Stereotyping Discrimination in Primary Care: How Patient–Physician Interaction can impact Equity in Health?

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Rationale

- **Inequalities in treatments due to patients' socioeconomic categorization by primary care doctors**

1. How physicians categorize their patient's according to their SES?
2. What impact does this categorization have on their practice?
3. Are these classification correlated with actual differences in patients treatments?

→ FOCUS: overweight management = lifestyle and diet recommendations
→ Patients categorization: compliance with diets

- Social Inequalities in health and access to health care
- Primary Care Organization
- Overweight and Obesity
- Discrimination models

The Intermede Project 2004-2008

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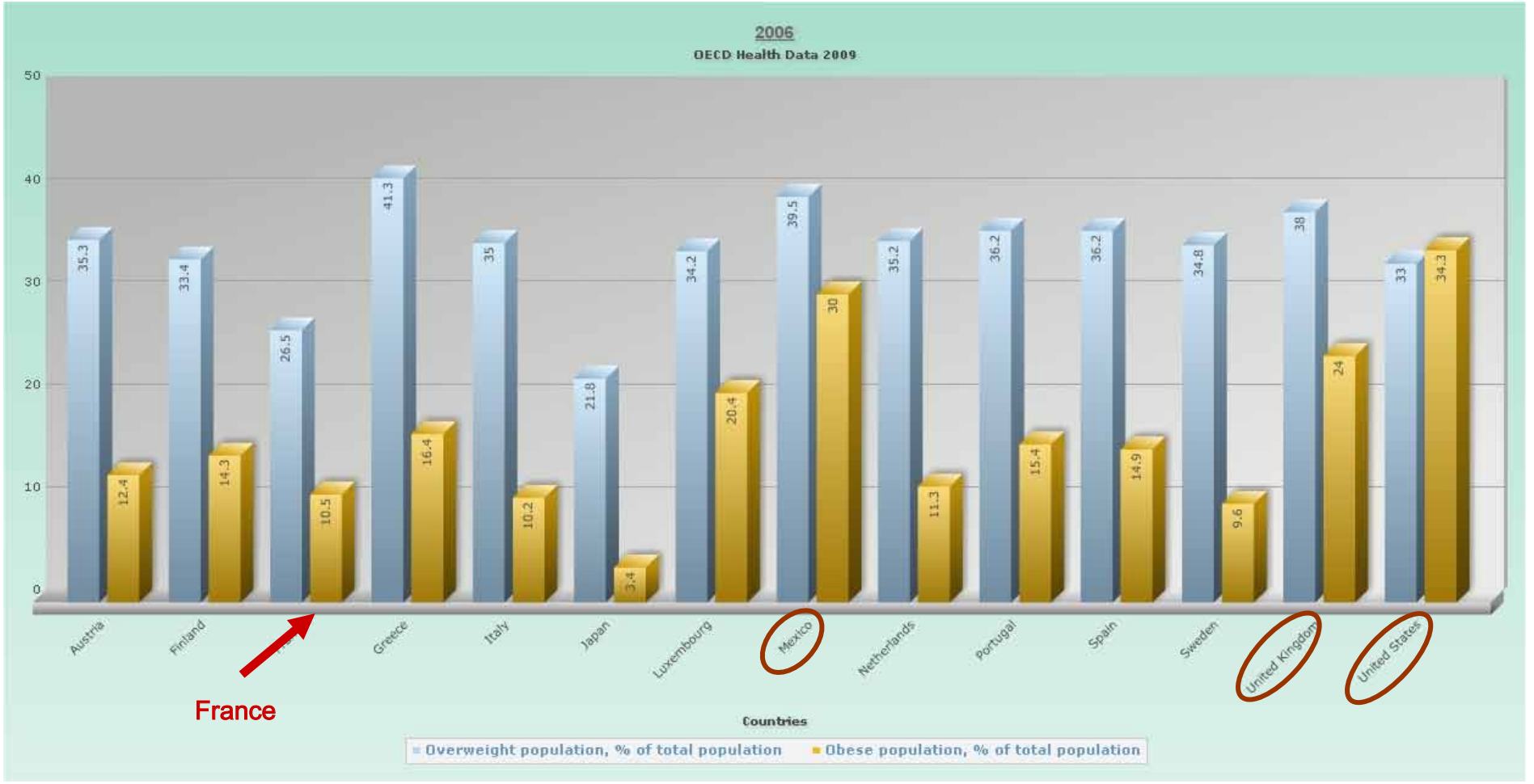
- General Research question:
  - In the case of identical clinical situations, are there differences of treatment (health care system responses) according to categories (social or others) which could generate social health inequalities?
  - If so: what dimensions of the physician-patient interaction generate them?
- Specific health condition: overweight and obesity
  - Widespread health condition
  - Unequally distributed in the French population (social gradient)
  - Associated with morbidity, prevention, lifestyle
  - Existing guidelines
  - A clear measurement: the body mass index (BMI)

