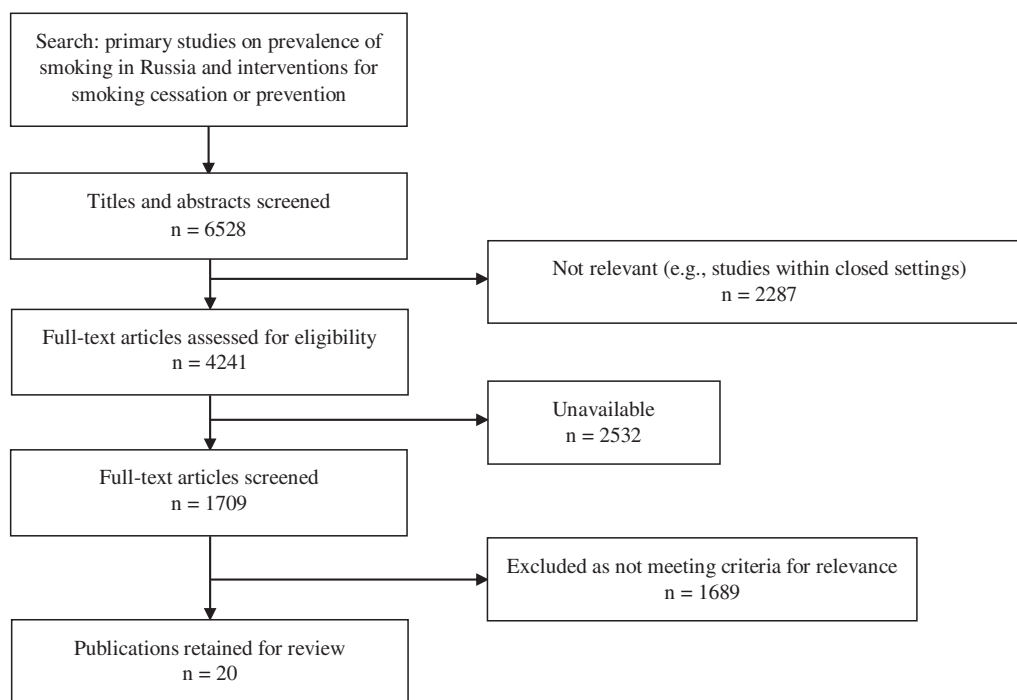


Fig. 1. Process of study selection in the Russian search engines.

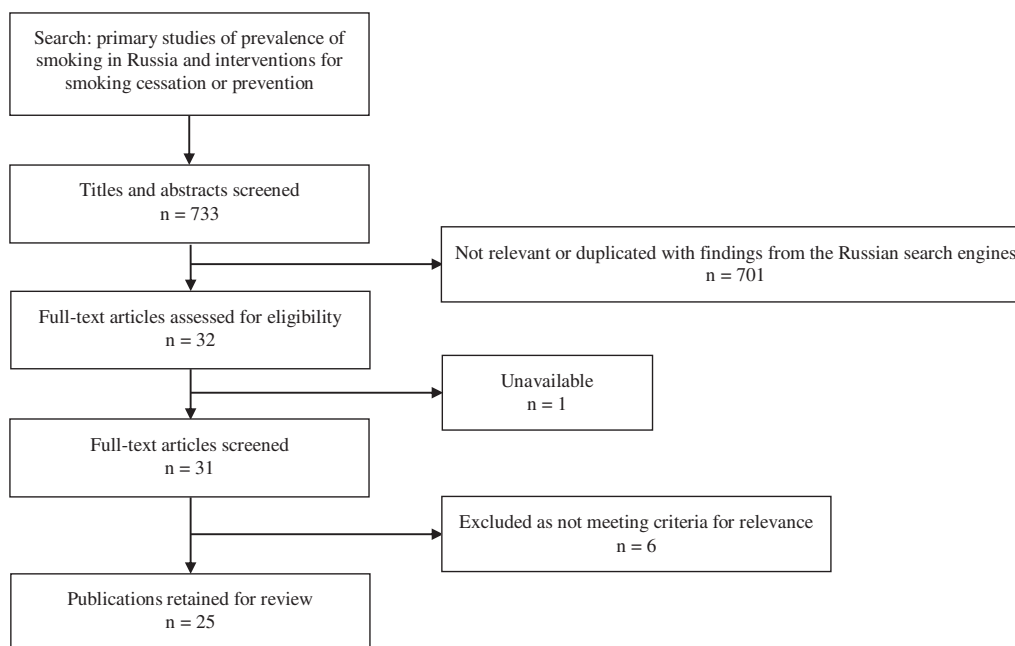


Fig. 2. Process of study selection in the International search engines.

