SOCIOECONOMIC INEQUALITIES IN CURRENT DAILY SMOKING IN FIVE TURKISH REGIONS

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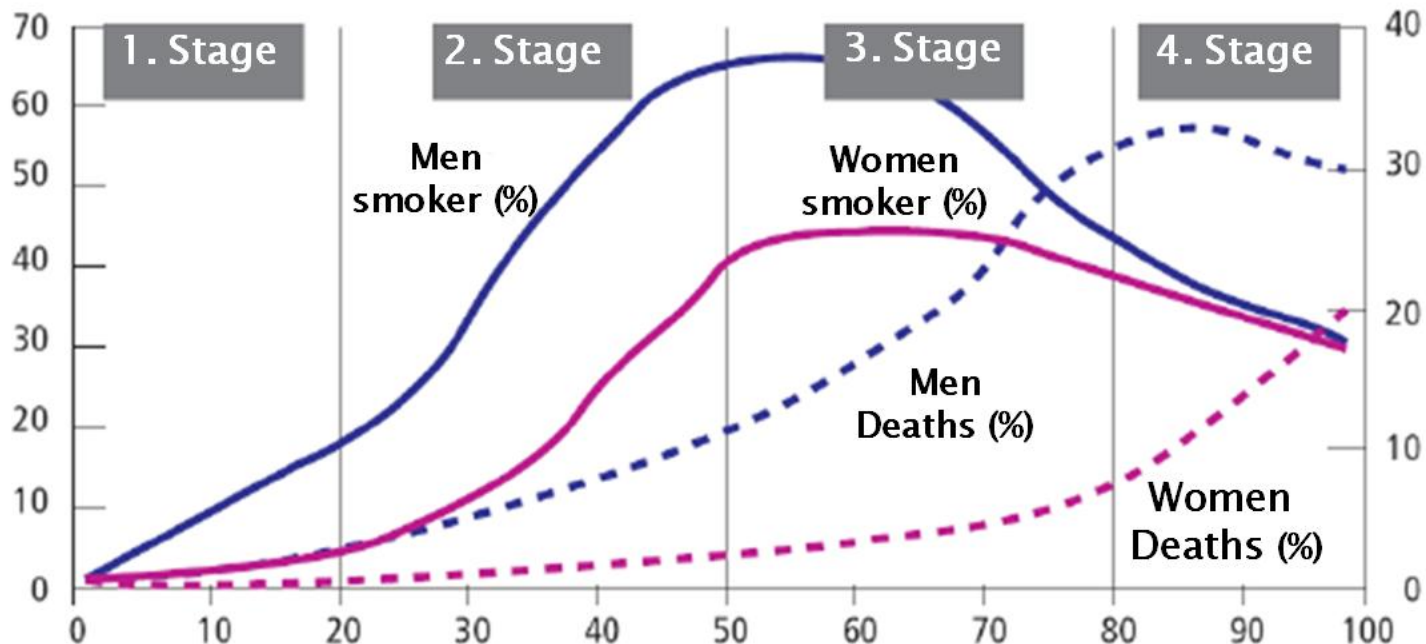*Department of Public Health, Ege University School of Medicine
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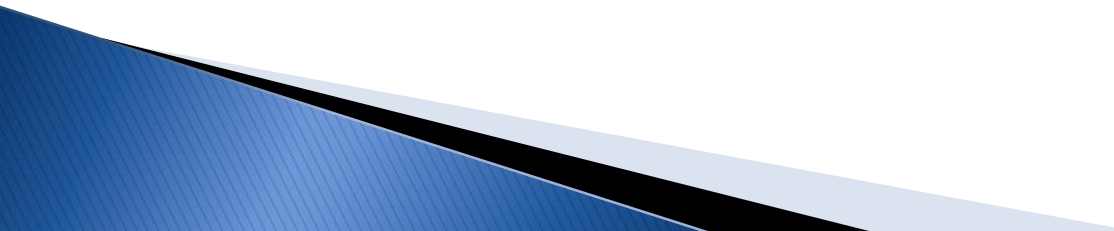
Introduction

- The patterns of socioeconomic inequalities in smoking *vary* between countries within Europe
- Especially marked was a contrast between northern and southern European countries among *women*.
- For women, in the *North*, smoking was more common among *lower socioeconomic groups*, while it was more common among *higher socioeconomic groups* in the *South*
- Among southern women, smoking was especially related to *high education*, while it was less closely related to occupational class or wealth.
- The pattern of reverse inequalities was found most clearly in the *least developed countries* (Portugal, Greece) and *regions* (the southern part of Italy)

