

Smoking, health related quality of life and economic evaluation.

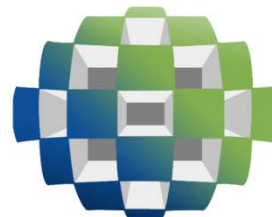
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Main questions

- Does smoking affect HRQOL over and above its effect on the propensity to suffer tobacco related diseases?
- If so, by how much?



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Relevance

- Economic evaluation models for quitting drugs and/or tobacco control policies assume that starting/ quitting reduces/ increases HRQOL as well as reducing the likelihood of disease
- Is this correct?



Methods and data

- Encuesta Nacional de Salud 2011-12
 - EQOL-5D-5L
 - Information about smoking status
 - Never smoker
 - Current smoker (daily or occasional)
 - Former smoker
- Explore cross sectional relationship between HRQOL and smoking status



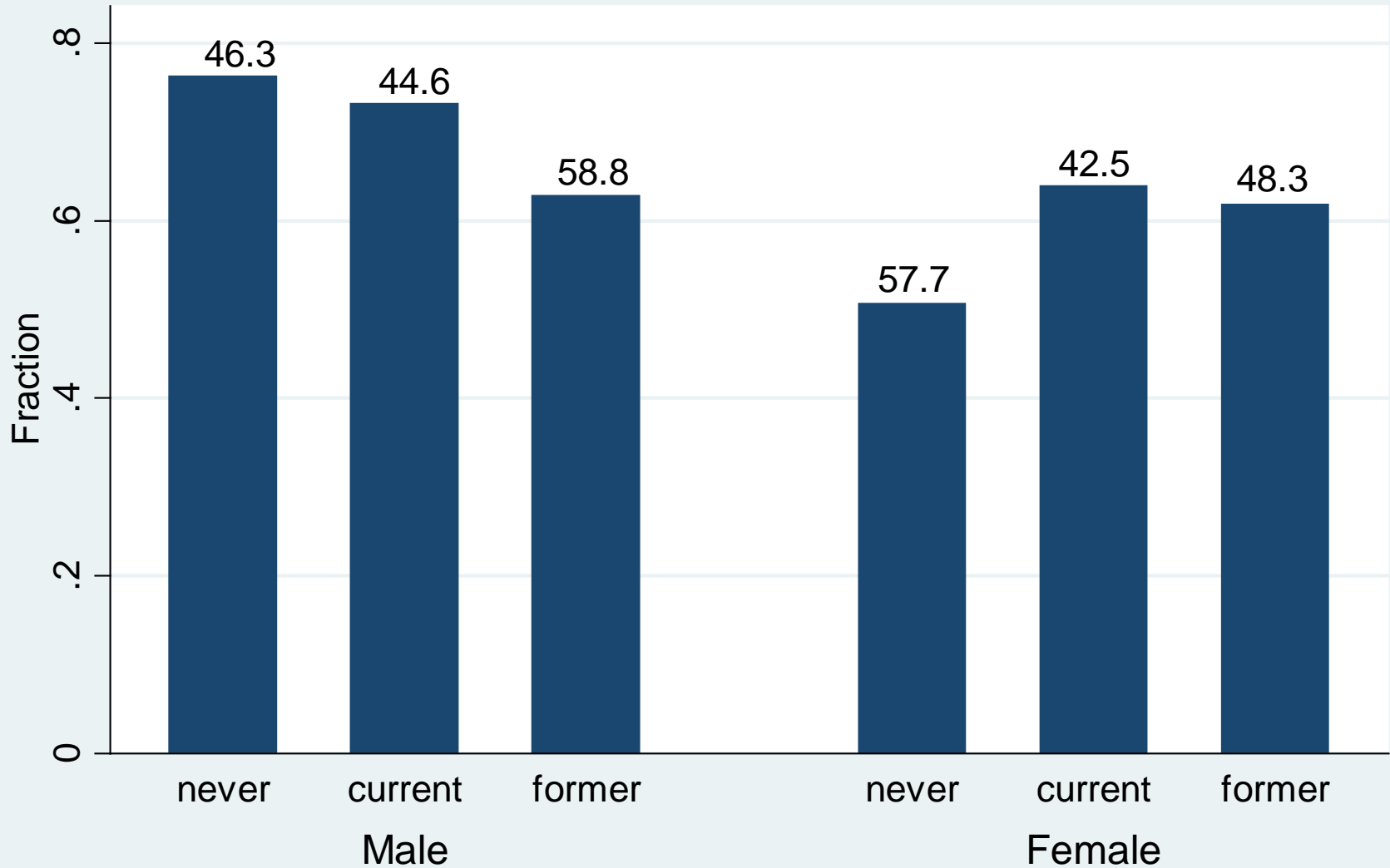
The distribution of EQ-5D-5L

- Very high proportion of values censored at 1
 - Men: 71.4% ; Women: 54.8%
- A small proportion of uncensored negative values.
 - Men: 1.9%; Women: 4.7%
- Mean score in uncensored range
 - Men: 0.75 ; Women: 0.70



