

Chapter 11

Smokeless Tobacco Use in the Eastern Mediterranean Region

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Description of the Region

According to the World Health Organization (WHO), the Eastern Mediterranean Region consists of 23 countries, extending from Morocco to Pakistan. It includes most countries of the Middle East, North Africa (except Algeria), and South-West Asia (Table 11-1). The Eastern Mediterranean Region covers an area of 13,962,083 square kilometers, and its population is estimated at 608 million people, or about 8% of the total world population.¹ Tobacco use is prevalent in this region, the predominant form being manufactured cigarettes, followed by tobacco used in waterpipes (shisha, nargila).

Table 11-1. Population and land area of countries in the Eastern Mediterranean Region

Country*	Area in km ²	Population (thousands)
Afghanistan	654,412	31,412
Bahrain	694	1,262
Djibouti	23,395	889
Egypt	1,001,494	81,121
Gaza Strip (Palestine) †	360	1,710
Iran (Islamic Republic of)	1,643,867	73,974
Iraq	439,889	31,672
Jordan	89,667	6,187
Kuwait	17,773	2,737
Lebanon	10,414	4,228
Libya	1,588,750	6,355
Morocco	443,764	31,951
Oman	309,111	2,782
Pakistan	796,298	173,593
Qatar	10,994	1,759
Saudi Arabia	2,111,385	27,448
Somalia	622,067	9,331
South Sudan †	644,329	10,625
Sudan	2,561,882	43,552
Syrian Arab Republic	185,555	20,411
Tunisia	163,765	10,481
United Arab Emirates	83,467	7,512
West Bank (Palestine) †	5,860	2,623
Yemen	552,891	24,053
Total	13,962,083	607,668

*Unless otherwise indicated, data are from: United Nations 2011 (1).

†For data on the Gaza Strip, the West Bank, and South Sudan: Central Intelligence Agency 2012 (57).
Abbreviation: km = kilometer.

Prevalence of Smokeless Tobacco Use

In a few countries of the Eastern Mediterranean Region, such as Sudan, Yemen, and Pakistan, locally made or produced smokeless tobacco (ST) products are widely consumed. In other countries such as Egypt, the most populous Arab country, ST use has markedly increased among adults, according to the Global Adult Tobacco Survey (GATS).^{2,3} This section focuses on the prevalence of ST use among adults in countries for which some data are available. Table 11-2 shows the types of ST products used in Eastern Mediterranean Region countries.

Table 11-2. Types of smokeless tobacco products used in the Eastern Mediterranean Region, by country

Country	Smokeless tobacco product used	Source*
Bahrain	Chewable-based tobacco products (undefined)	Time Out Bahrain 2009 (55)
Egypt	Undefined	World Health Organization (WHO) 2010 (2)
Iran	Nass	Islami 2009 (51); Joint Iran–International Agency for Research on Cancer Study Group 1977 (52)
Libya	Chewing tobacco (undefined)	International Agency for Research on Cancer (IARC) 2007 (32); WHO 2011 (11)
Pakistan	Paan and naswar	Ali 2009 (7); Imam 2007 (9); Khawaja 2006 (8); Merchant 2000 (12); Maher 1994 (13); Shah 1992 (14); Euromonitor 2010 (6)
Qatar	Chewing tobacco (undefined)	Al-Kuwari 2008 (58)
Saudi Arabia	Mainly shammah	Allard 1999 (17); Ibrahim 1986 (18); Salem 1984 (19)
Sudan	Toombak	Costea 2010 (39); Ibrahim 1996 (41), 1998 (42); Ahmed 2003 (36), 2007 (37); Ibrahim 2002 (43); Idris 1991 (44), 1992 (45), 1994 (46), 1995 (47), 1995 (48), 1996 (49), 1998 (4), 1998 (50); Elbeshir 1989 (40); Boulos 1977 (38)
Tunisia	Snuff	WHO 2011 (11); Fakhfakh 2005 (59)
United Arab Emirates	Paan and niswar	The National 2009 (15); Bowman 2008 (16)
Yemen	Shammah	Ministry of Public Health (Yemen) 2003 (5)

*Numbers in parentheses correspond to full citations in the References at the end of this chapter.

Few studies and reports have been published on ST use in the Eastern Mediterranean Region. Table 11-3 illustrates the prevalence of ST use among adolescents aged 13 to 15 years, and Table 11-4 and Map 11-1 show the prevalence among adults, according to national surveys. Data was collected from multiple surveys including the Global Youth Tobacco Survey (GYTS), Global Adult Tobacco Survey (GATS), WHO STEPwise Approach to Surveillance (WHO STEPS), and various individual country surveys as reported in the *WHO Report on the Global Tobacco Epidemic, 2011* (GTCR). Some clinical researchers have reported the use of ST in specific countries without stating the prevalence of use in those countries. Comparisons among surveys should be made with caution because of differences in definitions and methods, including sampling methods, used across surveys. Surveys' definitions of

current use vary. For example, some surveys define current use as any use within the past 30 days, while other surveys ask about different time periods; some surveys ask about daily use and use on some days, and still other surveys ask about “current” use without defining the term further. Surveys of this region define current use by youth as at least one use in the past 30 days; current use among adults is defined as daily or less than daily use.