Introduction
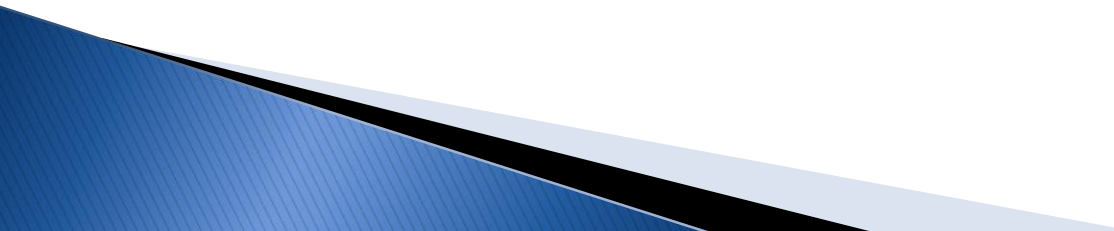
▸ Lopez has developed the four-staged "smoking epidemic model"
1-The smoking prevalence is low for both sexes
2-For men the prevalence rises to 50-80%
3-The peak reached at the third stage is followed by a decrease
4-In the last stage, smoking prevalence declines and reaches a stable point for both sexes

Introduction

- In the earlier stages of the epidemic, smoking is more common among the *higher socioeconomic groups* for both sexes.

- In the latter stages, while overall smoking prevalence rates decline, smoking becomes more common among groups with *lower socioeconomic status*.

- This reversal of the smoking gradient first occurs among men, to be followed by women

Introduction

- Smoking in Turkey is highly prevalent among men 43.8% while the prevalence is much lower among women 11.6% (GATS 2010)
- Turkey has large regional heterogeneity and the position of women in Turkish society varies correspondingly, with women in the eastern part of Turkey being most oppressed in a patriarchal society
- Socioeconomic inequalities in smoking in Turkey have hardly been studied.
- Analysis of the Turkish GATS showed that smoking generally increased with educational level among women while there was no clear pattern for men.

Aim

- The aim of this study is to assess whether socioeconomic inequalities in smoking across regions in Turkey have the same pattern as observed in southern Europe.
- We paid particular attention to Turkish women, for whom we expect that:
  - smoking prevalence is elevated among individuals with higher socioeconomic position, *especially for education*
  - smoking prevalence is elevated among individuals with higher educational level in all regions of Turkey, *but especially in the least developed regions*
  - smoking prevalence is elevated among individuals with higher educational level *especially among older Turkish women*

Methods

Data

- We analyzed WHS 2002 country data for Turkey
- In total, 11,512 households were selected in the WHS.
- Household and individual questionnaire datasets were combined for our study.
- 263 unmatched data cases, 409 respondents below 20 years of age, 30 with missing data on key variables, 370 occasional smokers were excluded from analysis
- The data of the remaining 10,407 people were used for analyses.

Methods

Variables

- Age, sex, region, wealth and education were the independent variables
- 20–39 year olds represented "the younger" and 40 and above "the older"
- The five regions distinguished in the WHS were:

West, Mediterranean, Middle, Black Sea and East

Methods

- Wealth was defined using ownership data of 11 items (stereo systems, washing machine for clothes, washing machine for dishes, vacuum cleaner, refrigerator, fixed line telephone, mobile/cellular telephone, computer, access to the internet, subscriptions to magazines and/or newspaper, and a security system in the home)

- The answers to these 11 items were used to calculate the household wealth score

- The sum score was grouped as 8–11 (highest), 6–7 (second highest), 5 (middle), 4 (second lowest) and 0–3 (lowest)

- Educational level was measured by years of education and categorized as 0–4, 5–7 and 8 or more years

Methods

- The dependent variable of this study was *current daily smoking status*
- The answers to the smoking questions were used to classify respondents into three categories:
  - current daily smoker,
  - non-daily smoker (occasional smoker) and
  - non-smoker

Methods

Statistical analysis

▸ We calculated age-standardized prevalence rates.

▸ For the evaluation of the association of smoking with wealth and education, logistic regression analysis was applied.

▸ In the first step, analyses were made per region. In these analyses, the associations for wealth and educational level were measured separately using regression models that control only for age.