government introduced the National Strategy on Creation of a Public Policy to Combat Tobacco Consumption from 2010 to 2015 [31], followed by the Federal Law of the Russian Federation “On Protecting the Health of Citizens from the Effects of Second-hand Tobacco Smoke and the Consequences of Tobacco Consumption” (Federal Law No.15-FZ) imposed in 2013 [32]. As a result, prevalence of tobacco use decreased among adults from 39.4% in 2009 to 30.9% in 2016 (from 60.7% to 50.9% for males and from 21.7% to 14.3% for females), which represents a 21.5% relative decline of tobacco use prevalence (16% decline for males; 34% decline for females) [33]. Russian Public Opinion Research Center survey data from 2014 found that 35% of the Russian population were smokers and 20% of them reported smoking one or more packs of cigarettes per day. The smoking prevalence in

Russia fell due to an increasing number of non-smokers, from 58% in 2013 to 65% in 2014 [34].

However, there is a significant rate of non-compliance with the policies relating to smoke-free environments (Federal Law No. 15-FZ), comprising a non-compliance rate of more than 27% [35]. Additionally, the Global Burden of Disease Study reports that Russia is one of the top five countries in the absolute number of smokers and mortality rate from diseases associated with smoking. In 2015, 12% (6.4 million) of deaths worldwide were attributed to smoking, of which more than half occurred in four countries – China, India, the USA and Russia [36]. In 2016, about 22% of the 9.4 million adult deaths in the WHO European Region were due to substance abuse, with a majority (61%) of these deaths being attributable to tobacco [37]. According to the

Table 1
Main studies including smoking prevalence in Indigenous populations of Russia.

Population & Region	Year	N	Smoking prevalence, %		Age uptake	Limitation or Bias	Reference no.
			Males	Females			
Nenets (Yamal)	No data	500	34.4		Mean 40.1 years	No data on the age distribution; no data on smoking distribution by sex	[48]
Saami (Kola, Murmansk District)	2005	No data	63	30	15–18 years	No data on the sample size	[14,49]
Nenets (Nenets Autonomous Area)	2010–2011	226	74	30	Mean 42 years	Gender skew 12% of males	[50]
Nenets, Khanty, Muncie (Khanty- Muncie Autonomous Area)	2000–2005	60	30.6		23–79 years	Gender skew 70% of females; No data on smoking distribution by sex	[51]
Nenets (Yamal-Nenets Autonomous Area)	After 2008	134	23.9		18–60	No data on smoking distribution by sex	[52]
Nenets, Khanty, Komi (Yamalo-Nenets Autonomous Area)	2011	106	No data	39.6	18–25	No data on prevalence of smoking in males; no information on randomisation process	[53]
Shor (Kemerovo Region)	1998–2002; 2012–2015	631 434	46.1	27.7	≥18		[54]
Yakut (Republic of Sakha (Yakutia))	2004–2013		45.7	55	60–99		[56]
Evenk (Republic of Sakha (Yakutia))	2015	355	52	23.7	30–56.5		[57]
Evenks, Evens and Yukagirs (Republic of Sakha (Yakutia))	2009–2012	478 families	70.6–75.2	40.6–44.8	No data	No data on distribution by sex	[58]
Nenets, Khanty, Muncie, Selkups (Yamalo-Nenets Autonomous Area)	1990–2003	750	57–92.7		20–59	No information about selection of participants in the study	[47]

report of the project “Sober Russia” (“Трезвая Россия”), in 2018, Russia took first place in the number of smoked cigarettes per day per person [38]. The report comprised only results and did not contain information on the study's methods.