Table 11-3. Percentage of adolescents aged 13–15 years who currently used smokeless tobacco in the Eastern Mediterranean Region, from the Global Youth Tobacco Surveys, 2007–2010

Country	Year	Total (%)	Boys (%)	Girls (%)
Djibouti	2009	12.6	15.2	9.0
Gaza Strip (Palestine)*	2008	8.9	9.2	8.3
Iraq – Baghdad	2008	6.9	7.2	5.8
Iran	2007	5.1	5.4	4.8
Libya	2010	2.3	2.0	2.3
Lebanon*	2008	6.5	6.5	6.4
Oman	2010	1.6	2.5	0.9
Pakistan – Karachi	2008	10.8	13.8	7.4
Pakistan – Quetta	2008	7.5	6.8	7.9
Pakistan – Lahore	2008	4.2	5.8	3.1
Pakistan – Peshawar	2008	6.0	8.0	2.6
Qatar	2007	7.0	7.6	6.1
Saudi Arabia	2010	3.4	4.8	1.8
Syrian Arab Republic	2010	5.7	7.9	3.5
Tunisia	2010	2.3	3.9	0.9
West Bank (Palestine)	2008	9.1	7.7	9.2
Yemen	2008	8.6	8.2	8.4

*These surveys were conducted in schools run by UNRWA (the U.N. Relief and Works Agency for Palestine Refugees in the Near East).

Source: Global Youth Tobacco Surveys, 2007–2010 (60).

11. Smokeless Tobacco Use in the Eastern Mediterranean Region

Table 11-4. Percentage of adults who currently used smokeless tobacco in the Eastern Mediterranean Region, 2003–2009

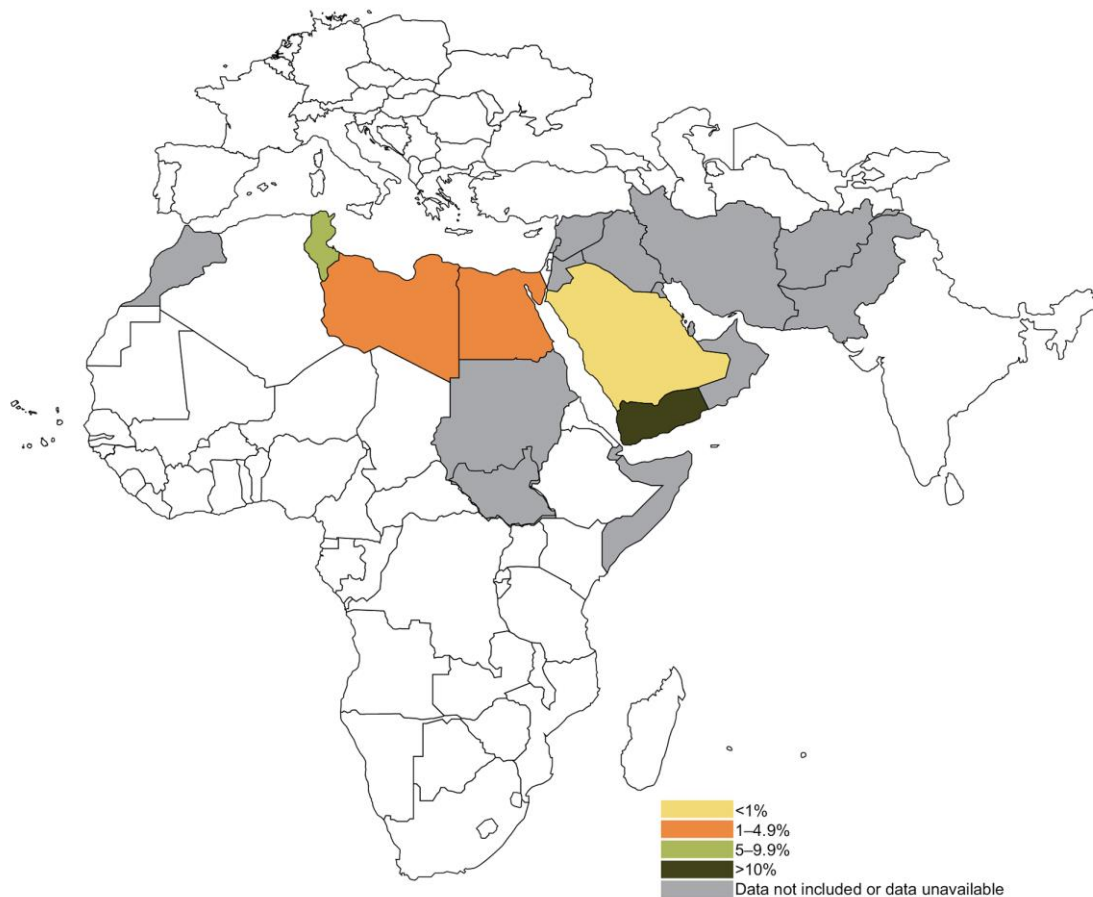
Country	Year	Age group (years)	Total (%)	Men (%)	Women (%)
Egypt*	2009	15+	2.2	4.1	0.3
Libya†	2009	25–64	1.2	2.2	0.1
Saudi Arabia†	2004	15–64	—	1.3	0.5
Tunisia‡	2005–06	35–70	5.4	8.6	2.2
Yemen‡	2003	15+	10.7	15.1	6.2

*Global Adult Tobacco Surveys, 2008–2010 (3).

