



# NON-BINARY LIFE CONDITIONS STUDIES: APPLYING *GENDER* AS METHODOLOGY

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1st « poster-distributing » woman, septembre 1908 : [photographie de presse] / [Agence Rol] – Bibliothèque Nationale de France

# Agenda

- Gender and Inequalities: Introduction
- Methodological implications
- Examples



# GENDER AND INEQUALITIES

Introduction

## Gender



## Sex

- Fluid
- Variable
- Depending on the society and time.
- Concerns **cultural** aspects that **may affect physical development and well-being.**
- Important role in determining food access which, in its turn, affects nutritional status.

- ~~Exact~~
- ~~Invariable~~
- ~~Equal in all societies and time~~
- **Socially constructed**
- Concerns **biological** aspects, but can be **influenced by culture and environment:**
  - Stature
  - Nutritional status

**Considering their interaction is important to understand past populations' life conditions.**

*“She glanced at him, surprised, mildly offended, and thought it a perfect blog post, how this stranger decided she was fat. She would file the post under the tag ‘race, gender and body size’”*

Chimanda N. Adiche, *Americanah* (2016)

### **Inequalities:**

- Differential structural conditions, and power to control material and human resources or information (Granados, in press);
- Social differentiation, followed by different moral evaluation (Fournier et al, 2015);
- Gender, occupation, origin, religion, etc.

### **Intersectionality:**

- Interaction of multiple causes of inequalities;
- Other factors influence “gender experience” someone lives.



### **Diet and nutrition**

- Suitable to identify gender and social inequalities;
- Biosocial approach: interaction of biological and social aspects;
- Extrapolates nutritional needs and differentiates groups according to age, gender, religion or social status, for example;
- Influences growth and development;
- Can be one of the causes of biological plasticity.



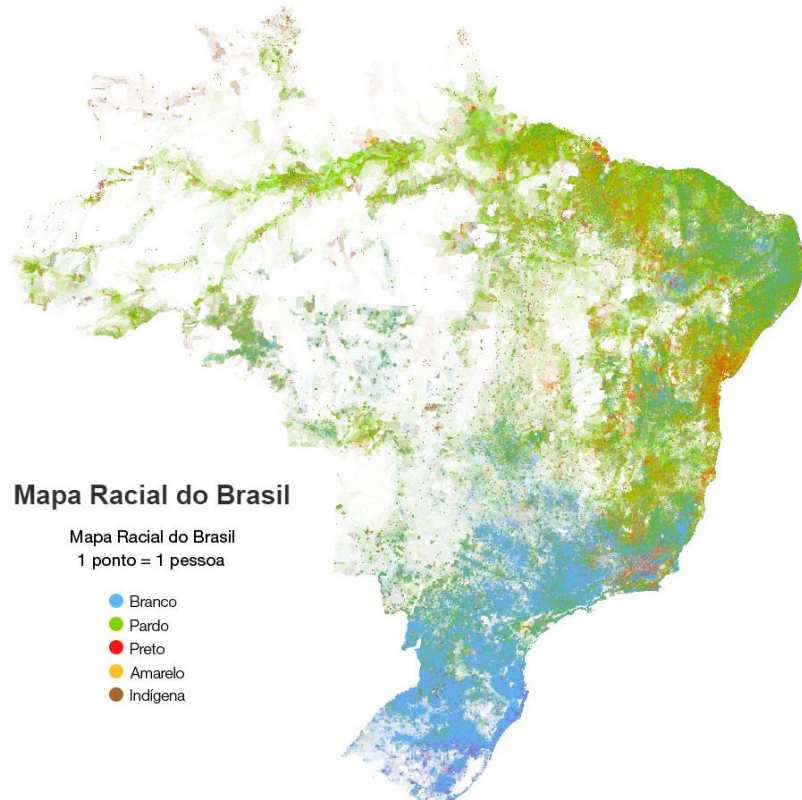
Le Repas (1891), Gauguin



Le déjeuner des canotiers (1875), Renoir



# Inequalities

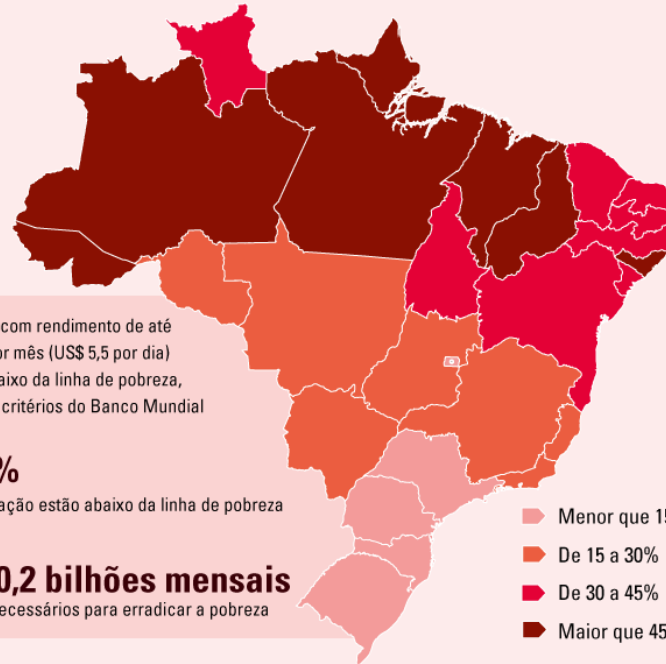


## Racial map of Brazil (patadata.org)

- White population
- Brown population
- Black population
- Yellow population
- Native population

