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Obesity gender inequalities are high but vary with environment & socio-economics in Tunisia. Implications for prevention.

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TAHINA Project : Epidemiological Transition and Health Impact in North Africa
EU - INCO-DC ICA3-CT-2002-10011

IRD Institut de recherche pour le développement

INNTA, Tunis

Introduction

- South-Med. countries : socio-economic changes
- Epidemiological and nutrition transition
- Growing burden of obesity and NCDs
- Gender : major factor of health inequalities worldwide
- Gender issues especially acute in the context
- But data on obesity gender issues scarce

Objectives ?

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- **Among Tunisian adults**
- **Quantify gender obesity inequalities**
- **Assess variation of inequalities**
  - socio-economic factors
  - environment (urban vs. rural, regions)
- **Implications for management of obesity epidemic ?**

Methods

Methods

Subjects

- **Cross-sectional survey**: april-september 2005
- **Target population:** Tunisians 35-70 y. both genders
- **National random sample, stratified, cluster 3 levels:**
  - 7 regions x 47 districts x 20 households x 1 person
- **Theoretical sample size:** 6580 subjects
- **Subjects used in analyses :** 5343 subjects (81.7%)
- **Sampling weights - Stratification - Clustering**
  accounted for in statistical analysis (*svy* Stata commands)

Methods

Variables

- **Individual characteristics:** gender, age, (parity, menopause)
- **Environment:** urban *vs*. rural, 7 administrative regions
- **Socio-economics factors:**
  - marital status, education, profession
  - asset-based household welfare index

- **Overall adiposity:** **BMI**=weight/height^2 in kg/m^2
  obesity if ≥ 30
- **Abdominal adiposity:** **WHtR**= waist circumference/height
  abdominal obesity if ≥0.6

Methods

Analysis

- **Measure of gender obesity inequality:**

Women vs. Men obesity prevalence odds-ratio (OR)

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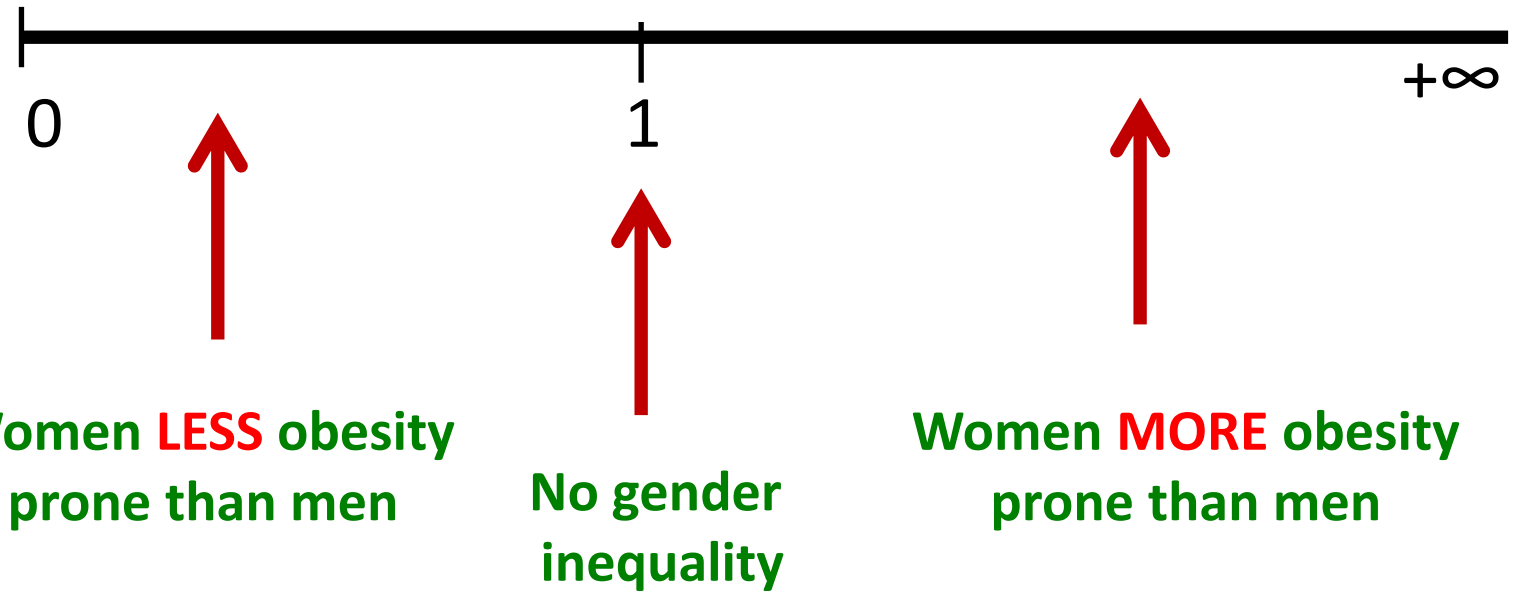