†WHO STEPS from: *WHO Report on the Global Tobacco Epidemic, 2011* (11).

‡Individual country surveys from: *WHO Report on the Global Tobacco Epidemic, 2011* (11).

Map 11-1. Prevalence of smokeless tobacco use among adults in the World Health Organization's Eastern Mediterranean Region



Note: Prevalence rate for males and females combined was not available for Saudi Arabia. A total figure was calculated by averaging the available male and female rate.

Sources: Global Adult Tobacco Surveys, 2008–2010 (3); WHO STEPS from: *WHO Report on the Global Tobacco Epidemic, 2011* (11); Individual country surveys from: *WHO Report on the Global Tobacco Epidemic, 2011* (11).

Sudan

Toombak is the type of ST most commonly used in Sudan, where historical prevalence of use was reported at 34.0% among men and 2.5% among women in the Nile states.⁴ According to 2011 unpublished estimates presented by the Sudan Toombak and Smoking Research Center, the prevalence of toombak use is 24.2% in the Nile states, 40.7% in the Northern states, 36.5% in the Eastern states, and 21.2% in the capital, Khartoum. In western Sudan, the prevalence of use is exceedingly low, which reflects cultural and tribal influences on the use of tobacco.

Yemen

Despite the wide use of ST, known as shammah, in Yemen, up-to-date data are limited. The most comprehensive study is the 2003 Family Health Survey, which used weighted sampling units or cluster methodology to produce estimates of general indicators for Yemen as a whole and for urban and rural areas.⁵ The total sample size was 13,815 households (3,173 in urban areas, and 10,642 in rural areas). According to this survey, 10.7% of the population aged 10 years or older used shammah; in rural areas, this percentage was 12.5%. In addition, 6.2% of females were current users of shammah (Table 11-5), while current use among men was reported as 15.1%. The percentage of current users increased with age for both males and females (Figure 11-1).

Table 11-5. Prevalence of shammah use in Yemen, by residence and sex

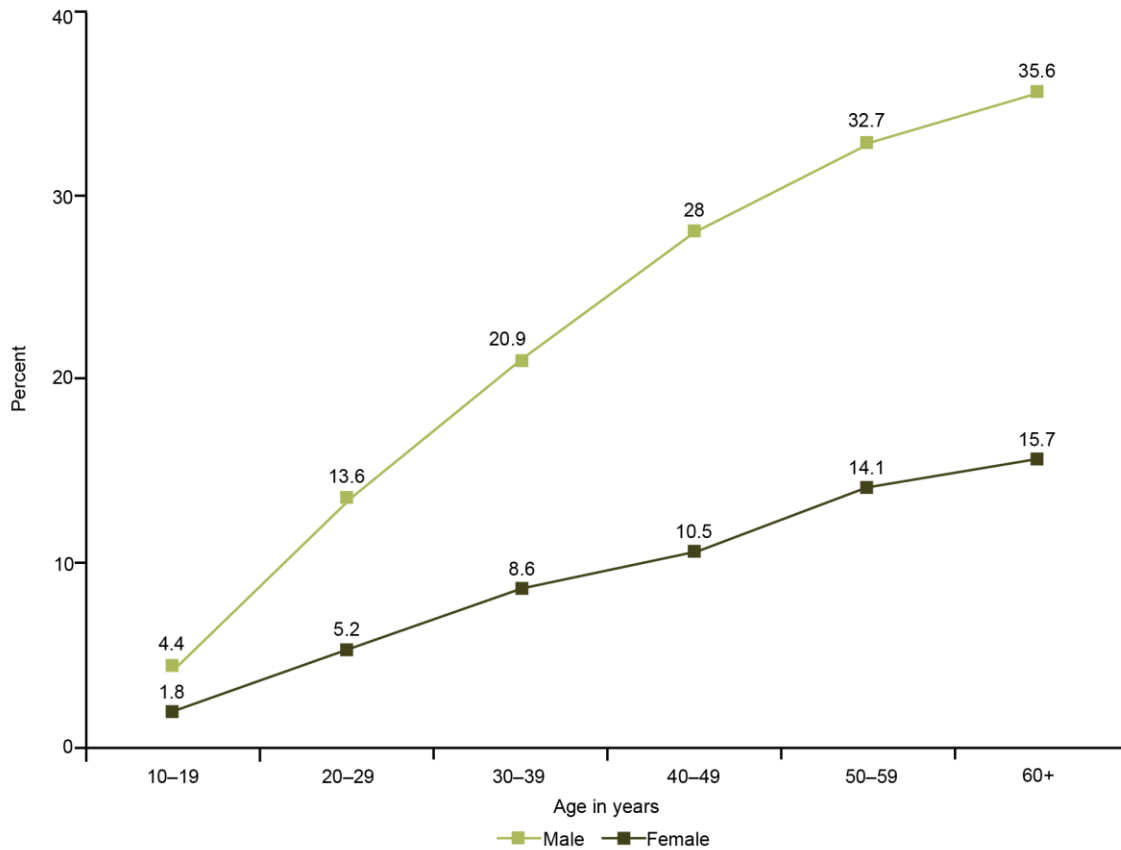
Shammah*	Urban	Rural	Male	Female	Total†
Current users	5.2%	12.5%	15.1%	6.2%	10.7%
Previous users	0.5%	0.8%	1.0%	0.5%	0.8%
Never used	93.7%	86.1%	83.3%	92.7%	88.0%
Don't know/not stated	0.6%	0.6%	0.6%	0.5%	0.6%
Total respondents	15,030	46,568	31,094	30,504	61,598

*Prevalence is indicated in this table by number and percentage of individual users; the text describes the prevalence by household.