International comparison of BMI



Source : OECD Health division, Heath Data 2006, persons aged 25 to 64 years old

Data

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- Specific survey end 2007 in 3 regions, France
- 30 general practitioners / 650 patients
- Data collected:
  - Patients' characteristics and reasons of the visit
  - Visit contents
    - Patients' expectations of the visit
    - Purposes and contents
    - Patients' health status

    } With a focus on weight topics
    - Obesity management and other outcomes of the visit
  - Patients' weight and height measurements
  - Physicians'
    - individual and practice characteristics
    - Patients' SES categorization
  - Patients'
    - compliance with treatment
    - general description and expectations about physician-patient relation

Three Discrimination Models

- Prejudice
  - Physician “taste for discrimination”
- Clinical uncertainty Models
  - Miscommunication Model
  - Higher uncertainty in interpreting symptoms of disease for patients from a minority group => differences in treatment
  - Statistical discrimination Model
  - The Physician uses auxiliary information to make inference (prevalence by social group) => differences in treatment
- Stereotyping
  - Physician categorize their patients’ compliance

  $\Rightarrow$ Physician and minority Patient adapt their involvement in treatment

The Stereotyping Model

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Gross benefit from treatment = Z e^p e^d

$e^p \in [e^L, 1]$ with $e^L > 0$ $\quad$ $e^d = 0$ or $e^d = 1$.

Each player's payoff consists in the treatment gross benefit net of his cost of effort Z e^p e^d - c

Majority Patient

	Doctor	
Patient	High effort	Low effort
Cooperation	**(Z- c^p , Z- c^d)**	(0- c^p,0)
No cooperation	(Ze_l, Ze_l - c^d)	**(0,0)**

Source: Balsa, McGuire, 2002

Minority Patient

Analytical strategy

- 1. Assessment of patients' SES categorization by physicians
- 2. measurement of SE differences in treatment received, direct impact of SES categorization on treatments
- 3. impact of SES categorization on SE differences in treatment received

Modeling strategy

- Model 1
  - Level 1: Patients

$$P_{i,j} = \beta_{0j} + \beta_1 Age_i + \beta_2 Gender_i + \beta_3 BMI_i + \beta_4 SES_i + r_{i,j}$$

  - Level 2: Physicians

$$\beta_{0j} = \gamma_{00} + \gamma_{0,1} Age_j + \gamma_{0,2} Gender_j + \gamma_{0,3} Categorization_j + u_{0,j}$$

- Model 2
  - Level 1: Patients

$$P_{i,j} = \beta_{0j} + \beta_1 Age_i + \beta_2 Gender_i + \beta_3 BMI_i + \beta_{4,j} SES_i + r_{i,j}$$

  - Level 2: Physicians

$$\beta_{0j} = \gamma_{00} + \gamma_{0,1} Age_j + \gamma_{0,2} Gender_j + \gamma_{0,3} Categorization_j + u_{0,j}$$

$$\beta_{4,j} = \gamma_{4,0} + \gamma_{4,3} Categorization_j + u_{4,j}$$

Dependent Variable

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Overweight management variable:

-"During today's visit, did your physician recommend you to engage in more physical activity?"

-"During today's visit, did your physician recommend you to walk more?"

113 out of 627 (18%)

Explanatory Variables (1)

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Subjective SES measurement (Singh-Manoux, 2009, Whitehall study) :

– "*Some have higher living standards in society and others have lower. Where would you put yourself on this scale that goes from lowest to highest living standards?*"

– very low SES: [1, 2, 3] 12%

– low SES: [4] 11%

– medium SES: [5] 24%

– High SES: [6, 7] 36%

– Very high SES: [8, 9, 10] 17%

Explanatory Variables (2)

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- Categorization variable:
  - *In your opinion, how do patients from the following groups follow dietetic advice and diets on the long run?"*

	Always or almost always	Often	Sometimes	Never or almost never
Low SES categories				
Intermediate SES categories				
High SES categories				

Explanatory Variables (3)