Methods

Analysis

- **Measure of gender obesity inequality:**

  Women vs. Men obesity prevalence odds-ratio (OR)

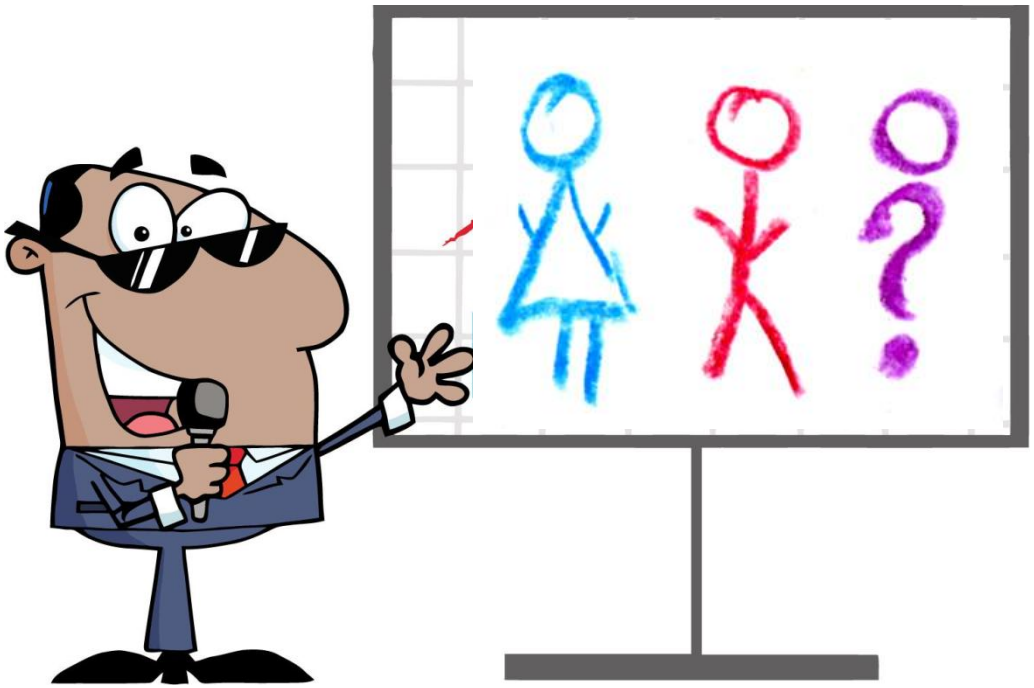
- **Assessment of gender obesity inequality at national level**

- **Assess whether gender obesity inequality vary with socio-economic factors or environment:**
  compute Women vs. Men OR within categories of factors