## Proporção de pessoas abaixo da linha de pobreza

Por Unidades da Federação - 2017



Fonte: IBGE - Síntese de Indicadores Sociais 2018

AGÊNCIA IBGE

## Poverty map – 2017 (IBGE)

South – less than 15% under poverty line

North – more than 45% under poverty line

## Poverty map – Brazil - 2017 (IBGE)

(proportion)

- 26.5% - less than US\$ 5.5 / day
- **Regions with non-white majority:** highest concentration of people living below the poverty line
- Among single brown women with children - **64.4%**
- Among single white women with children - **41.5%**
- Couples with children - **30.4%**
- Couples with no children - **10%**

# Gender bias in food access

- Ginnaio (2011)
- Pellagra epidemics - caused by lack of vitamin B3
- Italy (18<sup>th</sup> to 20<sup>th</sup> centuries)
- Most affected: **women from lower social classes** living in the countryside
- Meat was reserved to men
- Men had preferential access to medical treatments
- **Higher mortality among females**



Marseille, Senegalese [carrying a dish of food and smoking a pipe] (1914), Gallica

- Ambrose (et al, 2003)
- USA (1050 – 1150 BC)
- **Female from lower social classes** presented more stress markers than the other groups

- White (2005)
- Belize (1250 BC–250 AD, 1520–1670 AD))
- Diet reconstruction - stable isotopes analysis
- Men - higher consumption of animal proteins
- Female ate more varied sources of proteins
- Larger gender differences in lower social classes



# METHODODOLOGICAL IMPLICATIONS



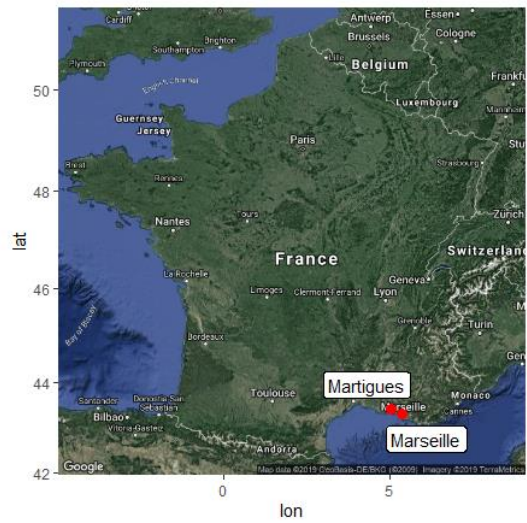
## Studies of stress markers/life conditions

- **Female/male differences**
  - Age/period/site
  - Markers analysed separately
  - Ubelaker and Pap, 2009; Kacki, 2016,
- Social status based on funerary context
  - Female/male differences
  - Ambrose et al, 2003; Vercelotti, 2011
- Population considered “socially homogenous” (e.g. slavery context)
  - Female/males differences
  - Corruccini et al, 1982; Kelly and Angel, 1987;

- Importance of comparing female/male conditions
  - Knowing women's past
- However:
  - Binary division of the sample
  - Hide other social aspects influence life conditions

**What to do when we cannot obtain information about social status from the archaeological context?**





Martigues and Marseilles - source package R: ggmaps

- Mass graves of victims of the *Great Plague of Marseilles* (1720-1722);
- Primary multiple tombs;
- **Not possible to identify social status;**
- Located at the city of Martigues (Provence - France) (Tzortzis, 2009);
- Suffered several starvation episodes before the epidemic (Séguy, 2016).

# Data analysis

- **Femur dimension analysis aiming to identify nutritional differences**
- Exploratory study with/without sex as “*a priori* variable”
- **Sample:** 95 adults
  
- **Methods:**
  - Factorial analysis of mixed data and hierarchical clustering
  - Variables: femur length, femur diameter and sex



Image: Stéfan Tzortzis (2009: 137).

