Health Effects and Social Consequences of Tobacco Use

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Introduction

Tobacco use remains a major preventable cause of disease and premature death, and its effects extend beyond individual smokers to families, schools, workplaces, healthcare systems, and communities exposed to secondhand smoke. The World Health Organization reported in June 2026 that tobacco kills more than seven million people each year, including more than 1.6 million nonsmokers exposed to secondhand smoke, and that about 80 percent of the world's approximately 1.2 billion tobacco users live in low- and middle-income countries (World Health Organization, 2026a). Adolescence is a particularly important period for surveillance because nicotine can produce dependence, experimentation with cigarettes may begin early, and newer products such as e-cigarettes and nicotine pouches complicate the tobacco landscape. Pakistan also requires updated monitoring rather than reliance on figures from surveys conducted more than a decade ago. WHO's presentation of Pakistan's Global Adult Tobacco Survey 2024 results in June 2026 reported a 15.7 percent decline in tobacco consumption between 2014 and 2024, indicating progress while also reinforcing the need for continued prevention. A Karachi surveillance system should therefore measure current products, exposure, dependence, cessation, and health knowledge with methods capable of detecting change over time.

Health Effects and Social Consequences

Tobacco smoke contains carcinogens and other toxic substances that damage DNA, blood vessels, lungs, and multiple organ systems. Smoking increases the risk of lung cancer, oral and esophageal cancers, cardiovascular disease, stroke, reproductive complications, and chronic obstructive pulmonary disease, while smokeless tobacco carries important oral and systemic risks. Secondhand smoke exposes people who did not choose tobacco use to many of the same toxic chemicals, which is why smoke-free environments are a public-health intervention rather than merely a personal preference. Social consequences include household spending diverted from food or education, missed school or work, healthcare costs, normalization of nicotine use within peer groups, and conflict when smoke affects other family members. Adolescents face additional concerns because dependence can become established before long-term risks feel personally relevant. Prevention should therefore avoid moralizing language that presents tobacco use simply as weak self-control. Nicotine is highly

addictive, products are marketed through changing channels, and behavior is shaped by peers, stress, access, price, family use, and social norms. Effective programs combine education with regulation, cessation support, and environments that reduce exposure and easy access.

Pakistan and Karachi Surveillance Priorities

A Karachi adolescent tobacco-surveillance program should be designed to answer current local questions rather than reproduce national or international percentages from older surveys. The target population can remain school-going adolescents in grades 9 through 12 across public and private schools, provided the sampling frame includes different socioeconomic areas and acknowledges that out-of-school adolescents will require a separate strategy. The system should measure cigarette smoking, waterpipe use, smokeless tobacco, e-cigarettes, nicotine pouches or other emerging oral products, secondhand-smoke exposure, age at initiation, frequency, dependence indicators, quit attempts, access, advertising exposure, and knowledge of health risks. WHO's 2026 release of Pakistan's GATS 2024 findings indicates a national decline in tobacco consumption over the preceding decade, but adult trends cannot substitute for youth surveillance. Karachi may differ from national patterns because of population density, product availability, cultural practices, and marketing. Baseline measurement should therefore be repeated at defined intervals using consistent questions and sampling methods so observed changes reflect real trends rather than changes in measurement. Results should also be stratified by sex, school type, area, and product category without assuming that one group is uniformly at higher risk.

Objectives, Case Definition, and Surveillance Design

The surveillance system should have a small set of measurable objectives: estimate the prevalence and patterns of tobacco and nicotine use among adolescents; identify initiation age, product types, access routes, advertising exposure, and secondhand smoke; measure knowledge, quit attempts, and willingness to seek cessation support; and track selected health and behavioral indicators over time. A practical case definition can classify current use according to the validated survey instrument used for each product rather than relying on a vague definition of "habitual tobacco use." The Global Youth Tobacco Survey framework is especially useful because standardized core questions support comparison while allowing locally relevant additions. Continuous active surveillance of every student would be expensive and unnecessary for prevalence monitoring. A repeated school-based sentinel or representative survey conducted on a regular schedule is more feasible, with targeted qualitative interviews for deeper questions. The design should specify sampling, consent, confidentiality, data security, nonresponse handling, and procedures for students who disclose a desire to quit. Surveillance is intended to describe population patterns, not to identify or punish individual students. Ethical safeguards are essential because fear of disciplinary consequences would reduce honest

reporting and undermine the validity of the entire system.

Data Collection, Biomarkers, and Stakeholder Roles

Primary data can be collected through anonymous or confidential questionnaires adapted from the Global Youth Tobacco Survey, covering attitudes, product use, cessation, access, advertising, school education, and secondhand-smoke exposure. Interviews or focus groups can explore why particular products are attractive, how adolescents obtain them, and what barriers prevent quitting. Cotinine in saliva, urine, or blood can objectively indicate recent nicotine exposure, but biomarker testing should be used only in a scientifically justified subsample with appropriate consent, privacy, laboratory capacity, and interpretation. Cotinine cannot by itself identify which nicotine product was used and may also reflect secondhand exposure, so it should complement rather than replace self-report. Additional sources may include school-health records, cessation-service data, hospital or clinic information, and policy-monitoring systems, although each source measures a different population. Stakeholders should include provincial and local health authorities, school administrators, public-health researchers, students and parents, clinicians, community organizations, cessation specialists, and relevant education officials. Religious or cultural leaders may support communication when appropriate, but governance should remain evidence-based and protect student confidentiality rather than using surveillance information for stigma or enforcement against individuals.

Intervention, Dissemination, and Evaluation

Surveillance has value only when findings lead to action and later measurement. Results should inform school prevention programs, cessation services, enforcement of age restrictions and smoke-free rules, restrictions on advertising and sponsorship, taxation and pricing policy, and public communication tailored to the products adolescents actually use. Media campaigns should be evaluated rather than assumed effective, and messages should explain addiction and health effects without shaming young users. Data can be disseminated annually or according to the survey cycle through reports for health and education authorities, schools, researchers, community organizations, and the public, while protecting small groups from identification. Evaluation should distinguish process measures—such as schools participating, counselors trained, or cessation referrals made—from outcomes such as changes in product use, initiation, secondhand exposure, quit attempts, and knowledge. If prevalence does not decline, the response should be to examine implementation, access, price, marketing, and changing products rather than simply intensifying messages. A surveillance system should also remain adaptable because nicotine markets evolve quickly; questionnaires that ignore new products can create a false impression of progress by measuring only declining cigarette use.

Conclusion

Tobacco surveillance among adolescents in Karachi should combine current public-health evidence with a practical local design. WHO's 2026 tobacco data confirm that the global burden remains severe, with more than seven million deaths annually and substantial harm to nonsmokers through secondhand smoke, while Pakistan's GATS 2024 results show meaningful national progress that still requires sustained prevention. The surveillance program should therefore avoid repeating outdated prevalence figures and instead establish a current Karachi baseline across cigarettes, waterpipe, smokeless tobacco, e-cigarettes, nicotine pouches, and other relevant products. A repeated school-based survey using validated questions can measure prevalence, initiation, access, advertising, cessation, and exposure efficiently, while interviews and carefully justified biomarker testing can answer more detailed questions. Stakeholders should use the findings to improve prevention, cessation support, smoke-free environments, advertising controls, and enforcement rather than to punish individual students. The objective is not merely to produce statistics. It is to create a reliable cycle of measurement, intervention, evaluation, and policy adjustment that reduces nicotine dependence and tobacco-related harm while respecting adolescent confidentiality and dignity.

References

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