▸ In the second step, analyses were made according to age groups (20-39/40 and above), for all regions together. We first controlled for age only (Model 1) and then controlled for age, region, education and wealth (Model 2).

Results

Table 1 The distribution of the surveyed population (%) according to sex, socioeconomic indicators and region

	West	Mediterranean	Middle	Black Sea	East	Total
Women	N=1954	N=782	N=941	N=705	N=1569	N=5951
Wealth Groups						
Highest	26.4	23.4	19.7	20.4	14.0	21.0
Second Highest	42.8	35.9	36.9	37.0	31.4	37.3
Middle	16.8	16.2	17.6	17.2	17.7	17.1
Second Lowest	6.6	10.5	11.3	9.9	13.0	9.9
Lowest	7.4	13.9	14.6	15.5	23.8	14.7
Education groups						
≥8 years	27.0	26.3	23.4	25.1	15.4	23.1
5-7 years	49.4	48.3	49.2	43.0	38.6	45.6
0-4 years	23.6	25.3	27.4	31.9	46.0	31.3
Men	N=1384	N=589	N=666	N=541	N=1276	N=4456
Wealth Groups						
Highest	28.1	25.5	20.1	27.2	12.9	22.1
Second Highest	43.6	38.7	34.2	35.5	33.2	37.6
Middle	14.5	16.0	15.3	17.7	17.3	16.0
Second Lowest	6.4	8.8	14.6	8.7	12.1	9.9
Lowest	7.4	11.0	15.8	10.9	24.5	14.4
Education groups						
≥8 years	44.1	38.2	39.5	48.6	33.9	40.2
5-7 years	46.4	50.4	50.0	41.0	49.2	47.6
0-4 years	9.5	11.4	10.5	10.4	16.9	12.1

Figure 1 Age-standardized prevalence of current daily smoking status by sex (men/women), age groups (young "20–39"/old "40 and above") and region
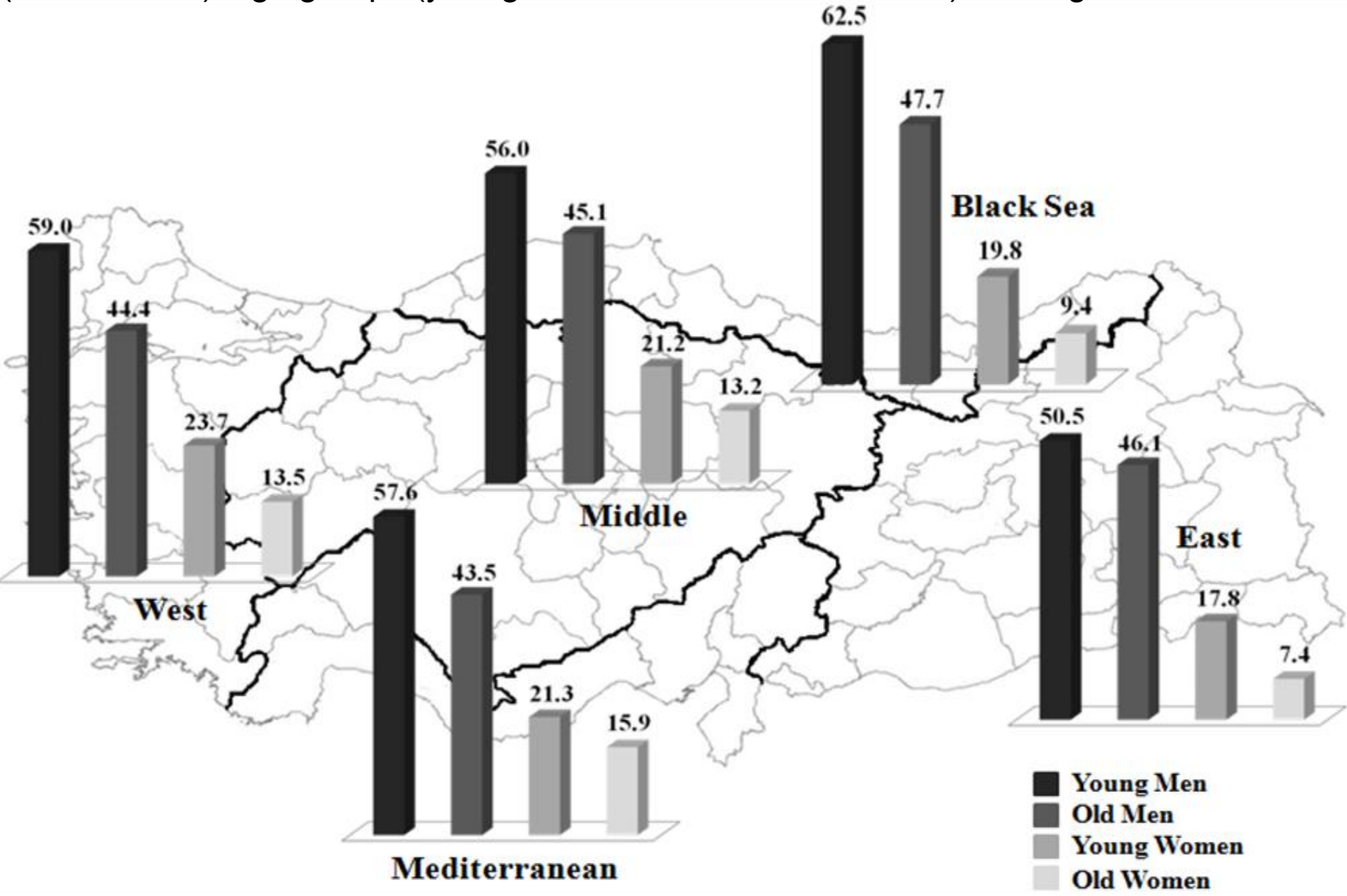
Table 2 The age-standardised prevalence rates and odds ratios for current daily smoking according to wealth groups, per sex and region