The ESSE-RF study included 18,305 participants from 11 regions – Volgograd, Vologda, Voronezh, Ivanovo, Kemerovo, Orenburg, Samara, Tomsk, Tyumen, St. Petersburg and the Republic of North Ossetia-Alania. The study found that the average prevalence of smoking was 25.7%, including 43.5% among men and 14.2% among women [39]. In the city of Samara, a large metropolitan area in the Volga region, of the 2931 participants (1272 males and 1659 females) 49.4% of men and 14.2% of women smoked. For both men and women, the highest prevalence of smoking occurred in lower educated groups (i.e., incomplete secondary education, secondary education, secondary special education), in comparison to people with higher education [40].

A study conducted in 2006–2011, using the population-based Murmansk County Birth Registry (MCBR) of pregnant women, investigated changes in their smoking behaviour during pregnancy. Among women who smoked, about one-quarter of them quit smoking after becoming aware of their pregnancy and another one-third of them reduced the number cigarettes smoked during pregnancy. The study revealed that women who had a higher education, were married or were primiparous were more likely to quit smoking during pregnancy [41].

Based on a population study in the Kaliningrad region ($n = 1085$), smoking prevalence in adolescents fell by 37% (males) and 62% (females) between 2013 and 2016–2017 [42].

Prevalence of smoking among Indigenous populations in Russia

As of 2015, there were 47 recognised Indigenous groups in the Russian Federation totalling 260,000 people [16,43]. There has been a steady downward trend in population numbers, with depopulation differentially affecting different Indigenous groups. Drug addiction, higher rates of smoking, suboptimal levels of physical activity and limited access to healthy foods have been identified as likely determinants of poorer health and earlier mortality among Indigenous groups.

In general, being healthy is a highly valued priority among Russian people. However, different ethnic groups have different attitudes to health. For example, a survey of Indigenous parents from the Khabarovsk Territory (Russian Far East) found that over half (50.4%) held permissive attitudes towards their children using narcotics and 26.7% of parents were neutral. In contrast, almost all parents of Russian ethnicity showed active resistance to drug use [44]. A small survey of 83 students of Indigenous descent from a range of peoples (e.g., Muncie (83.1%), Nenets (9.6%), Khanty (2.4%)) showed that absence of harmful habits as a concept of health was named by only 39.2% of respondents [45]. These differences in attitudes could reflect differential historic access to health education. Health inequities also exist, with disproportionately poorer health status being experienced by the Indigenous populations.

Most Indigenous groups in Russia are located in the Far North and Far East regions [15,46]. The highest smoking prevalence (57% to 92.7%) is reported among Indigenous people in the northern territories of Russia, with unclear differences by gender [14]. The studies reviewed in this research primarily report data collected in the 1990s [14]. Smoking was very common among the Indigenous groups reported on. This could help explain why Indigenous groups including the Nenets, Khanty, Muncie and Selkups in the Yamalo-Nenets Autonomous Area of Russia experienced disproportionately high rates of respiratory diseases at 14.3%, 14.4% higher than in Slavic population of the same region [47]. A prevalence study of respiratory illness among the tundra Nenets (reindeer herders) of the Yamal region in the Far North of Russia ($n = 500$, 28.1% of the adult Nenets population in the district; 38.3% were males) found that 34.4% were smokers. Respiratory pathology was widespread, with a combination of complaints such as cough

and sputum production reportedly twice as common among those who smoked (54.1% versus 20.2%) and dyspnoea three times as frequent among the smokers (23.3% versus 7.3%) [48].

On average, Indigenous people in Russia start smoking during late childhood and adolescence. One study conducted in a Saami settlement in Russia in 2005 found that 59% of school students aged 15–18 (30% of girls and 63% of boys) smoked regularly with the average age for commencing to smoke of 12.6 years in males (6.4 cigarettes per day) and 13.7 years in females (8.4 cigarettes per day) [14,49]. In 2005, the average daily cigarette consumption among Saami youth was 7.4 cigarettes [49].