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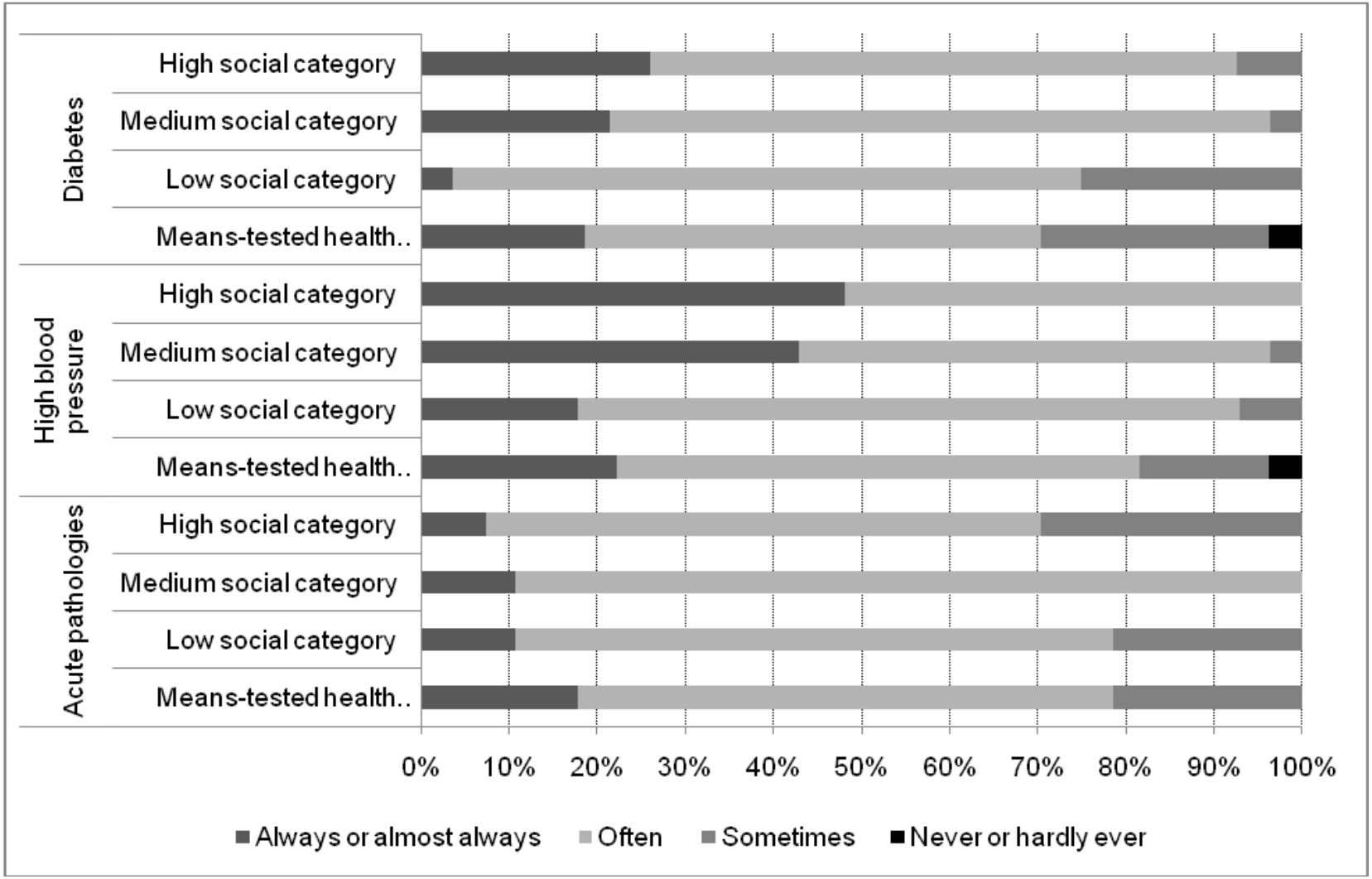
