

Supplementary tables:

Supplementary Table 1: cross tabulation of opium use against smoking categories.

	All Respiratory diseases		Malignant Respiratory diseases		Non-malignant Respiratory diseases	
	Never tobacco use	Ever tobacco use	Never tobacco use	Ever tobacco use	Never tobacco use	Ever tobacco use
Opium Use						
Never users	36255 (87.2)	5303 (12.8)	23 (54.8)	19 (45.2)	92 (75.4)	30 (24.6)
Ever Users	2933 (34.6)	5554 (65.4)	0 (0.0)	43 (100.0)	38 (30.7)	86 (69.4)
Opium Use						
Never users	36255 (87.2)	5303 (12.8)	23 (54.8)	19 (45.2)	92 (75.4)	30 (24.6)
Former users	229 (27.3)	609 (72.7)	0 (0.0)	5 (100.0)	6 (42.9)	8 (57.1)
Current** users	2357 (33.2)	4750 (66.8)	0 (0.0)	38 (100.0)	29 (27.6)	76 (72.4)
Duration of Opium use						
Never users	36255 (87.2)	5303 (12.8)	23 (54.8)	19 (45.2)	92 (75.4)	30 (24.6)
Former users	249 (28.7)	619 (71.3)	0 (0.0)	5 (100.0)	6 (40.0)	9 (60.0)
1 st quintile (<=3 y)	884 (52.9)	787 (47.1)	0 (0.0)	3 (100.0)	7 (50.0)	7 (50.0)
2 nd quintile (4 to 7 y)	609 (41.0)	877 (59.0)	0 (0.0)	2 (100.0)	5 (35.7)	9 (64.3)
3 rd quintile (8 to 12 y)	510 (35.6)	923 (64.4)	0 (0.0)	5 (100.0)	6 (30.0)	14 (70.0)
4 th quintile (13 to 20 y)	439 (27.8)	1138 (72.2)	0 (0.0)	10 (100.0)	9 (39.1)	14 (60.9)
5 th quintile (>20 y)	242 (16.7)	1210 (83.3)	0 (0.0)	18 (100.0)	5 (13.2)	33 (86.8)
Opium Cumulative use						
Never users	36255 (87.2)	5303 (12.8)	23 (54.8)	19 (45.2)	92 (75.4)	30 (24.6)
Former users	249 (28.7)	619 (71.3)	0 (0.0)	5 (100.0)	6 (40.0)	9 (60.0)
1 st quintile (<=1148)	774 (50.8)	750 (49.2)	0 (0.0)	2 (100.0)	6 (37.5)	10 (62.5)
2 nd quintile (1149 to 4383)	672 (44.1)	852 (55.9)	0 (0.0)	5 (100.0)	5 (29.4)	12 (70.6)
3 rd quintile (4384 to 12054))	560 (36.8)	964 (63.3)	0 (0.0)	6 (100.0)	11 (57.9)	8 (42.1)
4 th quintile (12055 to 30681)	443 (28.2)	1127 (71.8)	0 (0.0)	9 (100.0)	5 (17.2)	24 (82.8)
5 th quintile (>30682)	235 (15.9)	1242 (84.1)	0 (0.0)	16 (100.0)	5 (17.9)	23 (82.1)
Type of Opium Product						
Never users	36255 (87.2)	5303 (12.8)	23 (54.8)	19 (45.2)	92 (75.4)	30 (24.6)
Teriak only	2577 (35.3)	4731 (64.7)	0 (0.0)	37 (100.0)	31 (29.5)	74 (70.5)
Shireh only	291 (37.3)	490 (62.7)	0 (0.0)	2 (100.0)	5 (45.5)	6 (54.6)
Combinations	65 (16.3)	333 (83.7)	0 (0.0)	4 (100.0)	2 (25.0)	6 (75.0)
Route of administration						
Never users	36255 (87.2)	5303 (12.8)	23 (54.8)	19 (45.2)	92 (75.4)	30 (24.6)
Smoking	2143 (36.9)	3661 (63.1)	0 (0.0)	21 (100.0)	18 (40.0)	27 (60.0)
Ingestion	691 (31.6)	1495 (68.4)	0 (0.0)	17 (100.0)	18 (28.6)	45 (71.4)
Both methods	99 (19.9)	398 (80.1)	0 (0.0)	5 (100.0)	2 (12.5)	14 (87.5)

Supplementary Table 1: Hazard ratios for the association between opium use and respiratory disease mortality by type of opiate used, route of administration, and cumulative use in never smokers