	Women		Men	
	Prevalence Rate (%)	Odds Ratio (95% CI)	Prevalence Rate (%)	Odds Ratio (95% CI)
Turkey				
Highest	22.99	3.64 (2.72-4.86)**	50.69	0.80 (0.65-0.99)*
Second Highest	17.79	2.48 (1.87-3.29)**	49,01	0.74 (0.61-0.90)*
Middle	14.43	1.93 (1.40-2.65)**	55.54	0.94 (0.75-1.17)
Second Lowest	12.82	1.62 (1.13-2.34)*	51.69	0.85 (0.66-1.09)
Lowest (ref)	8.21	1.00	55.55	1.00
West				
Highest	22.21	2.19 (1.20-3.99)*	51.06	0.61 (0.38-0.98)*
Second Highest	19.84	1.77 (0.98-3.19)	48.15	0.53 (0.34- 0.83)**
Middle	15.72	1.31 (0.69-2.51)	60.52	0.87 (0.520-1.45)
Second Lowest	15.41	1.20 (0.56-2.59)	61.95	0.82 (0.45-1.51)
Lowest (ref)	13.16	1.00	66.40	1.00
Mediterranean				
Highest	20.75	2.52 (1.15-5.51)*	44.72	0.57 (0.31-1.05)
Second Highest	20.69	2.07 (0.96-4.44)	54.20	0.98 (0.55-1.75)
Middle	15.63	1.50 (0.63-3.58)	55.83	1.02 (0.53-1.97)
Second Lowest	18.23	1.62 (0.62-4.21)	56.35	1.04 (0.49-2.23)
Lowest (ref)	10.65	1.00	56.45	1.00

The odds ratios are adjusted for age   *p<0.05, ** p<0.001

Table 2 The age-standardised prevalence rates and odds ratios for current daily smoking according to wealth groups, per sex and region (continuing)

	Women		**Men**	
	Prevalence Rate (%)	Odds Ratio (95% CI)	Prevalence Rate (%)	Odds Ratio (95% CI)
Middle				
Highest	29.05	4.65 (2.25-9.62)**	55.70	0.88 (0.51-1.52)
Second Highest	15.60	2.19 (1.07-4.45)*	49.44	0.65 (0.39-1.07)
Middle	19.43	2.71 (1.26-5.85)*	46.75	0.54 (0.30-1.07)
Second Lowest	11.68	1.43 (0.59-3.48)	46.93	0.66 (0.36-1.19)
Lowest (ref)	8.71	1.00	60.09	1.00
Black Sea				
Highest	17.87	3.12 (1.22-7.95)*	51.00	0.49 (0.25-0.96)*
Second Highest	18.15	2.85 (1.16-7.02)*	56.10	0.55 (0.29-1.05)
Middle	7.06	0.86 (0.27-2.69)	58.99	0.53 (0.26-1.09)
Second Lowest	12.56	2.10 (0.70-6.33)	50.71	0.46 (0.20-1.05)
Lowest (ref)	8.15	1.00	66.15	1.00
East				
Highest	24.06	4.86 (2.88-8.21)**	51.95	1.01 (0.68-1.49)
Second Highest	14.19	2.53 (1.55-4.12)**	44.01	0.76 (0.56-1.04)
Middle	13.14	2.28 (1.31-3.98)*	54.19	1.15 (0.80-1.65)
Second Lowest	9.73	1.64 (0.87-3.10)	47.68	0.94 (0.63-1.40)
Lowest (ref)	6.37	1.00	47.85	1.00

