



OPIUM CONSUMPTION

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Table S1.6.2D Exposure assessment quality of studies on cancers at “other” organ sites and opium consumption

Reference and outcome	Type of study	Type of assessment	Exposure assessment relative to outcome	Could the “unexposed” reference group include exposed?	Definition of opium exposure	Intensity of exposure	Duration of exposure	Cumulative exposure	Temporality of opium use relative to study outcome ^a	Type of opium exposure	Method of exposure	Co-exposures collected in paper ^b
Sheikh et al. (2020) All cancers	Golestan Cohort study	Structured & validated questionnaire (GCSQ)	Prospective	Yes. Includes those who used for < 6 months and/or < 1 × per week	Defined (used opium at least once per week for at least 6 months)	Precise (nokhods/d d/w)	Lifetime opium use history	Yes Nokhod-years	Past Combined	Raw Prepared Dross (n = 6) Combined Other heroin (n = 4)	Smoke Ingest Both smoke and ingest	Smoking tobacco cumulative pack years Hookah use ever/never Chewing tobacco eg Nass cumulative nass years Alcohol ever/never Food quality household fuel
Malekzadeh et al. (2013) Malignant GI mortality	Golestan Cohort (Mortality)	Structured & validated questionnaire (GCSQ)	Prospective	Yes. Includes those who used for < 6 months and/or < 1 × per week	Defined (used opium at least once per week for at least 6 months)	Precise (nokhods/d d/wk)	Lifetime opium use history	Yes Nokhod-days	Past Combined	Raw Prepared Dross (n = 6) Combined Other heroin (n = 4)	Smoke Ingest Both smoke and ingest	Smoking tobacco Alcohol Both ever/never
Sadjadi et al. (2014) Gastric cancer (Cohort of H. pylori positive patients)	Cohort	Structured questionnaire (no details of questions or validation)	Prospective	Yes. Includes those who used for < 6 months and/or < 1 × per week	Defined (used opium at least once per week for at least 6 months)	No info	Undefined	No	Combined	Undefined	Undefined	Smoking tobacco Hookah tobacco Alcohol Food (Fruit/veg)
Shakeri et al. (2013) Gastric cancer	Case control.	Structured & validated questionnaire (GCSQ)	Prospective for controls; Retrospective for cases	Yes. Includes those who used for < 6 months and/or < 1 × per week	Defined (at least once per week for at least 6 months)	Precise (nokhods/d)	Lifetime opium use history	Yes Nokhod-years	Recent (started in the year before diagnosis) Past Combined	Undefined [GCSQ was used; may include heroin users]	Undefined	Smoking tobacco Hookah tobacco Chewing tobacco e.g. Nass Food (fruits and vegetables)
Naghizadeh Tahami et al. (2014) Upper gastrointestinal cancers and gastric cancer	Case control	Structured & validated questionnaire (GCSQ)	Retrospective	Yes. Includes those who used for < 6 months and/or < 1 × per week.	Defined (ever use)	Precise (nokhods/d)	Lifetime opium use history	Yes (Average daily use x duration of use.)	Combined	Combined (no participant had used dross or heroin)	Combined	Smoking tobacco Alcohol ever/never Food No sukhteh or heroin users
Naghizadeh-Tahami et al. (2016): Colorectal cancer	Case control	Structured & validated questionnaire (GCSQ)	Retrospective	Yes. Includes those who used for < 6 months and/or < 1 × per week	Any use	Precise (nokhods/d)	Lifetime opium use history (including duration of use in different periods)	Yes	Recent (use in the study year) Past Combined	Combined (no participant had used dross or heroin)	Smoke	Smoking tobacco Food (meat, fruit, veg, hydrogenated fats)
Shakeri et al. (2016) Pancreatic cancer	Case control	Structured & validated questionnaire	Retrospective [but just before cancer diagnostics among both cases and controls]	Yes. Includes those who used for < 6 months and/or < 1 × per week	Defined (used opium at least once per week for at least 6 months)	Precise (nokhods/d)	Lifetime opium use history	Yes	Recent Past Combined	Combined [GCSQ was used; may include heroin users]	Both smoke and ingest combined	Smoking tobacco Alcohol Other (age, sex, residence, height, weight)
Iankarani et al. (2017) Lower GI cancers	Case-control	Structured interview/questionnaire (GCSQ)	Retrospective	Yes. Includes those who used for < 6 months and/or < 1 × per week	Defined, as any use	Precise (nokhods/d)	Lifetime opium use history (based on frequency and duration of use in different ages)	Yes (average daily use x duration of use)	Combined	Combined (no participant had used dross or heroin)	Undefined	Smoking tobacco Alcohol Food (meat, fruit, veg) Exclude burned sap or heroin users
Tahergorabi et al. (2018) Metabolic syndrome & GI cancer	Case control	Structured & validated interview-based questionnaire	Retrospective	Yes, could include non-addicts	Undefined (opium addiction)	No info	Undefined	No	No info	Other – addiction to opium or heroin	Undefined	Unclear

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Reference and outcome	Type of study	Type of assessment	Exposure assessment relative to outcome	Could the “unexposed” reference group include exposed?	Definition of opium exposure	Intensity of exposure	Duration of exposure	Cumulative exposure	Temporality of opium use relative to study outcome ^a	Type of opium exposure	Method of exposure	Co-exposures collected in paper ^b
		(panel of experts & reliability via 25 persons referring to health centre)										but no further definition
Alizadeh et al. (2020) Head and Neck cancers	Case-control	Structured interview & validated GCSQ questionnaire (face-to-face or with family member if case had died)	Retrospective	Yes. Includes those who used for < 6 months and/or < 1 × per week.	Defined, any use	Precise (nokhods/d) (Median use in controls – non, low and high use)	Lifetime opium use	Yes (average daily use by duration of use)	Combined (excluded use at least 2 years before cancer diagnosis)	Combined (no participant had used dross or heroin)	Smoking	Smoking tobacco, alcohol, food (meat, fruit, vegetables, hydrogenated fats, olive oil), education. No burned opium (sukhteh) or heroin
Mohebbi et al. (2020) Head and neck cancer	Case control (IROPICAN)	Structured & validated questionnaire	Retrospective	Yes. Includes those who used for < 6 months and/or < 1 × per week and those who started using opium 3 years before diagnosis	Defined (at least once a week for at least 6 consecutive months)	Precise (gram/d)	Lifetime opium use history	Yes, (gram-year)	Combined	Raw Dross (few users) Prepared Other heroin (none)	Smoke Ingest Both smoke and ingest	Smoking cigarette (pack-year) Hookah use (head-year) Alcohol drinking (regular/non-regular) Oral health (Decayed Missing Filled Teeth index)
Vazirinejad et al. (2020) Gastrointestinal cancer (oesophageal, gastric, pancreatic, colorectal)	Case-control	“Checklist” in individual interview sessions	Retrospective	No, unexposed were those with no opium use	Defined as any use. Also history of indirect exposure (defined as constant exposure to the smoke of opium used by a family member or friend)	Precise. Average daily intake (mesghal/d, equal to 4.6 g)	Lifetime opium use in years	Yes (average daily use × duration of use)	Combined (excluded use 1 year before cancer diagnosis)	Raw, opium sap [refined opium], burned opium	Smoke	Smoking tobacco, education level, family history of cancer, consumption of red meat, fruit, vegetables

^a Indicates proximity of assessed exposures to the time of cancer occurrence: response options are “recent,” “past,” “combined,” “no info”.

^b Tobacco use, alcohol, household fuel, diet, tea temperature, occupational exposures and other co-exposures included in the study are listed here.

d, day; wk, week.

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