# Results

- Variables: femur length and diameter
  - Mixed groups
  - Females concentrated in group 3
  - Males concentrated in group 4

	F	F?	M	M?	IND	Total
Group 1	1	2	2	5	0	10
Group 2	6	4	8	6	1	25
Group 3	<b>25</b>	<b>9</b>	1	1	4	41
Group 4	1	1	<b>13</b>	<b>4</b>	1	20
Total	33	16	24	16	6	95

- Variables: femur length and diameter, sex (4 categories)
  - Females and probable females together (g. 2 and 3)
  - Males and probable males separately
  - Just 1 male grouped with females

	F	F?	M	M?	IND	Total
Group 1	0	0	<b>0</b>	<b>6</b>	0	7
Group 2	<b>17</b>	<b>9</b>	1	0	0	27
Group 3	<b>15</b>	<b>6</b>	0	0	0	21
Group 4	1	1	<b>14</b>	<b>0</b>	0	16
Group 5	0	0	<b>0</b>	<b>10</b>	0	10
Group 6	0	0	<b>9</b>	<b>0</b>	0	9
Total	33	16	24	16	0	89

- Variables: femur length and diameter, binary sex
  - All females together
  - All males together
  - No individuals grouped with other sex

	F	F?	M	M?	IND	Total
Group 1	0	0	<b>6</b>	<b>6</b>	0	13
Group 2	<b>18</b>	<b>10</b>	0	0	0	28
Group 3	<b>15</b>	<b>6</b>	0	0	0	21
Group 4	0	0	<b>18</b>	<b>10</b>	0	28
Total	33	16	24	17	0	89

- Different groups composition**
- Adding sex as variable forces a binary division**

# Stress markers



Linear enamel hypoplasia

- **Porotic hyperostosis of cranial vault** (n=86)
- Females and males affected similarly
- Differences between age groups (20-30y more affected)
- Differences between sexes in two age groups

	20-30 y		30-40 y		40-50 y		50 + y	
	Non-aff	Affected	Non-aff	Affected	Non-aff	Affected	Non-aff	Affected
<b>Fem</b>	3	7	7	2	12	2	5	1
<b>Male</b>	5	1	8	3	2	5	9	4
<b>p-value</b>	<b>0,05944</b>		0,6045		<b>0,01729</b>		0,4796	

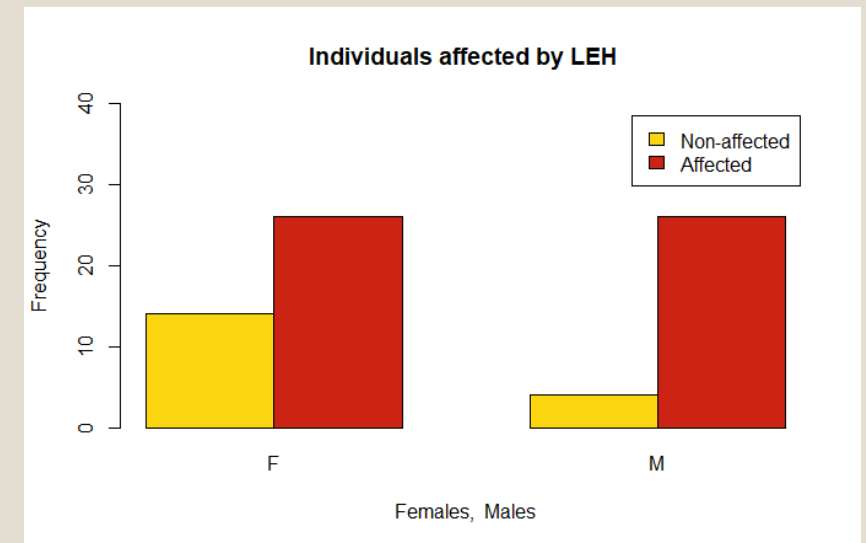
- **Cribra orbitalia** (n=61)
- Affected mainly non-adults

	Female	Male	Ind	Immature
<b>Affected</b>	34	30	1	25
<b>Non-aff</b>	7	4	0	24



Cribra orbitalia

- **Linear enamel hypoplasia** (n=72)
- More males affected than females;
- No differences between ages



# Results

- Factorial analysis of mixed data and hierarchical clustering (n=62)
- Variables
  - Cribra orbitalia (CO)
  - Porotic hyperostosis of cranial vault (HP)
  - Linear enamel hypoplasia (LEH)
  - Stature (binary)
    - Small stature:  $SM \leq (mean_{sex} - SD_{sex})$

	Female		Male		CO	HP	LEH	small stature
	n	%	n	%	%	%	%	%
1	12	32.4	13	52	0	0	100	0
2	9	24.3	6	24	0	80	100	40
3	10	27.0	4	16	0	28.57	0	14.29
4	6	16.2	2	8	100	37.5	75	25

- Not possible to identify age patterns
- Non-binary gender division:
  - Majority of male concentrated in first group
  - Female more disperse
- Next step: compare results with historic-demographical data



# Final remarks

## Diet and life conditions studies

- When gender differences become inequalities

## Methodological tools:

- Biological sex as variable:
  - *A priori*: general differences F/M
  - *A posteriori*:
    - intersectional approach
    - identify gendered discriminations
    - inequalities inside each gender group



## Acknowledgements

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## Further reading

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