The odds ratios are adjusted for age   *p<0.05, ** p<0.001

Table 3 The age-standardised prevalence rates and odds ratio for current daily smoking according to education groups, per sex and region

	Women		Men	
	Prevalence Rate (%)	Odds Ratio (95% CI)	Prevalence Rate (%)	Odds Ratio (95% CI)
Turkey				
≥8 years	29.72	4.87 (3.87-6.11)**	49.61	0.80 (0.64-1.00)
5-7 years	14.20	1.88 (1.51-2.34)**	53.39	0.90 (0.73-1.11)
0-4 years (ref)	9.29	1.00	53.10	1.00
West				
≥8 years	27.37	2.97 (1.99-4.42)**	50.82	0.70 (0.46-1.08)
5-7 years	17.02	1.58 (1.08-2.31)*	54.25	0.78 (0.52-1.18)
0-4 years (ref)	13.88	1.00	65.35	1.00
Mediterranean				
≥8 years	32.32	2.96 (1.58-5.57)*	47.91	0.62 (0.33-1.16)
5-7 years	11.98	0.83 (0.44-1.56)	54.77	0.82 (0.45-1.49)
0-4 years (ref)	18.36	1.00	59.45	1.00
Middle				
≥8 years	33.10	7.08 (3.89-12.89)**	53.36	1.27 (0.69-2.35)
5-7 years	13.58	1.96 (1.10-3.50)*	51.22	1.05 (0.58-1.91)
0-4 years (ref)	7.60	1.00	54.60	1.00
Black sea				
≥8 years	26.20	8.11 (3.36-19.54)**	51.61	0.78 (0.38-1.61)
5-7 years	12.11	2.81(1.19-6.63)*	64.66	1.28 (0.63-2.57)
0-4 years (ref)	10.03	1.00	45.84	1.00
East				
≥8 years	31,86	5.99 (3.83-9.37)**	45.17	0.74 (0.51-1.07)
5-7 years	12.92	2.26 (1.50-3.40)**	50.43	0.88 (0.62-1.24)
0-4 years (ref)	6.69	1.00	49.09	1.00

The odds ratios are adjusted for age
*p<0.05, ** p<0.001

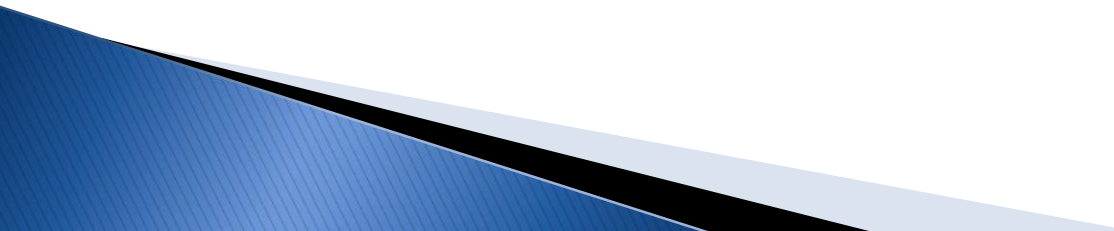**Table 4** Odds ratios for current daily smoking according to region, wealth, education groups for **women** per age groups (20-39/40 and above)