†Because of rounding, percentages total 100.1%.

Source: Ministry of Public Health (Yemen) 2003 (5).

Figure 11-1. Prevalence of shammah use in Yemen, by age and sex



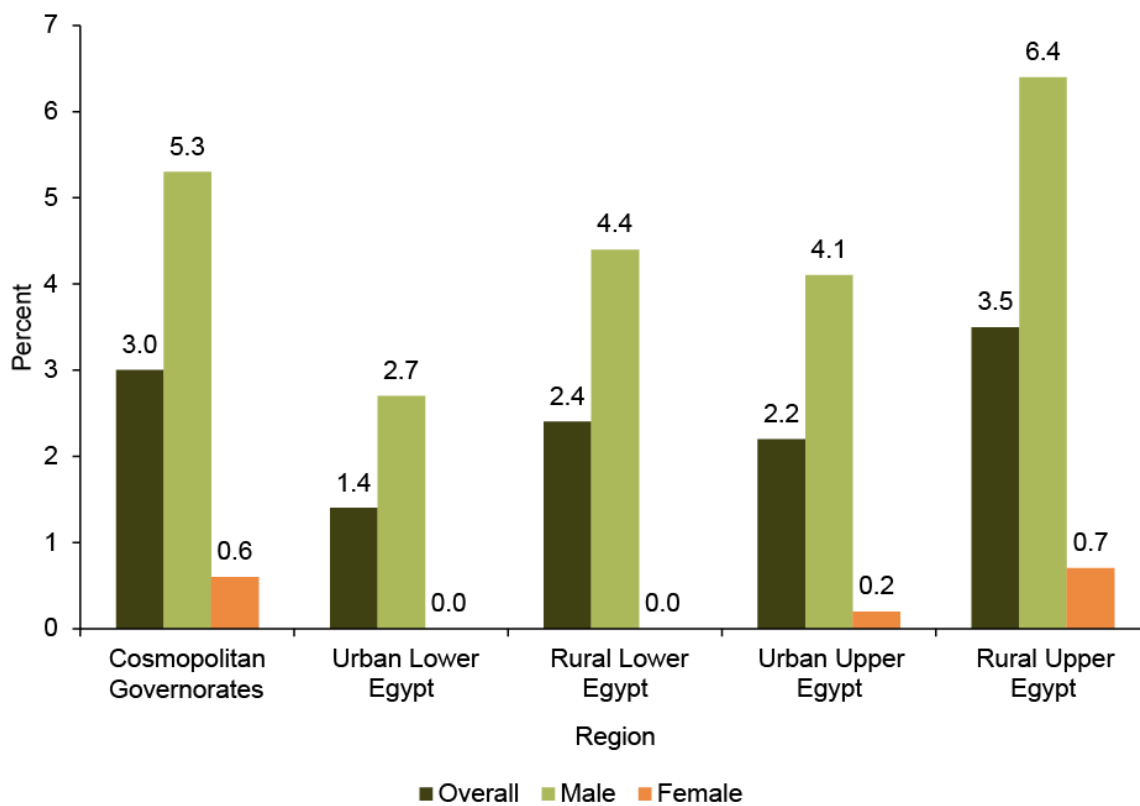
Source: Ministry of Public Health (Yemen) 2003 (5).

Egypt

The 2009 Global Adult Tobacco Survey in Egypt^{2,3} found that between 2% and 3% of the population uses smokeless tobacco. This is the first study in Egypt to document that ST is the third most widely used form of tobacco in the country after cigarettes and shisha. Among survey respondents aged 15 years and older, 2.2% (over 1 million Egyptians) used ST; prevalence of ST use was 4.1% for males and 0.3% for females. Daily use of ST increased with age: from 1.9% for males aged 15–24 years to greater than 5% for men over the age of 25.