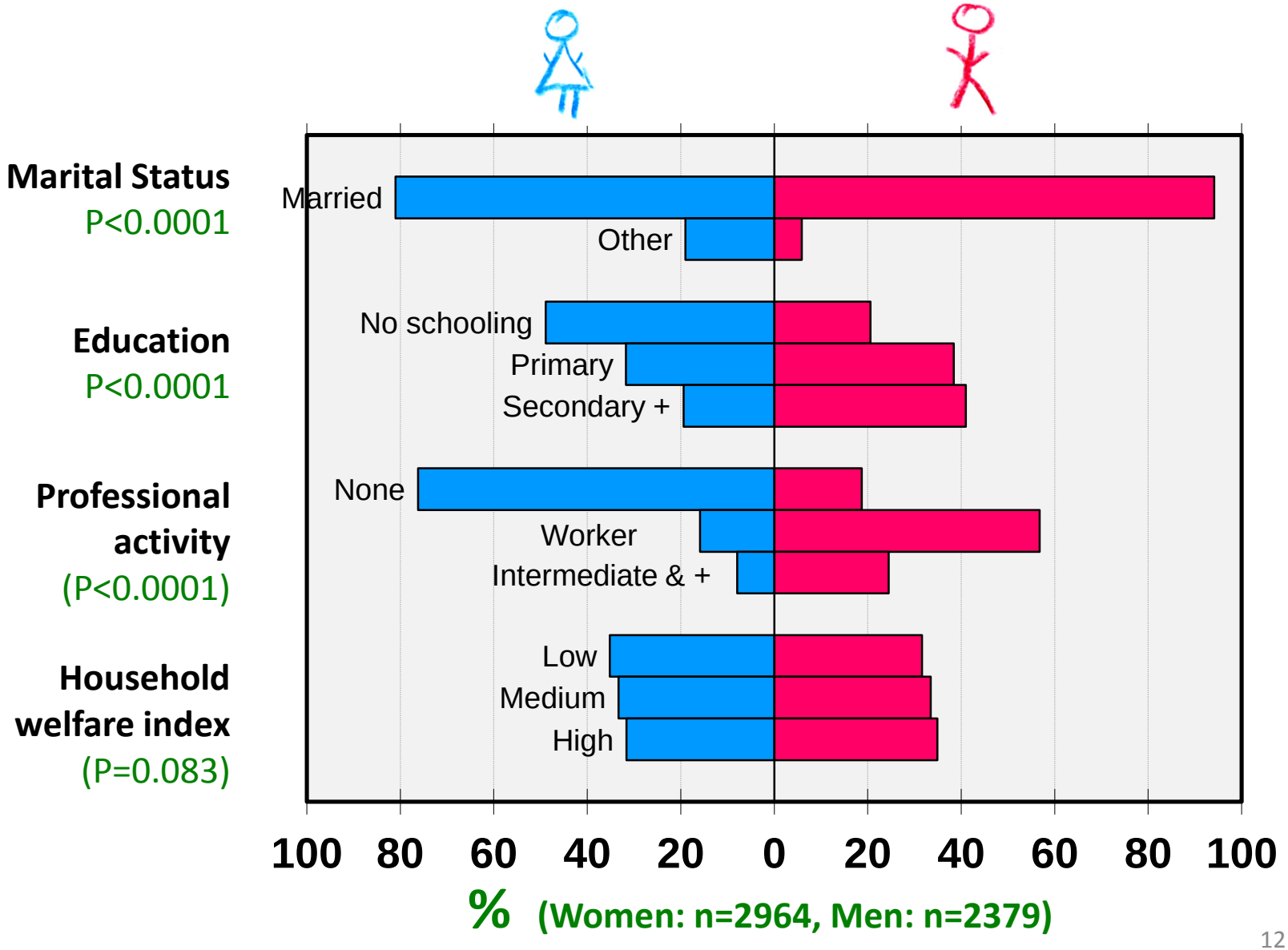
- **Logistic regression models: gender x factors interactions**

- Alpha level =0.05 except 0.20 for interactions

Results ?



R 1 - Women vs. men socioeconomics



R 2 - Huge obesity gender gap detrimental to women

Basic data

n	**2964**	**2379**	
Age	49.3(0.3)	49.2(0.3)	P=0.57
BMI	28.4(0.2)	25.3(0.1)	P<0.0001
WHtR x 100	58.4(0.2)	53.4(0.2)	P<0.0001

Obesity

Overall	**37.0%**	**13.3%**	**P<0.0001**	**OR=3.8 [3.1-4.7]**
Abdominal	**42.6%**	**15.6%**	**P<0.0001**	**OR=4.0 [3.3-4.8]**

R 2 - Huge obesity gender gap detrimental to women

Basic data

Measure of gender obesity inequality (high !)