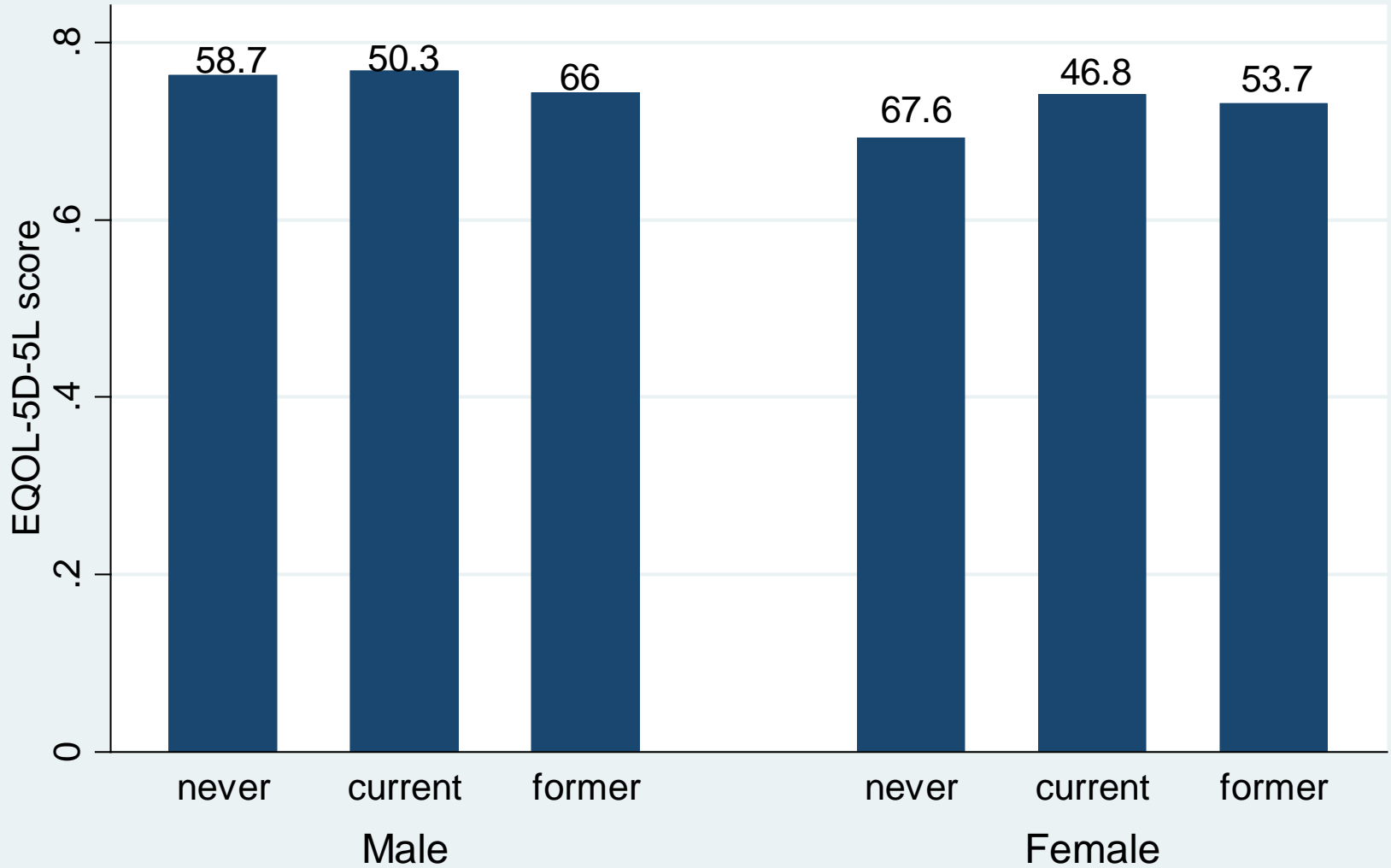
Smoking status and EQOL-5D-5L

Proportion of values censored at 1 and mean age in group



Smoking status and EQOL-5D-5L

Mean score in uncensored range and mean group age

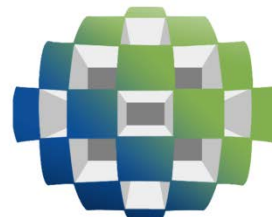


How to model all these features?

- Two part model
 - Part 1: $P(\text{EQOL score}=1)$
 - Part 2: $E(\text{EQOL score} \mid \text{EQOL score} < 1)$
- Control for age in a flexible way
 - Polynomial terms
- Separated by gender



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Specifications

- 1: Tobacco related diseases
- 2: 1+Other diseases
- 3: 2+Mental diseases
- 4: 3 + *Backpain, arthritis, migraine and injuries*
- Careful with these last 4 because they are proxied in the pain dimension of the EQOL instrument



Part 1: Prob (EQOL score=1)

Linear Probability Model (with robust standard errors)

	MEN (N=9619)				WOMEN (N=11337)			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
CURRENT	-0.054	-0.054	-0.044	-0.041	-0.042	-0.052	-0.039	-0.033
FORMER	-0.019	NS	NS	NS	NS	NS	NS	NS

Part 2: E(EQOL score | EQOL score < 1)

Ordinary Least Squares (with robust standard errors)

	MEN (N=2742)				WOMEN (N=5117)			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
CURRENT	NS	NS	NS	NS	-0.033	-0.034	-0.02	-0.022
FORMER	NS	NS	NS	NS	NS	NS	NS	NS

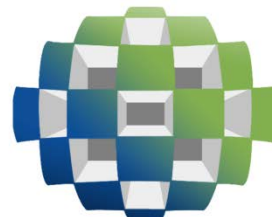
Note: Ommitted category is “never smoker”

Conclusions

- Once age and morbidities are controlled:
 - Current smokers are less likely to report “full health” (i.e. more likely to report some problem) with the EQOL 5D-5L instrument than never smokers.
 - Men: About -4.5% ; Women: About -4%
 - There are no significant differences in the probability of reporting “full health” between former smokers and never smokers.



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Conclusions

- For those that report less than “full health”:
 - Men: There are no significant differences in the EQOL-5D-5L score between either current or former and never smokers
 - Women: There is a small difference (of about - 0.025) in the EQOL-5D-5L score between current smokers and never smokers



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Implications

- Quitting smoking seems to generate an increase in HRQOL over and above that generated by the reduction in morbidity
 - And viceversa for starting smoking
- The construction of counterfactual HRQOL scores based on the EQOL-5D-5L instrument for economic evaluation purposes should account of the censoring in the data



Limitations

- The ENS is a cross section
- Although info is quite rich, it is not possible to attribute causality



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