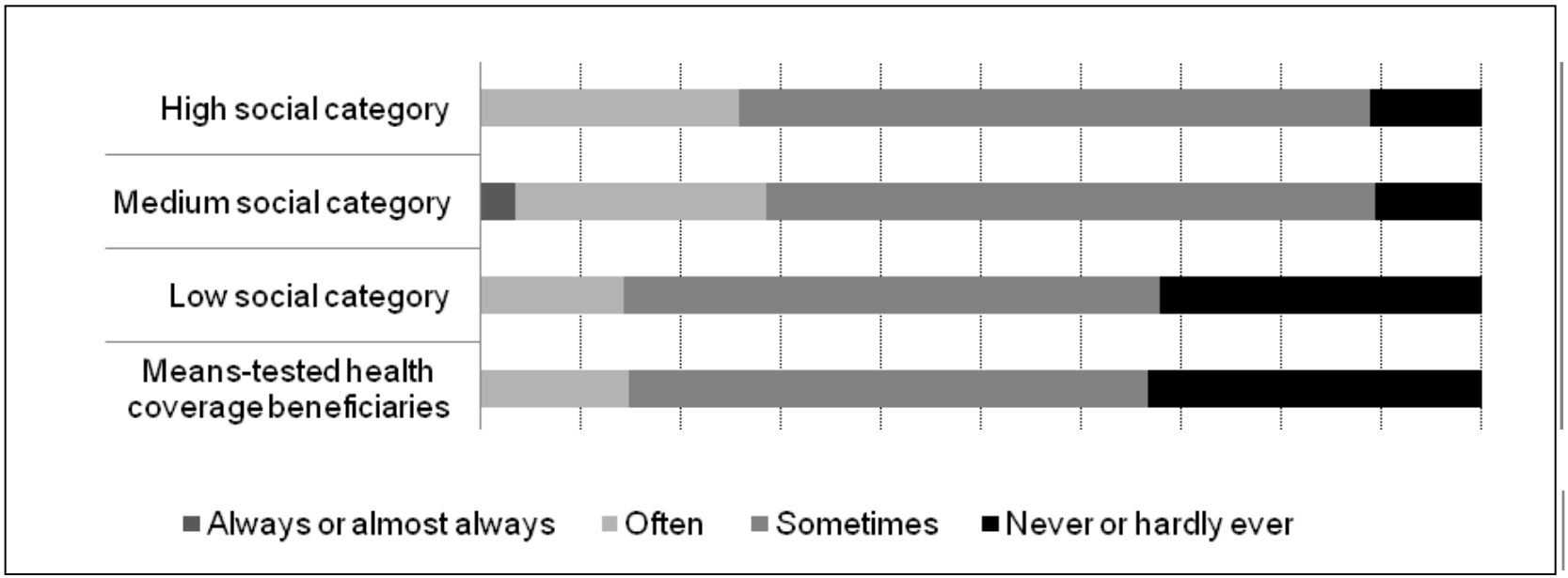
WHO BMI classification of adults based on increasing health risks