A study of 226 Nenets of the Nenets Autonomous Area (mean age: 42 years) found that 74% of males and 30% of females smoked regularly. However, there was significant gender bias in the sample, with only 12% of respondents being male [50]. Another study of 60 Indigenous people, including Nenets, Khanty and Muncie, residing on tribal lands (nomads) of the Far North of Russia, aged 23–79 years, found that 30.6% were current smokers. However, this study was also affected by gender bias with 70% of the respondents being female [51]. One more survey of 134 rural Nenets and others ($n = 220$) found a significant difference in smoking prevalence between inhabitants of non-Indigenous origin (37.8%) and Nenets (23.9%) [52]. In 2011, a large study ($n = 271$, 106 females) revealed that smoking prevalence among Nenets, Khanty and Komi women was 39.6% ($n = 21$) compared to 62.3% ($n = 33$) among their non-Indigenous female counterparts, which significantly exceeded smoking rates in Russia in general [53]. Nicotine dependence was indicated in 75.8% of non-Indigenous and 76.2% of Indigenous females. The study also found that 92% of non-smoking women experienced second hand smoke [53].

Smoking prevalence among the Shor in the Kemerovo Region (Republic of Khakassia, Altai Republic) during the years 1998–2002 ($n = 631$) and 2012–2015 ($n = 434$) was 27.7% among women and 46.1% among the men [54]. Over the 17 years of the study there was an increase in the number of female smokers and a decrease of male smokers [54]. However, this trend was mirrored in smoking among women in non-Indigenous populations of Russia, where the prevalence of smoking increased significantly from 6.9% in 1992 to 14.8% in 2003. During the same time period there was a threefold increase in prevalence of smoking among rural women in Russia [55].

A 2019 study in the Republic of Sakha (Yakutia), found that prevalence of smoking in the Yakut people (25.3 ± 1.4 packs/year) was less than non-Yakut people (34.1 ± 1.9 packs/year). Interestingly, there were age-related differences: smoking among the Indigenous group up to 39 years old ($n = 245$) was 45.7% for men ($n = 112$) and 55% for women ($n = 344$), which was generally higher than among people of non-Indigenous descent – 41.8% for men and 9.6% for women. In the age group of 39–60 years, the opposite ratios were observed: 33.3% of Yakut men ($n = 42$) and 3.9% of Yakut women ($n = 103$) were smokers while among non-Indigenous ethnicities the rate was 49.7% for men and 15.4% for women [56]. A 2015 study found high smoking prevalence among the Evenk people in the Republic of Sakha (Yakutia): 52% of Evenk men and 23.7% of Evenk women smoked [57]. A third study conducted in the Republic of Sakha (Yakutia) found high prevalence of smoking in the families of Yakut people, as well as Indigenous families of Evenks, Evens and Yukagirs both among females (40.6% in Olekminsky ulus to 44.8% in Amginsky and Ust-Maysky uluses) and males (from 70.6% in Amginsky and Ust-Maysky uluses to 75.2% in Olekminsky ulus) [58]. In a study conducted in 2003–2006, which included 254 participants of Yakut ethnicity aged 30–62, 22% smoked regularly [59].

Tobacco control and smoking cessation programmes in Russia

Anti-smoking policy in Russia is implemented at both the federal and regional levels. The federal government principally establishes restrictions on the selling of cigarettes, and increasing taxes, while

regional authorities are more focussed on promoting healthy lifestyles and creating smoking prevention campaigns and measures. Russia, like other countries, imposes comprehensive tobacco control laws in line with the WHO FCTC [60]. Since about 2010, the Russian government has been implementing anti-smoking measures to restrict the use and spread of tobacco production in Russia. These measures have radically changed the tobacco use landscape and the legislation that governs tobacco consumption has been rewritten. In 2007, a nationwide representative survey of the adult population revealed that only 14% of respondents considered tobacco control in Russia to be adequate, and 37% considered that nothing was being done [61]. In 2010, anti-smoking messages were printed on all packets of cigarettes. In 2013, Russia banned tobacco advertising at point-of-sale (POS) and in 2014, the display of tobacco products and the sale of cigarettes in kiosks was banned [62,63]. Russia's compliance with these POS bans has been reported to be excellent [62,63]. Finally, efforts of the Russian government to encourage smoking cessation were reflected during the 2014 Winter Olympics in Sochi when tobacco products were banned for sale at the Olympic sites and smoking was prohibited in all indoor venues and throughout the Olympic Park [64]. Overall, during the period of 2008–2017 estimated exposure to tobacco advertising fell down by 66.1% [65]. At the same time, Lagasse et al. reports that the availability and display of electronic cigarettes (e-cigarettes) between 2014 and 2016 in some regions (Moscow and St Petersburg) increased within traditional tobacco product retail venues from 27.6% in 2014 to 51.9% in 2016 [66].