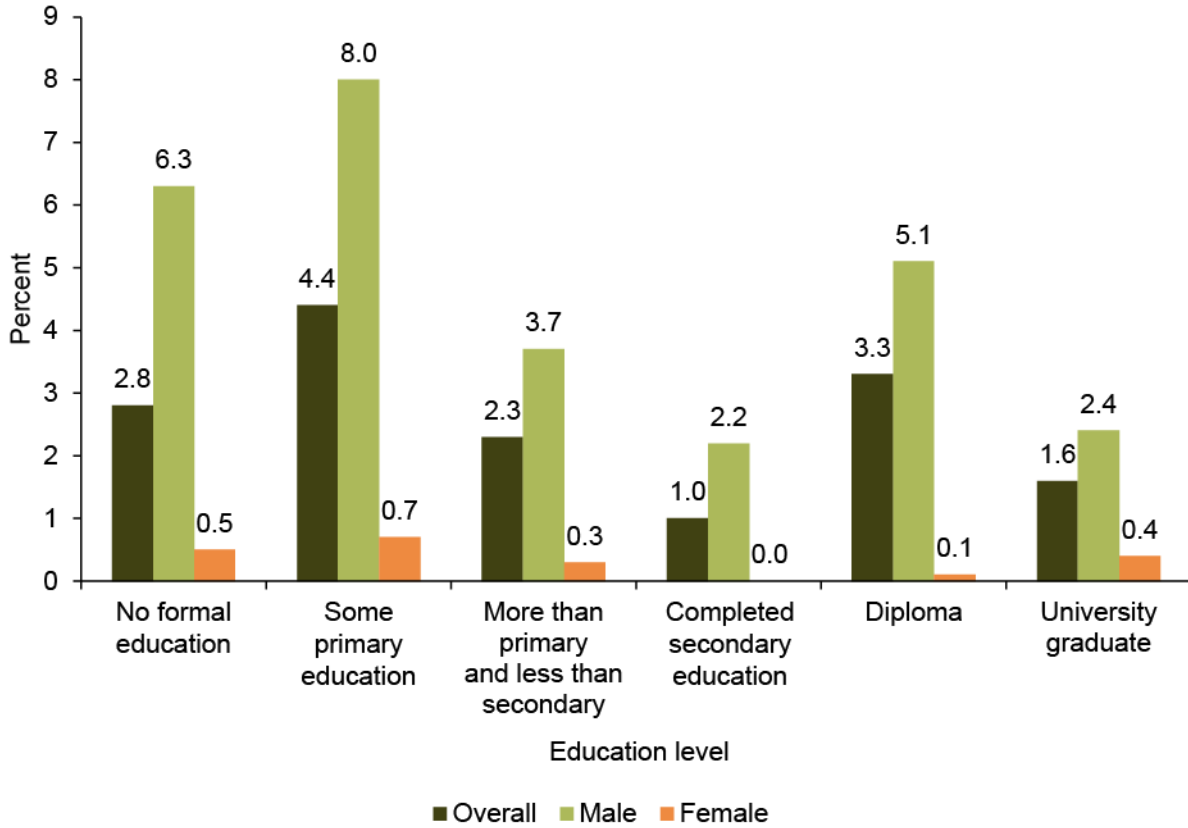
Prevalence of current ST use among males and females ranged from 1.4% in urban Lower Egypt to 3.5% in rural Upper Egypt; in the most urbanized cities, called the Cosmopolitan Governorates, 5.3% of males and 0.6% of females were ST users (Figure 11-2). The use of ST was higher for males with at most some primary education (8%, 95% confidence interval [CI]: 5.9%–10.9%) compared with those with university or higher education (2.4%, 95% CI: 1.6%–3.7%) (Figure 11-3).

Figure 11-2. Percentage of the Egyptian population using smokeless tobacco, by geographic area



Source: World Health Organization 2010 (GATS, Egypt) (2).

Figure 11-3. Percentage of the Egyptian population using smokeless tobacco, by education level



Source: World Health Organization 2010 (GATS, Egypt) (2).

Pakistan and India

High rates of ST use are reported in both Pakistan and India. The traditional product, paan (also known as betel quid) which can be used with or without tobacco, has been losing favor in recent years (as of 2010) to gutka and khaini, the two tobacco products most widely used in India.⁶ Other frequently used tobacco products in Pakistan include naswar.⁶

In a cross-sectional study of 502 adults attending family practice clinics, 52.4% used ST in at least one form.⁷ In another study in a low socioeconomic group in Karachi, 40% of those surveyed were daily users.⁸ Use by men significantly exceeds use by women.⁹ As noted in many low- and middle-income countries, social acceptance of ST is widespread, its serious health complications are not recognized, and ST use is promoted to youth.^{7,10}

Other Countries

Individual country surveys reported in the *WHO Report on the Global Tobacco Epidemic, 2011*^{10,11} reveal the following prevalence rates:

- The 2009 Libyan STEPwise approach to Surveillance (STEPS) Survey showed that 2.2% of men, 0.1% of women, and 1.2% of total participants between the ages of 25 and 64 years were current users of smokeless tobacco.
- The Saudi Arabian STEPS Survey in 2004 showed that 1.3% of males and 0.5% of females between 15 and 64 years old were daily users of smokeless tobacco.
- In Tunisia, the National Survey for Morbidity and Care-Seeking (Enquête nationale morbidité et recours aux soins) in 2005–2006 showed that the prevalence of snuff use by people aged 35 to 70 years was 5.4% (8.6% among men, 2.2% among women).

Types of Products and Patterns of Use

As in other regions of the world, the production of ST reflects a combination of cultural practices, local preferences, and the availability of particular tobacco leaves and other ingredients. Products and usage patterns are also influenced by the practices brought by immigrants from their home countries—such as the large population of Asian workers, many from the Indian subcontinent, who have immigrated to some Gulf countries.