Obesity

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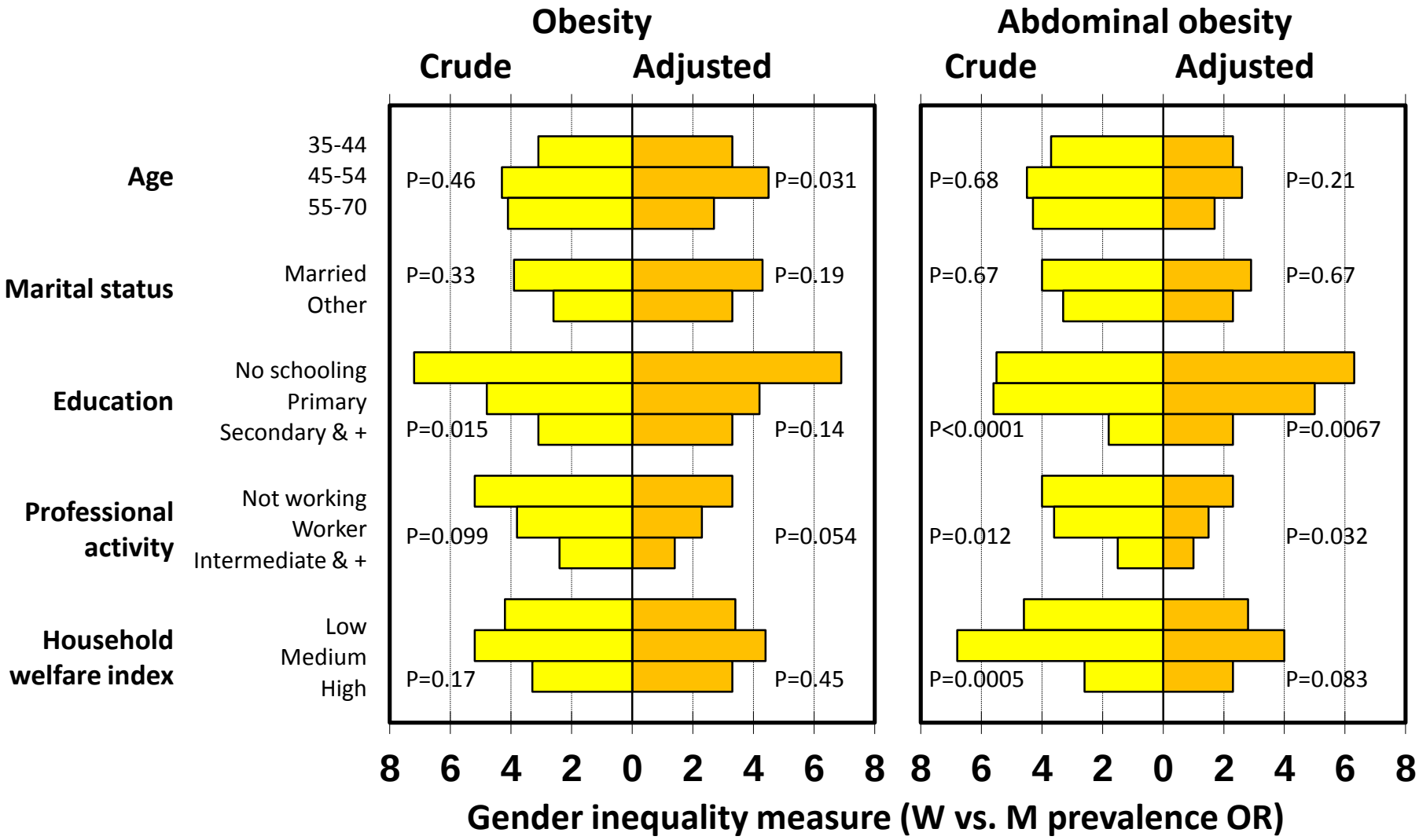
R 3 - Obesity gender gap is lower for higher categories of education and profession



Complete case analysis, W: n=2725, M: n=2238. Adjusted for age, marital status, education, profession and welfare proxy.