	All Respiratory diseases		Non-malignant Respiratory diseases	
	No. of participants (deaths)	Cox HR* (95%CI)	No. of participants (deaths)	Cox HR (95%CI)
Opium Use				
Never users	36255 (115)	Reference	36255 (92)	Reference
Ever Users	2933 (38)	3.63 (2.51-5.28)	2933 (38)	4.49 (3.01-6.61)
Opium Use				
Never users	36255 (115)	Reference	36255 (92)	Reference
Former users	229 (6)	6.01 (2.63-13.69)	229 (6)	7.51 (3.26-17.21)
Current* users	2704 (32)	3.38 (2.26-5.03)	2704 (32)	4.16 (2.76-6.28)
Duration of Opium use				
Never users	36255 (115)	Reference	36255 (92)	Reference
Former users	249 (6)	5.51 (2.41-12.58)	249 (6)	6.92 (3.01-15.87)
1 st quintile (<=3 y)	632 (3)	1.48 (0.46-4.67)	632 (3)	1.82 (0.57-5.77)
2 nd quintile (4 to 7 y)	621 (9)	4.17 (2.11-8.25)	621 (9)	5.1 (2.56-10.16)
3 rd quintile (8 to 12 y)	361 (1)	0.88 (0.12-6.35)	361 (1)	1.09 (0.15-7.89)
4 th quintile (13 to 20 y)	591 (8)	4.45 (2.16-9.17)	591 (8)	5.51 (2.65-11.45)
5 th quintile (>20 y)	479 (11)	4.86 (2.61-9.11)	479 (11)	6.01 (3.19-11.33)
		p for trend <0.000		p for trend <0.000
Opium Cumulative use				
Never users	36255 (115)	Reference	36255 (92)	Reference
Former users	249 (6)	5.51 (2.41-12.58)	249 (6)	6.91 (3.01-15.86)
1 st quintile (<=1148)	774 (6)	2.26 (0.99-5.14)	774 (6)	2.79 (1.22-6.4)
2 nd quintile (1149 to 4383)	672 (5)	2.23 (0.91-5.49)	672 (5)	2.77 (1.12-6.84)
3 rd quintile (4384 to 12054))	560 (11)	5.82 (3.11-10.88)	560 (11)	7.14 (3.79-13.46)
4 th quintile (12055 to	443 (5)	3.19 (1.3-7.84)	443 (5)	3.98 (1.61-9.83)
5 th quintile (>30682)	235 (5)	5.02 (2.03-12.42)	235 (5)	6.06 (2.43-15.11)
		p for trend <0.000		p for trend <0.000
Type of Opium Product				
Never users	36255 (115)	Reference	36255 (92)	Reference
Teriak only	2577 (31)	3.31 (2.21-4.94)	2577 (31)	4.08 (2.69-6.17)
Shireh only	291 (5)	6.06 (2.46-14.92)	291 (5)	7.57 (3.05-18.77)
Combinations	65 (2)	8.01 (1.97-32.51)	65 (2)	10 (2.45-40.81)
Route of administration				
Never users	36255 (115)	Reference	36255 (92)	Reference
Smoking	2143 (18)	2.69 (1.62-4.45)	2143 (18)	3.33 (1.99-5.56)
Ingestion	691 (18)	5.44 (3.26-9.05)	691 (18)	6.69 (3.97-11.26)
Both methods	99 (2)	4.6 (1.13-18.75)	99 (2)	5.68 (1.38-23.23)

*Adjusted for age, sex, residential place, education, marital status, drinking alcohol **Excluding 542 who have started opium after their illness.

Supplementary table 3: Demographic data of the total cohort, all individuals who died and individuals who died from malignant and non-malignant respiratory causes.

	All death N (%)	Total Respiratory Death N (%)	Malignant Respiratory Death N (%)	Non- Malignant Respiratory Death N (%)		All death N (%)	Total Respiratory Death N (%)	Malignant Respiratory Death N (%)	Non-Malignant Respiratory Death N (%)
All cohort participants	4691	331	85	246					
Age categories					Education				
30-39	8 (0)	2 (1)	1 (1)	1 (0)	illiterate	3746 (80)	261 (79)	62 (73)	199 (81)
40-49	765 (16)	48 (15)	15 (18)	33 (13)	up to 8 years	567 (12)	43 (13)	16 (19)	27 (11)
50-59	1355 (29)	93 (28)	21 (25)	72 (29)	high school	140 (3)	10 (3)	1 (1)	9 (4)
60-69	1583 (34)	109 (33)	32 (38)	77 (31)	higher education	185 (4)	16 (5)	5 (6)	11 (4)
70 or more	980 (21)	79 (24)	16 (19)	63 (26)	illiterate	53 (1)	1 (0)	1 (1)	0
Gender					Ethnicity				
Female	2053 (44)	113 (34)	20 (24)	93 (38)	Non-Turkmen	1162 (25)	95 (29)	22 (26)	73 (30)
Male	2638 (56)	218 (66)	65 (76)	153 (62)	Turkmen	3529 (75)	236 (71)	63 (74)	173 (70)
Place of Residence					Marital status				
Rural	3675 (78)	268 (81)	65 (76)	203 (83)	Married	3773 (80)	270 (82)	78 (92)	192 (78)
Urban	1016 (22)	63 (19)	20 (24)	43 (17)	Widow/er, Single/Divorce	918 (20)	61 (18)	7 (8)	54 (22)
Alcohol consumption					Cigarette smoking				
Never use	4433 (95)	302 (91)	75 (88)	227 (92)	Never smokers	2997 (64)	153 (46)	23 (27)	130 (53)
Ever use	258 (5)	29 (9)	10 (12)	19 (8)	Ever smokers	1694 (36)	178 (54)	62 (73)	116 (47)

Supplementary table 4: Crude and adjusted age specific mortality rates for cohort

Age at the enrollment (5 years interval)	Mortality (per age group)	Cohort Participants (per age group)	age-specific crude mortality rates for the cohort	World standard population distribution	age standardized mortality rate
less than 40	8	325	2.46	7.38	18.15
40-44	300	11,584	2.59	6.59	17.07
45-49	465	11,209	4.15	6.04	25.07
50=54	583	9,064	6.43	5.37	34.53
55-59	772	7,068	10.92	4.55	49.69
60-64	794	4,899	16.21	3.72	60.30
65-69	789	3,078	25.63	2.96	75.86
70-74	803	2,398	33.49	2.21	74.01
75 or more	177	420	42.14	3.07	129.37
Total	4,691	50,045	144	42	484