

The impact of opium use prevention on future cancer incidence in Iran

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Background and objectives: We undertook this study to estimate the number of cancer cases that could be prevented through decreasing the prevalence of opium use by 2035 in Iran, where 40% of the world opium is consumed.

Methods: The projection of the population attributable fraction (PAF) of cancers due to opium use was calculated using four data sources including (i) national cancer incidence, (ii) age- and gender-specific prevalence of opium use, (iii) relative risk of cancers associated with opium use, and (iv) annual percentage change in the incidence rates of cancers in Iran. Age-specific PAFs were estimated for males and females for overall cancers and for opium-related cancers using Levin's formula. Opium-related cancers were cancers in the lung, larynx, bladder, oesophagus, stomach, pancreas, and pharynx. The number of potentially preventable cancer cases in each opium prevalence scenario was calculated by subtracting the numbers of attributable cancers in each year of the study period based on current prevalence of opium use from the number of attributable cancers in the alternative scenarios in that specific year.

Results: We estimated until 2035 a total of 3,001,421 new cancer cases will be diagnosed in Iran, with 905,207 (30.1%) of these being opium-related cancers. With the continuation of the current prevalence of opium use (overall = 5.6%; among men = 10.0%; among women = 1.2%), using opium will lead to the development of 111,150 new cancer cases (3.9% of all cancers) by 2035. The proportion of preventable opium-related cancers was 12.7%. Reducing opium use prevalence by 50%, 30%, and 10% could potentially prevent 9,063, 28,218, and 49,096 of the total incident cancers by 2035. We estimate that reducing opium use prevalence will have the highest impact on preventing cancers of the larynx (34.0% of the total incident laryngeal cancers), bladder (20.2%) and lung (13.0%).

Conclusion: In this study for the first time, we quantified the burden of using opium, a newly identified carcinogen, on future cancer incidence. Our results highlight the significant benefits that can be achieved through effective cancer prevention policies targeting opium use in the Iranian population.

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