Krasnoyarsk Territory is one of the largest regions in Russia with a number of Indigenous communities. Expenditure on tobacco use is estimated to account for almost 2% of the gross regional product of the Krasnoyarsk region according to a study conducted in 2013 on the working-age population 20–72 years old [67]. A 2015 study on the consumption of tobacco in the Krasnoyarsk Territory revealed that the top six reasons for stopping smoking were increasing costs of cigarettes (58.6% of responders), restrictions on smoking inside buildings (46.5% of responders), and fines for breaching smoking control laws (40.3% of responders). The authors called for tobacco control policies to strengthen non-smoking as a norm and decrease youth interest in smoking [68].

The Russian Ministry of Healthcare has announced a long-term plan for tobacco control that promotes a “tobacco-free generation”. The plan includes a ban on the sale of tobacco products in 2033 to people born after 2014, even after they reach adulthood [69]. Following the recommendations of the 2015 WHO report, Russia is also gradually increasing the excise tax on tobacco, as well as reducing the number of places where smoking is permitted [62,70–73]. SimSmoke modelling in 2014 suggested that reducing smoking prevalence and premature mortality in Russia could be achieved through strengthening tobacco control policies in line with the WHO FCTC recommendations, such as increasing tobacco prices via taxes, environmental bans, mass media campaigns, advertising bans, health warning labels on products, provision of cessation treatments and policies to reduce youth access [74]. On 31/07/2020 the Russian Parliament adopted amendments to the Federal Law of the Russian Federation “On Protecting the Health of Citizens from the Effects of Second-hand Tobacco Smoke and the Consequences of Tobacco Consumption” (Federal Law No.15-FZ), which come in force from 28/01/2021 [75]. The amendments to the Federal Law No.15-FZ unify the regulation of all smoking nicotine-containing products including e-cigarettes, vapes and hookahs. All the products will be equated to tobacco products, all the relevant bans will apply to it: it will not be possible to use them in public places, sell them on the Internet, freely show them up on display windows and advertise them. Nicotine-containing products for oral consumption will be prohibited from circulation. For e-cigarettes, the maximum nicotine content in liquids is set at 20 mg per ml. Fines for selling nicotine-containing products to underaged persons are increasing several times [75].

Most of the cessation programmes target the entire adult population without stratification and attempts to reach subgroups independently. An anti-smoking campaign, conducted in the Republic of Bashkortostan, employed a Project EX programme [76] which aimed to enhance motivation to quit, improve coping strategies, provide alternative medicine materials and cognitive-behavioural skill information to encourage teens to stop smoking [77]. The pilot was conducted on a small ($n = 164$) group of teenagers, none of whom belonged to Indigenous groups. Although the results were promising with a statistically significant 46% reduction of future smoking expectation in the EX programme group versus 8% in the control group, the study had several limitations including sample size and a recruitment process that precluded greater generalisability of results.

We did not find any programmes focussed on smoking cessation and smoking harm reduction among Indigenous populations in Russia. Neither federal nor regional governments offer cessation programmes, except for informal information provided during regular medical check-ups for populations in the Far North, including Indigenous people. During these check-ups patients are provided with some general information on the harmfulness of smoking and the consequences for health with no detailed information on stop smoking methods [78].

Discussion

This review comprehensively analysed the prevalence of smoking and tobacco control initiatives in the Russian Federation as documented in evidence about the prevalence of smoking, government policy and other population-level interventions. The literature reviewed includes both Russian and international research where the focus was Russia, with over half ($n = 26$) of the studies having been conducted in Russia and published in the Russian language.

Prevalence of smoking

Whilst the prevalence of smoking in Russia has decreased over the last decade, it remains one of the highest in the world. At present, there are only 13 studies on the prevalence of smoking among Indigenous populations, and most of these studies were focused on a limited number of ethnic Indigenous groups, such as Saami, Nenets, Khanty, Komi, Shor, Evenks, Evens and Yukagirs, although there are almost 50 different ethnic groups of Indigenous people in Russia. Additionally, several of these studies had methodological limitations. For example, a 2011 study did not provide information on randomisation of participants to the study [53]. Another study on a Saami population conducted in 2005 did not provide the sample size [14,49]. However, these results were close to those reported for Indigenous peoples in the Canadian arctic regions [79]. Prevalence of smoking among Indigenous groups of Russia, and changes in prevalence rates of smoking over time, remains unclear. Nevertheless, this review suggests that smoking is common among some Indigenous groups, and that there have been increases among women; though smoking among women generally in Russia has been increasing.