Nass (or naswar) and paan are the most commonly used ST products in Pakistan^{6–9,12–14} and the United Arab Emirates (UAE).^{15,16} Shammah is mostly used in Yemen⁵ and Saudi Arabia,^{17–19} and toombak is used in Sudan.⁴

Nass

Nass, also known as naswar or niswar depending on the region in which it is made, is used in many countries, notably Iran (where it is known as nass) and Pakistan (where it is commonly known as naswar). It is made mainly of tobacco, ash, cotton or sesame oil, water, and sometimes gum. Nass is processed by mixing dried tobacco leaves, slaked lime (aqueous calcium hydroxide paste), ash from tree bark, flavoring and coloring agents, and water. Nass users roll this mixture into balls to be placed in the

mouth for 10 to 15 minutes and chewed slowly.²⁰ Nass is produced in cottage industry settings and is occasionally custom-made.^{21,22} It costs approximately US\$1.79 for 50 grams (g) in Pakistan.

Paan and Tombol

Paan or betel quid, with or without tobacco, is used mainly in Pakistan. It is produced commercially or by vendors or prepared at home. Slaked lime (calcium hydroxide) and catechu (extract from the acacia tree) are smeared on a betel leaf, which is folded into a funnel shape to which tobacco, areca nut, and other ingredients are added. The tobacco used may be raw, sun dried, or roasted, and it is finely chopped, powdered, and scented. Alternatively, the tobacco may be also boiled, made into a paste, and scented with rosewater or perfume. After the betel leaf funnel is filled with the ingredients, the top of the funnel is folded over, resulting in a quid which is placed in the mouth, usually between the gum and cheek, and gently sucked and chewed. Paan is sometimes served in restaurants after meals.²³ Each piece typically costs between US\$0.05 and US\$0.45.^{24,25}

A national product used in Yemen, tombol, has much of the same ingredients, with some variation in flavorings,²⁶ and is not always made with tobacco. Tombol is made from the tombol leaf (also known as betel leaf), fofal (areca nut), noura, slaked lime (calcium hydroxide), and catechu (Figure 11-4). Tombol leaf, which requires a hot, humid climate, is cultivated in the Hadramout area of southern Yemen. As an ST product, there are three types of tombol: (1) sweet (a sweetening agent, often coconut, is added to the basic components described above, with or without tobacco); (2) bitter (additives like clove oil, cardamom, and herbal medicine are used, with or without tobacco); and (3) tombol with toombak tobacco (a local type of tobacco), which is available in two varieties: socha, or dry, thin pieces of Yemeni tobacco (similar to Indian pattiwalla), and zarda, scented tobacco from India.²⁶ Tombol is mostly a custom-made product, therefore pricing information is not readily available.

Figure 11-4. Tombol and its preparations



Tombol leaves (betel leaves)



Tombol leaf with fofal (areca nut), khat (qat), and zarda



Tombol leaf with khat

Source: Photos courtesy of Mazen Abood Bin Thabit, University of Aden, 2011.

Some forms of tombol, such as those used in Yemen, contain khat (*Catha edulis*) (Ghazi Zaatari, unpublished results, 2013; Figure 11-4), a plant that has psychoactive properties.²⁷ Khat is used in East Africa, Yemen, and Ethiopia. In Yemen, approximately 80% of males and 30% of females chew khat on a regular basis.²⁸ Khat contains cathinone, an alkaloid with amphetamine-like stimulant properties,

which is purported to cause euphoria, excitement, increased energy, and loss of appetite.²⁷⁻²⁹ Cathinone, like amphetamine, is a potent agent that causes norepinephrine and dopamine to be released in the body.³⁰ Khat is added to tombol by spreading it in powder form onto a betel leaf to which an alkaline agent (noura) is then added (Ghazi Zaatari, unpublished results, 2013). When an alkaline substance such as noura is added to tombol, it increases pH and converts a great fraction of the total nicotine to free nicotine, the form of nicotine that is more readily absorbed. Tombol containing only khat and tobacco without noura would contain less free nicotine (chapter 3).

Shammah

Shammah is made from powdered tobacco, slaked lime (calcium hydroxide), ash, oils, black pepper, and flavoring agents.³¹ The tobacco leaves are sun dried and pulverized with bombosa (sodium carbonate), and the preparation is usually sold as a dry product. Shammah is placed between the cheek and gums or between the cheek and lips. Various types of shammah are available in the market: bajeli, haradi, sharaci, black shammah, and white shammah (Figure 11-5), but shammah is most frequently sold as a cottage or custom product, therefore pricing information is not readily available. Black shammah is prepared by mixing tobacco leaves with a solution of bombosa in water; it is sold as wet shammah.

Figure 11-5. Types of shammah



Black shammah



White shammah

Source: Photos courtesy of Mazen Abood Bin Thabit, University of Aden, 2011.

Toombak

Toombak,³² used in Sudan as a national product, is made of sun-dried tobacco (wild *Nicotiana rustica*) (Figure 11-6) mixed with an aqueous solution of sodium bicarbonate called atrun. The mixture is kept in an airtight container for about two hours, after which it is ready for sale. Toombak is rolled into a ball, called saffa, weighing about 10 g. The saffa is dipped into the mouth; men preferentially hold it between the gum and the lip, but women, for aesthetic reasons, hold it between the gum and the cheek or under the tongue on the floor of the mouth. It is sucked slowly for 10 to 15 minutes; a few users may extend this to several hours. Men usually spit periodically, whereas women users typically swallow the saliva generated. Users usually rinse their mouths with water after the saffa is removed.¹⁰ Occasionally toombak is also used nasally or placed behind the ear with transdermal effect. The price of 50 g of toombak is around US\$0.22 (Ghazi Zaatari, unpublished results, 2013).