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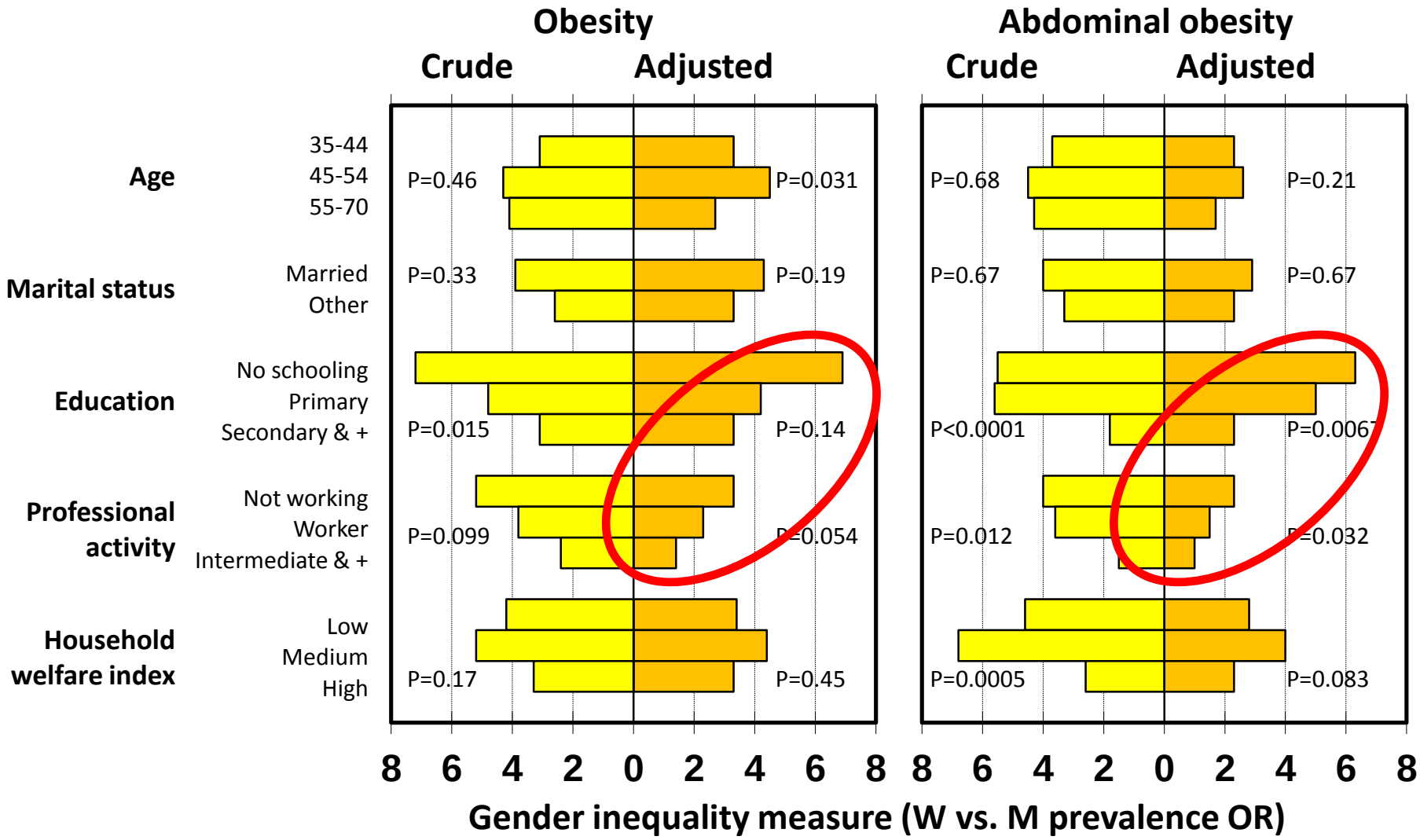