Smoking cessation policy and programmes

Although a number of government sponsored smoking cessation interventions exist, there are significant regional discrepancies in delivery. Most of the evidence reviewed discussed smoking cessation interventions delivered in cities and metropolitan areas. Delivery to populations in rural areas, where most ethnic minorities reside, was underexplored. Despite some evidence of a very high prevalence of smoking among Indigenous populations and a developed tobacco control and anti-smoking policy in Russia, we found no studies dedicated to smoking prevention in these populations. Even though the dynamics of smoking in Russia mirrors the tobacco epidemic observed in Western high-income countries [80] the development of smoking cessation

programmes targeted at Russian Indigenous groups varies, and too little is known about their effectiveness.

Little consideration has been given to the FCTC guideline to involve Indigenous people or work collaboratively with them to ensure that tobacco control interventions socially and culturally acceptable and pragmatic. Trials focused on high prevalence population groups are needed in order to design and determine effective smoking cessation programmes. It is also important to understand the culturally specific beliefs about tobacco use that each group holds. In some Indigenous groups, there may be specific barriers to smoking cessation, as was found for other Indigenous peoples in other parts of the world [8]. Previous research has suggested that anti-smoking measures will face significant challenges and cessation of smoking will not be achieved if culturally targeted messages for Indigenous communities are not used. Greater investment in efforts to assess prevalence of smoking and sustain smoking cessation in Indigenous populations of Russia would increase the public health impact and effectiveness of interventions [81].

Limitations

This review has three main limitations. First and second, the inclusion criteria for the review identified a diverse range of smoking cessation programmes and a variety of studies that assessed the prevalence of smoking, leading to extensive heterogeneity in the sample and the scope. This diversity made it difficult to identify trends among studies. Third, this review did not include studies in which smoking cessation interventions were part of a wider health program. However, search results suggest that these limitations did not have a significant impact on the results, as there were very few studies of this kind.

Unanswered questions and future research

We have identified many gaps in the assessment of prevalence of smoking in different regions and in different ethnic groups in Russia. In particular, little is known about prevalence of smoking in most of the Indigenous groups in Russia. Russian government policy to control tobacco use is a relatively well researched field, but we need to know more about effects and outcomes of policy on inhabitants in Russian rural areas, especially lower-income adults, ethnic minorities and Indigenous people. This is important because Indigenous people are one of the most vulnerable groups with higher rates of comorbid dependencies alongside tobacco use disorder [14,15]. Further research is needed that uses unbiased sampling and rigorous evaluation designs to identify smoking prevalence and effective cessation programmes for the culturally and genetically diverse ethnic minorities and Indigenous groups of Russia. It will support: 1) to determine smoking prevalence rates for more Indigenous groups by sex and age; 2) to identify gaps in delivery of tobacco control to these groups; 3) to determine the beliefs about tobacco use among the Indigenous groups and their needs for developing effective stop smoking interventions. There is a need for robust evaluations of prevalence of smoking and targeted interventions both at a population and at a community level. Feasibility and pilot trials of interventions that have potential to be transferred to other Indigenous groups are needed. Such research will help inform how to reduce smoking-related health inequalities between Indigenous and non-Indigenous populations.

Ethics approval and consent to participate

Not applicable. This study did not involve human participants and did not require ethics committee approval.

Consent for publication

Not applicable.

Availability of data and materials

Not applicable.

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Authors' contribution

Alexander Merkin conceived of the study. Marewa Glover developed the study design and secured funding for this project. Alexander Merkin and Artem Nikolaev developed the study design, conducted literature search, analysis and drafted the paper. Igor Nikiforov and Alexander Komarov conducted data analysis and interpretation. All authors authored and were involved in the editing of the paper and approved the final draft.

Declaration of Competing Interest

The authors declare that they have no competing interests.

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