Figure 11-6. Toombak



Toombak tree



Dried toombak

Source: Photos courtesy of Ali Idris, Toombak and Smoking Research Center, 2011.

Toxicity and Nicotine Profiles of Products

Toxicity and nicotine profiles are only documented for nass and toombak.³² Chemical analysis of nass revealed the following concentrations of the carcinogenic tobacco-specific nitrosamines (TSNAs):

- 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK)—up to 309 nanograms per gram (ng/g) wet tobacco
- *N'*-nitrosornicotine (NNN)—up to 545 ng/g wet tobacco
- *N'*-nitrosoanabasine (NAB)—up to 30 ng/g dry tobacco
- *N'*-nitrosoanatabine (NAT)—up to 300 ng/g dry tobacco.

Toombak has the highest levels of free nicotine and nicotine-derived TSNAs ever measured in tobacco products (free nicotine: 5.16–10.6 milligrams per gram [mg/g] wet weight) (TSNAs: NNN = as high as 368,000 ng/g wet weight, and NNK = up to 516,000 ng/g wet weight) (Table 11-6).

Table 11-6. Nicotine and nitrosamine levels in naswar (nass) and toombak

Product	pH	Total nicotine	Free nicotine	NNK	NNN	NNAL	Total TSNAs*
		mg/g wet weight					
Toombak	7.38–10.1	9.56–28.2	5.16–10.6	147,000–516,000	115,000–368,000	4,550–6,770	295,000–992,000
Naswar	8.76–9.14	10.5–14.2	8.84–13.2	29.4–309	363–545	8.56–104	478–1380

*Total TSNAs = Sum of NNK, NNN, NNAL (shown); NAT, NAB (not shown).

Abbreviations: NNK = 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone; NNN = *N'*-nitrosornicotine; NNAL = 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol; NAT = *N'*-nitrosoanatabine; NAB = *N'*-nitrosoanabasine; mg/g = milligram per gram; ng/g = nanogram per gram; TSNAs = tobacco-specific nitrosamines.

Note: Data in this table are for select products and may not represent all products of this type. Data are expressed on a per gram basis for products analyzed as received. The amount absorbed depends on the amount of tobacco used.

Source: Stanfill 2011 (33).

A 2011 global surveillance report on oral tobacco products³³ confirmed that, compared to a variety of other global ST products, toombak is among the highest in nicotine concentration, which ranged from 9.56 to 28.2 mg/g in four different samples, and in concentrations of NNK (147,000–516,000 ng/g) and NNN (115,000–368,000 ng/g).

Naswar (nass) contains various toxic/carcinogenic substances, such as heavy metals, in addition to TSNA. An assessment of the potential toxicity of 30 brands of naswar available in the Pakistani market³⁴ showed that the average values of all toxicants studied were above limits deemed allowable by the Agency for Toxic Substances and Disease Registry at the U.S. Centers for Disease Control and Prevention (CDC). For instance, the amounts of cadmium and lead in the products would be associated with a calculated lifetime cancer risk from 100,000 to 1,000,000 times higher than the minimum target range for potentially hazardous substances. Similarly, the level of arsenic in the products exceeded allowable standards, and the average minimum daily intakes of chromium and nickel were 4 to 5 times higher than the allowable limits.³⁴

Health Problems Associated With Product Use

There are at least 30 carcinogens in ST products used globally (see chapter 3, Table 3-2). These products have been associated with increased risk of developing precancerous and cancerous lesions of the oral cavity, nasal cavity, and sinuses, and most commonly, squamous cell carcinoma³⁵ (Figure 11-7) (see chapter 4).

Cellular abnormalities and genomic alterations associated with use of the highly carcinogenic toombak have been repeatedly documented in studies in Sudan.^{4,41–50} In Iran, studies have demonstrated an association between ST use and development of esophageal cancer.^{51,52} Oral submucous fibrosis,⁷ oral carcinoma,^{8,9} and head and neck cancers¹² have been reported in Pakistan as being associated with chewing areca nut, nass, and paan.⁸ In Saudi Arabia, studies have identified an association between the use of shammah and the incidence of oral and head and neck cancers.^{17–19} High prevalence of oral cancer and other oral lesions was similarly reported among shammah users in Yemen.^{31,53} Pancreatic cancer has been described in other regions as a risk associated with the use of ST,³⁵ although this observation is not made in reviewed reports for the Eastern Mediterranean Region. The risk of pancreatic cancer in association with ST use has not been studied in a systematic fashion in the region.

Although cancer risks associated with ST use have been the focus of many publications, ST use is also associated with several non-neoplastic oral complications, such as gingivitis, periodontitis, poor dental hygiene, dental caries, and sinusitis.⁵⁴

An important factor in the assessment of health effects associated with ST products in this region is the cancer risk that is independently associated with some substances used as ingredients in these products, such as areca nut.¹² In addition to this cancer risk, areca nut use has been associated with oral submucous fibrosis.¹³

Figure 11-7. Health complications associated with toombak use in Sudan



Squamous cell carcinoma of the oral cavity represented by severe whitish discoloration of the thickened gingiva and tumor growth around the tooth to the right.