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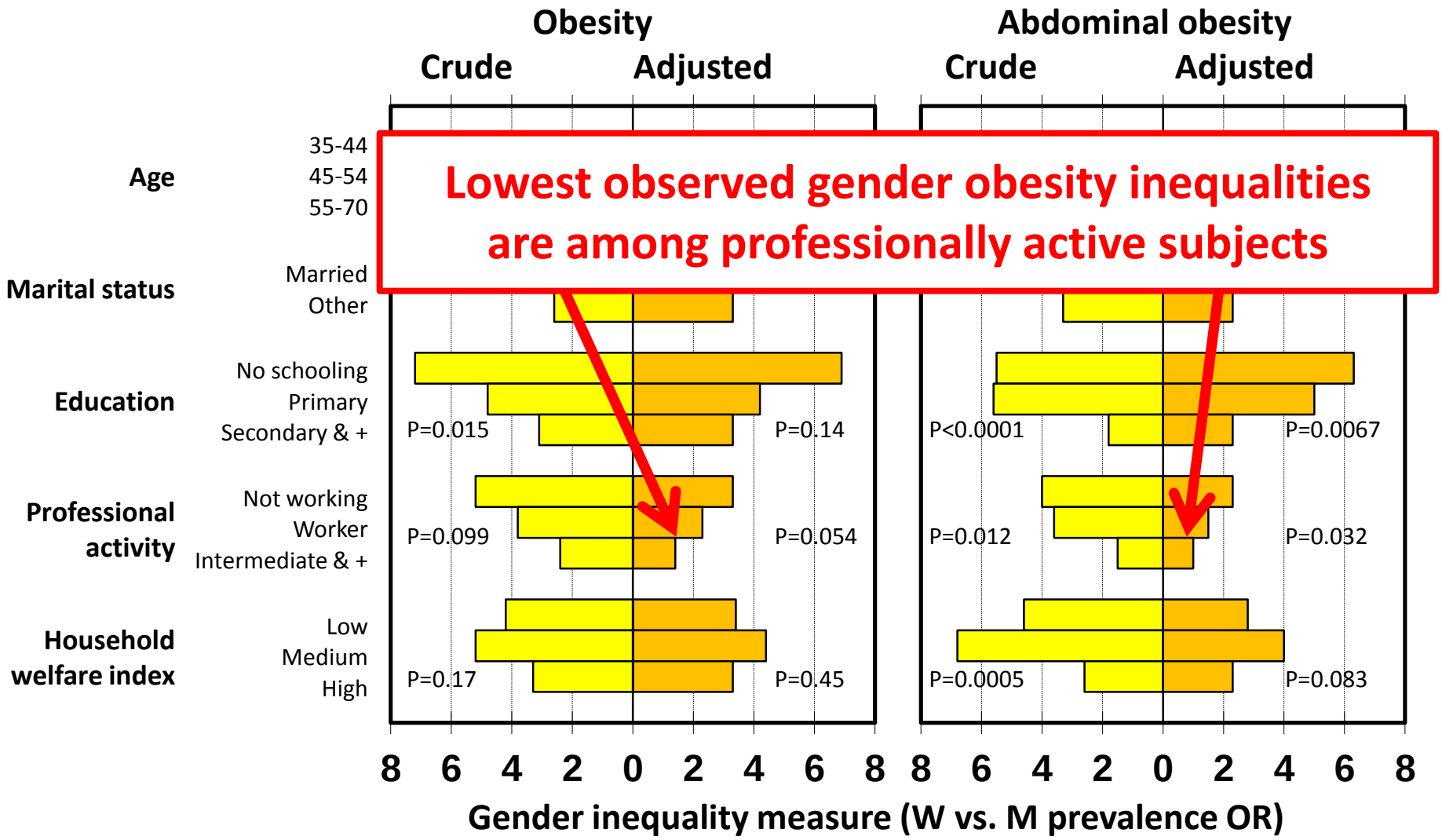
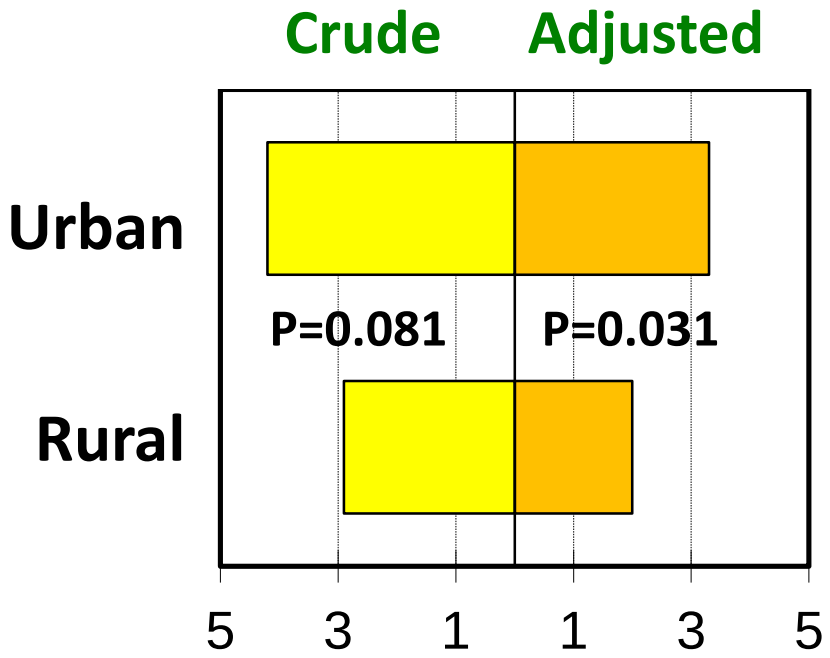
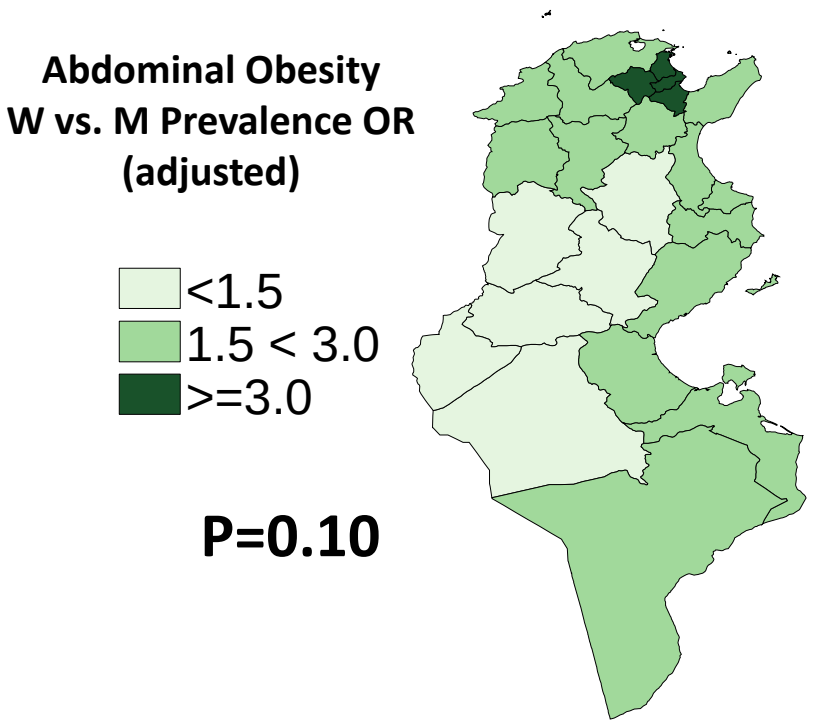