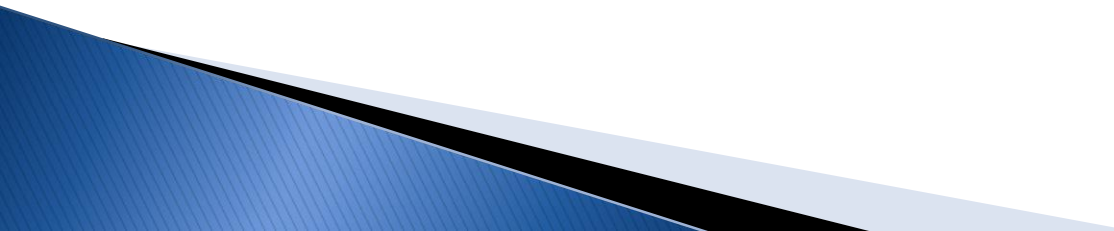|	Young (20-39 years)		Old (40 and above)	
	Model 1	**Model2**	**Model 1**	**Model2**
	Odds ratio (95% CI)	**Odds ratio (95% CI)**	**Odds ratio (95% CI)**	**Odds ratio (95% CI)**
Region				
West	1.44 (1.14-1.81)*	1.12 (0.88-1.42)	2.02 (1.44-2.84)**	1.42 (0.99-2.02)
Mediterranean	1.30 (0.98-1.71)	1.07 (0.81-1.43)	1.97 (1.33-2.92)*	1.64 (1.09-2.46)*
Middle	1.22 (0.90-1.66)	0.96 (0.70-1.31)	2.38 (1.59-3.56)**	1.69 (1.11-2.58)*
Black Sea	1.20 (0.87-1.64)	0.90 (0.65-1.25)	1.32 (0.83-2.12)	1.12 (0.69-1.82)
East (ref)	1.00	1.00	1.00	1.00
Wealth				
Highest	3.39 (2.37-4.85)**	1.92 (1.29-2.84)*	4.13 (2.50-6.82)**	1.62 (0.93-2.83)
Second Highest	2.37 (1.68-3.34)**	1.65 (1.14-2.38)*	2.73 (1.67-4.44)**	1.62 (0.96-2.72)
Middle	1.96 (1.32-2.92)*	1.59 (1.06-2.39)*	1.89 (1.10-3.25)*	1.43 (0.82-2.49)
Second Lowest	1.86 (1.20-2.88)*	1.62 (1.04-2.52)*	1.20 (0.61-2.34)	1.03 (0.52-2.02)
Lowest (ref)	1.00	1.00	1.00	1.00
Education				
≥8 years	3.78 (2.75-5.19)**	2.98 (2.09-4.25)**	6.45 (4.63-8.97)**	4.90 (3.35-7.17)**
5-7 years	1.58 (1.16-2.16)*	1.36 (0.98-1.89)	2.08 (1.53-2.84)**	1.71 (1.23-2.38)*
0-4 years (ref)	1.00	1.00	1.00	1.00

Table 4 Odds ratios for current daily smoking according to region, wealth, education groups for **men** per age groups (20-39/40 and above) (continuing)

	Young (20-39 years)		Old (40 and above)	
	Model 1	Model2	Model 1	Model2
	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)
Region				
West	1.37 (1.10-1.72)*	1.36 (1.00-1.85)*	0.95 (0.76-1.18)	1.02 (0.81-1.28)
Mediterranean	1.20 (0.91-1.59)	1.24 (0.93-1.65)	0.96 (0.74-1.25)	0.99 (0.76-1.30)
Middle	1.29 (0.96-1.75)	0.98 (1.17-1.87)	0.94 (0.72-1.24)	0.99 (0.75-1.31)
Black Sea	1.65 (1.21-2.26)*	1.78 (1.29-2.44)**	1.07 (0.81-1.42)	1.12 (0.84-1.50)
East (ref)	1.00	1.00	1.00	1.00
Wealth				
Highest	0.86 (0.64-1.16)	0.80 (0.57-1.13)	0.75 (0.56-1.00)	0.78 (0.56-1.07)
Second Highest	0.77 (0.58-1.01)	0.72 (0.53-0.97)*	0.71 (0.55-1.03)	0.74 (0.56-1.09)
Middle	0.98 (0.70-1.37)	0.91 (0.64-1.30)	0.90 (0.67-1.22)	0.93 (0.68-1.27)
Second Lowest	0.88 (0.62-1.26)	0.84 (0.58-1.21)	0.82 (0.57-1.17)	0.84 (0.58-1.20)
Lowest (ref)	1.00	1.00	1.00	1.00
Education				
≥8 years	0.98 (0.66-1.47)	1.02 (0.66-1.57)	0,78 (0,60-1,02)	0.87 (0.64-1.17)
5-7 years	1.22 (0.81-1.84)	1.26 (0.83-1.92)	0,80 (0,62-1,02)	0.85 (0.66-1.09)
0-4 years (ref)	1.00	1.00	1.00	1.00