Squamous cell carcinoma of the lower lip, adjacent oral mucosa, and gingiva of the lower mandible.



Squamous cell carcinoma of the oral cavity extending to the cutaneous surface next to the right lower lip.



Squamous cell carcinoma of the left buccal mucosa that distorted the oral cavity and maxilla and shows a bulging mass of the left face.

Source: Photos courtesy of Ali Idris, Toombak and Smoking Research Center, 2011.

Marketing and Production Practices of Industry

In the Eastern Mediterranean Region, the production and marketing of ST products such as nass, paan, shammah, and toombak are primarily cottage industries (Figure 11-8) that are mainly centered in areas of tobacco farming. The ST industry relies on locally available resources both for producing ST products and for marketing and distributing them to retailers under brand names intended to attract customers in their areas. For example, vendors use names such as Sultan Elkayef (i.e., the one that masters the mind), Wad Amari (a reference to the person who introduced the plant to the area), and Alsanf (which means “the best brand”). Toombak in Sudan is sold in small metal containers called hookahs or in plastic bags called keece.

Figure 11-8. A local vendor of toombak in Sudan



Source: Photo courtesy of Ghazi Zaatar, American University of Beirut, 2011.

Some ST products brought in from the Indian subcontinent are marketed to the large immigrant Asian labor force in the Gulf region. In a few countries, such as the UAE, there are reports of health inspectors and police inspecting and shutting down illegal manufacturing of nass and paan.^{15,16}

Current Policy and Interventions

Well-structured interventions and regulatory policies, as well as ST cessation and prevention programs, are not present in the Eastern Mediterranean Region. Only Bahrain and the UAE have introduced policies banning smokeless tobacco. In 2009 the government of Bahrain introduced strict antismoking regulations and banned the importation of chewable tobacco products.⁵⁵ Ajman Municipality in the UAE banned the sale, import, storage, and possession of chewing tobacco and prescribed heavy fines for violations of the new law.¹⁶

Eastern Mediterranean Region countries have not made use of taxation as part of a policy of tobacco control. Taxes on ST products and prices of all types of tobacco products are among the lowest in the world. In 1999, cigarettes in this region were taxed at 47% of their base price on average. The corresponding cigarette product prices were low, only approximately US\$0.93 per pack, leaving room for potential tax increases. Product prices and likewise taxes in the region ranged from US\$0.30 in Lebanon, where the tax was 19% of the retail price, to almost US\$1.40 in Morocco, where the tax was 30% of the retail price. The UAE and Tunisia have the highest taxes, at 65% and 67% of retail price, respectively, for a corresponding rate of approximately US\$1.10 and US\$1.18 per pack. Since tobacco taxes as a total proportion of government taxes collected remains low (1%–2% in Syria, Lebanon, Egypt, and Kuwait; and 4% in Tunisia), countries in this region have the opportunity to increase tobacco taxes and introduce taxes specifically on ST products.⁵⁶

Summary and Conclusions

Smokeless tobacco is still an under-investigated topic in the Eastern Mediterranean Region because most production and marketing are cottage industry activities. A lack of comprehensive surveillance and lack of updated data on ST use and its adverse health effects may limit the ability of governments to introduce regulatory policies and design programs to combat ST use in their countries.

The most frequently used products in the region include toombak, paan, shammah, and nass. Especially high prevalence of use has been documented in Sudan and Pakistan, but consumption is widespread across Yemen and other areas of the region as well. Prevalence is substantially higher among men than among women in the region, although women engage in the practice as well.

Specific toxicity profiles are available only for nass and toombak. Of these, toombak has been reported to have the highest levels of nicotine and TSNA's ever measured in tobacco products. Research has documented associations between the use of toombak, shammah, nass, and paan and precancerous abnormalities as well as oral cancer and head and neck cancer.

In the Eastern Mediterranean Region, production and marketing of ST products are centered in areas of tobacco farming and rely on locally available resources. Some ST products originating from the Indian subcontinent are marketed to the large immigrant Asian labor force in the Gulf region.

Well-structured interventions to prevent or promote cessation of ST use are lacking in the region. The price of ST products remains low, and countries have generally not made use of taxation as a tobacco control policy. The government of Bahrain banned the importation of chewable tobacco products in 2009, and a municipality in the UAE banned the sale, import, storage, and possession of chewing tobacco.

Based on the available information from this region and the experiences of other countries, Eastern Mediterranean Region governments may benefit from considering the following:

- Subjecting ST to the same regulation as cigarettes and other tobacco products, if possible, given the proliferation of cottage industries
- Requiring the display of visible health warnings on all tobacco products for those that are manufactured and, if possible, those from cottage industries
- Including ST in tobacco control efforts, culturally relevant prevention strategies, and culturally relevant cessation interventions
- Educating individuals about the risks of ST use, using appropriate channels of communication in their countries.

To further inform regulatory policies, research is needed that leads to greater understanding of ST use and documents risks and health effects of products specific to this region.

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