Complete case analysis, W: n=2725, M: n=2238. Adjusted for age, marital status, education, profession and welfare proxy.

R 4 - Obesity gender gap and environment: higher in urban areas and more developed regions





Complete case analysis, W: n=2725, M: n=2238. Adjusted for age, marital status, education, profession and economic proxy.

Discussion

- **Huge obesity gender gap detrimental to women in this context vs. e.g. not observed in European countries**
- **Physiology : measurement, cut-off issues ? Not only.**
- **Cultural prefence for plumpness in woman ? Is changing.**
- **Non egalitarian intra-household and social roles: consequences on many aetiologic factors of obesity**
  - more food stimuli (women in charge of meal preparation)
  - physical activity among women socially constrained
  - …

Conclusion !

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- **How to bridge this obesity gender gap which fuels gender (health) inequities ?**

- **Need general policies to reduce level of obesity**
  (beware IGI: Intervention Generated Inequalities)

- **Gender specific issues for prevention of obesity**

- **Short term: specific interventions targeted at women**

- **Long term:**
  - raising education of women necessary, not sufficient

- **Long term:**
  - promotion of women egalitarian household & social roles
  - a challenge in a changing social and political context.

Thank you for your attention

El Ati J, Traissac P, Delpeuch F, Aounallah-Skhiri H, Beji C, Eymard-Duvernay S, Bougatef S, Kolsteren P, Maire B, Ben Romdhane H: **Gender obesity inequities are huge but differ greatly according to environment and socio-economics in a north african setting: a national cross-sectional study in Tunisia.** ***PLOS ONE 2012, 7(10):e48153.*** *(On-Line Open Access: www.plosone.org)*