Limitations

▸ We used WHS 2002 data because a more recent country-representative dataset with the necessary variables was not available.
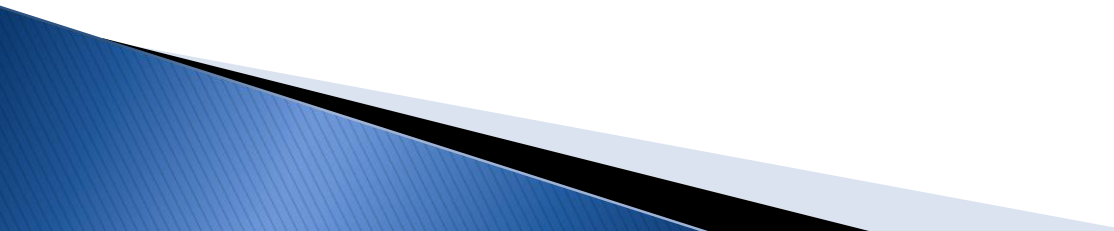
▸ The accuracy of self-reporting for smoking

Discussion

- The smoking prevalence reached by highly educated women of all regions suggests an intimate link between women's educational level and the risk of smoking.
- Among highly educated Turkish women, smoking may be related to a changing attitude shaped with symbolic meanings around what she eats and drinks and how she dresses.
- In the struggle with tradition, smoking is a symbol of emancipation, freedom and independence.

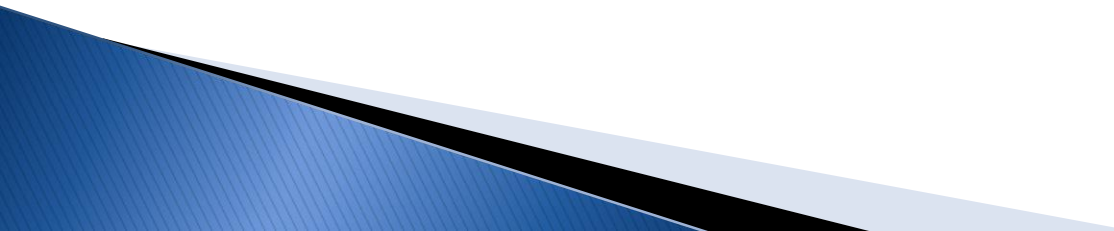# Discussion

- The low smoking prevalence of lower educated, older and rural women is related to several factors, including the low labour force participation of these women, the weak social position of women in their families, and the conservative, patriarchal nature of their communities.

- In addition, smoking may be restrained by a strong taboo on women's smoking. The lower level of tobacco use thus does not reflect a high level of health awareness, but rather conservative social traditions or religiosity and women's low economic resources

Discussion

▸ While high education was the most important determinant of smoking among women, wealth played an additional role.

▸ Wealth may exert its additional impact through increased purchasing power and increased status in the society derived from purchasing power.

▸ While a similar reason may apply to men, wealth was not related to smoking among men. This underlines the importance of gender-specific sociocultural conditions: wealth may imply reaching the status of independence for Turkish women, and this status is symbolized by smoking

Discussion

- Among men, smoking was found to be more common in the West and Black Sea region
- The West and North regions include the main tobacco production areas of Turkey.
- Studies have found that a high level of tobacco production has gone hand in hand with high consumption levels

Conclusions

▸ The patterns of socioeconomic inequalities in smoking in Turkey closely correspond to those expected on the basis of the smoking epidemic model and strongly resemble those observed in southern European countries

▸ Turkey seems to be in an early stage of this model, more specifically, these findings suggest Turkey to be in 2nd stage, where smoking is strongly associated with higher education among women, but not anymore among men

Conclusions

- In all regions, about half of the men smoked, and smoking was more pronounced in young men and about three out of 10 highly educated women smoked
- To prevent a further increase in smoking, and the trickling down of smoking towards lower educated women, efforts should be made to counteract the idea of smoking as a symbol of modernity, emancipation and independence.

Thank you ☺

- Note:This research has been accepted for publication in International Journal of Public Health on 28th of April 2013