Classification	BMI (kg/m²)	Popular description	Risk of comorbidities
Underweight 3%	<18.50	Thin	Low (but risk of other clinical problems increased)
Normal weight 48%	18.50-24.99	'Healthy', 'Normal', 'Acceptable'	Average
Overweight:	≥25.00		
Pre-obese 33 %	25.00-29.99	Overweight	Increased
Obese 17%	≥30.00		
Obese class I	30.00-34.99	Obesity	Moderate
Obese class II	35.00-39.99	Obesity	Severe
Obese class III	≥40.00	Morbid obesity	Very severe

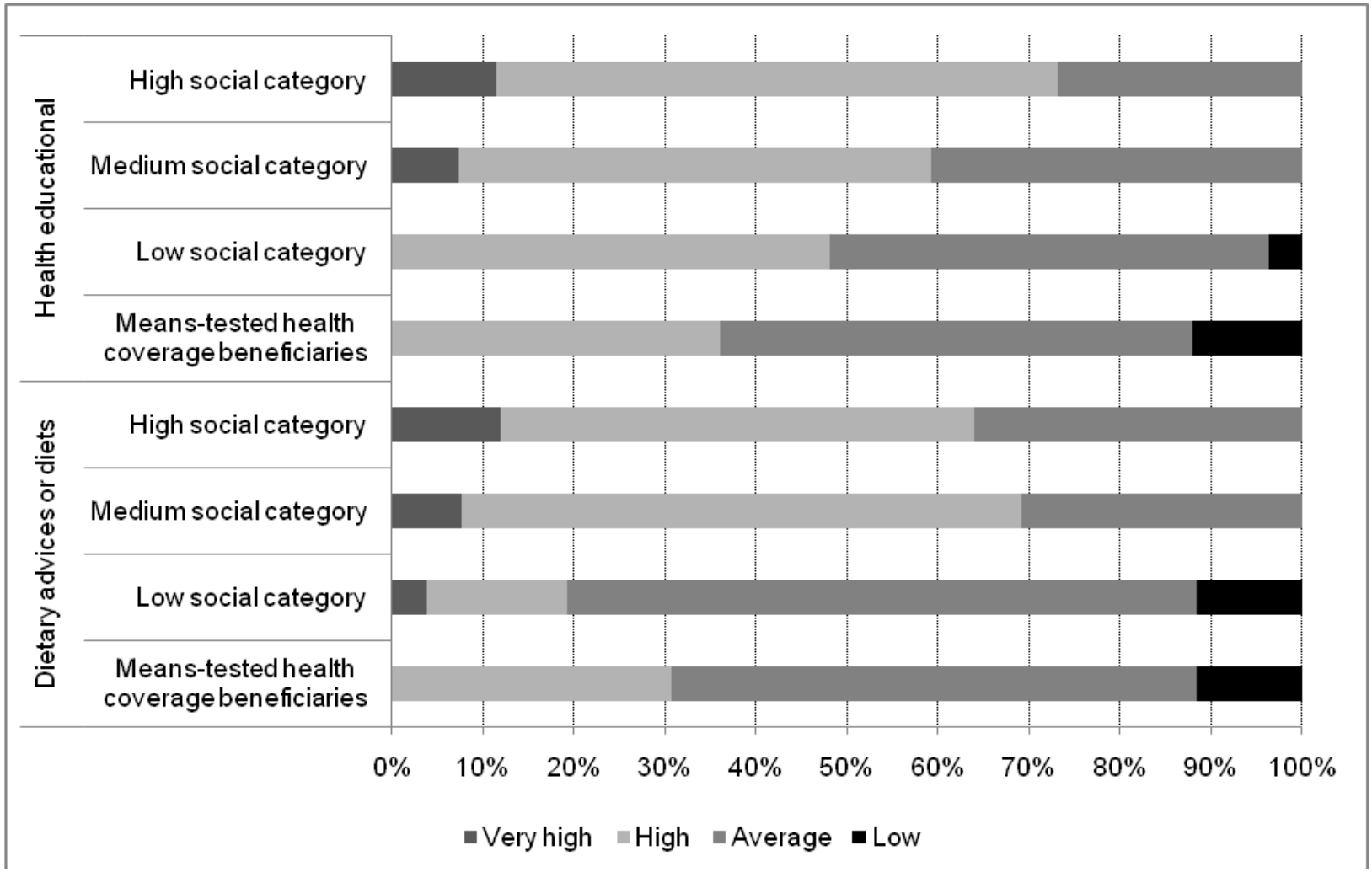
Physicians' SES categorization of patients' compliance with treatment recommendations



Physicians' categorization of patients' compliance with dietary advices or diets prescribed



Physicians' categorization of patients' expectations of advices about health educational and dietary advices or diets prescribed



Modeling results

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		Model 1		Model 2		
	Fixed Effect	**Coefficient**	**P-value**	**Coefficient**	**P-value**	
	Constant	-3,228	0,015	-3,277	0,015	
Level 2 (Physicians)						
Age	Age	0,018	0,439	0,018	0,454	
Gender	Female	-0,393	0,152	-0,403	0,145	
	Male	*Ref.*	*Ref.*	*Ref.*	*Ref.*	
Patient categorization	Pro rich categorization	**0,593**	**0,033**	**0,737**	**0,016**	
	Pro poor categorization	-0,017	0,968	0,037	0,937	
	Neutral categorization	*Ref.*	*Ref.*	*Ref.*	*Ref.*	
Level 1 (Patients)						
Age Classes	Age < 35	-0,183	0,613	-0,187	0,608	
	35 ≤ Age < 50	*Ref.*	*Ref.*	*Ref.*	*Ref.*	
	50 ≤ Age < 65	0,207	0,495	0,237	0,439	
	Age ≥ 65	**0,641**	**0,040**	**0,677**	**0,032**	
Gender	Female	-0,131	0,566	-0,110	0,632	
	Male	*Ref.*	*Ref.*	*Ref.*	*Ref.*	
BMI	*Thin or Normal weight*	*Ref.*	*Ref.*	*Ref.*	*Ref.*	
	Pre-obese	**0,588**	**0,030**	**0,590**	**0,030**	
	Obese	**1,324**	**0,000**	**1,295**	**0,000**	
Self-assessed SES	Very low SES	**0,676**	**0,045**	**1,049**	**0,025**	*(constant)*
				-0,886	0,185	*(Pro rich categorization)*
				-0,368	0,721	*(Pro poor categorization)*
	Low SES	-0,510	0,246	-0,527	0,232	
	Medium SES	0,228	0,428	0,216	0,454	
	High SES	*Ref.*	*Ref.*	*Ref.*	*Ref.*	
	Very high SES	0,042	0,904	0,037	0,916	

Discussion

- Limits
  - Physicians selection
  - Sample size
- Conclusion :
  - New elements on how interaction between patients and health services affect social inequalities in health