

# **Stereotyping: explanation and fallacies from a probabilistic and statistical perspective**

PAN at CLEF 2022

Lara Fontanella

*G. D'Annunzio University, Chieti-Pescara, Italy*

September 5, 2022

# Outline

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## Stereotypes

- Definitions
- Stereotypes' measurement
- Statistical modelling of explicit stereotypes

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## Stereotypes' consolidation and endorsement

- Roma people
- Gender
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  - Are sexist female stereotypes misogynistic?

# Stereotypes

**Stereotypes:** qualities perceived to be associated with particular groups or categories of people [Schneider, 2005].

- **Classical approach:** stereotypes are *oversimplified, derogatory and fundamentally incorrect generalisations about social groups*; they are based on little or no evidence, fixed and inflexible.
- **Social cognition approach:** stereotypes are special cases of cognitive processes: limited-capacity human minds create *shortcuts* via *schemas* [Fiske, 1998] and *heuristics* [Tversky and Kahneman, 1974]. Stereotypes have been considered both as 'cognitive tools' and 'cognitive biases'.
- **Bayesian brain approach:** the human mind is a probabilistic-inference machine that learns through an iterative process and constantly makes predictions updating previous probabilities based on sensory inputs, trying to minimize the prediction error [Clark, 2013]. Stereotypes are *a collection of priors, bearing weight on how the members of a given group are perceived* [Hinton, 2017]. A new example will adjust the probabilities according to Bayes' theorem.

## Stereotypes as cognitive tools

«*A stereotype is the sluggard's best friend*» [Gilbert and Hixon, 1991].

«*Stereotypes are tools that "jump out" of the toolbox "when there is a job to be done."* » [Gilbert and Hixon, 1991].

Reality is too complex for any person to represent accurately. Stereotypes:

- serve to *simplify* the social environment [Augoustinos and Walker, 1998];
- help to *process enormous amounts of social information* with relative ease and efficiency [Cundiff, 2020];
- help to *fill in gaps of information* [Cundiff, 2020];
- are *energy-saving or resource-preserving devices* that can save mental resources and assist in information processing [Macrae et al., 1994];
- act as *schemas*, directing mental resources and guiding encoding and retrieval of information from memory [Augoustinos and Walker, 1998]

George Box: «*Essentially, all models are wrong, but some are useful*»

## Stereotypes as cognitive biases

Stereotypes' formation and persistence are linked to cognitive biases such as:

- ***distinctiveness based illusory correlation***: overestimation of the co-occurrence of distinctive (i.e., *infrequent, relatively rare*) events or behaviours and distinctive (i.e., *relatively smaller*) social groups [Hamilton and Gifford, 1976];
- ***category accentuation effect***: exaggeration of real group differences [Tajfel and Wilkens, 1963]
- ***out-group homogeneity***: perception of out-group members as more similar to one another than are in-group members [Linville et al., 1989];
- ***sub-typing***: process by which group members who disconfirm the stereotype are clustered together to form a subgroup [Hewstone, 1994],
- ***ultimate attribution error***: tendency to explain negative behaviours of an out-group member as a flaw in their personality, and to justify positive behaviour performed by an out-group member as a result of uncommon circumstances [Pettigrew, 1979];
- ***confirmation bias***: tendency to selectively search for or interpret information in a way that confirms one's preconceptions or hypotheses [Wason, 1960].

# Social construction of stereotypes and the Bayesian Brain

*Stereotypes are learnt cultural associations.*

**Predictive brain model:** the process of picking up associations between social groups and attributes is happening through Bayesian principles throughout a person's life within a culture.

*Culture is neither monolithic nor fixed and unchanging.*

Social reality is the outcome of ongoing practices of meaning-making [Hinton, 2017]:

- people are active in the construction of their social world
- the meanings attributed to the social world are actively created, reproduced, and transformed via social practices.

Stereotyping is not a matter of (mis)perceiving or (mis)representing the already existing qualities of individuals or groups. Rather, it is a matter of actively constructing those qualities [Dixon, 2017].

## Stereotypes' measurement

- **Explicit stereotypes:** conscious beliefs that people will consciously and openly admit.
  - **direct measures:** *self-reports* in which the respondent declares his/her level of agreement with some stereotypical items (e.g. "Girls are bad at math"), or compares members of two groups directly (e.g. "Boys are better than girls in math"), or indirectly by associating some adjectives or behaviours to each group separately.
- **Implicit stereotypes:** automatically activated and operate indirectly; individuals may not be aware that they possess such beliefs.
  - **indirect measures,** the best-known example of indirect measurement is the Implicit Association Test [Greenwald et al., 1998].

«Direct measures of attitudes and stereotypes have helped uncover insights into the basic organization of social group knowledge, its antecedents and consequences, as well as its variability across individuals.» [Charlesworth et al., 2022]

# Explicit stereotypes' direct measures: rating scales

- Likert scale

	Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree
Stereotype1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stereotype2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Semantic Differential

good	<input type="checkbox"/>	bad				
courteous	<input type="checkbox"/>	rude				

- Slider questions



## Response format: *ordered polytomous categories*.

Models and estimation methods for continuous (i.e., interval or ratio scale) data are not appropriate for categorical data.

# Traditional latent variable models

<i>Observed variable(s)</i>	<i>Latent variable(s)</i>	
Continuous	<b>Continuous</b>	Categorical
	Common Factor model Structural equation model	Latent profile model

<b>Categorical</b>	<b>ITEM FACTOR ANALYSIS</b>	Latent class model
	<i>Latent trait model</i>	
	<i>Item Response Theory (IRT) model</i>	

*Classification of latent variable models [adapted from Skrondal and Rabe-Hesketh, 2007]*

- **Factor Analysis (FA):** describes observed continuous variables by means of a smaller set of continuous latent factors.
- **Item Factor Analysis (IFA):** models the probability of a categorical response  $\{P(Y_{ik} = c)\}_{c \in \{0,1,\dots,c_{k-1}\}}$  as function of disjoint sets of parameters, related respectively to persons (*LATENT TRAITS*) and items.  
An IRT model specifies a mathematical function (***item response function - IRF***) to describe *the conditional probability of endorsing a specific response option, given the latent traits*.

## 2PNO-Unidimensional Graded Response Model

Two parameters (2P) IRF [Samejima, 1969]:

$$\Pr(Y_{ik} = c | \eta_i, \gamma_k, \lambda_k) = \Pr(Y_{ik} \geq c | \eta_i, \gamma_k, \lambda_k) - \Pr(Y_{ik} \geq c + 1 | \eta_i, \gamma_k, \lambda_k)$$

The probability that a person chooses a given category to an item is related to

- his/her **latent trait score**  $\eta_i$
- $C_k - 1$  **severity parameters or thresholds**,  $\gamma_k = (\gamma_{k,1}, \dots, \gamma_{k,C_k-1})$ ,  
 $\gamma_{k,0} = -\infty \leq \gamma_{k,1} \leq \dots \leq \gamma_{k,C_k-1} \leq \gamma_{k,C_k} = \infty$
- the *item discrimination parameter* or *item slope* or **factor loading**  $\lambda_k$

For the normal ogive model (2PNO), the IRF is given by

$$\Pr(Y_{ik} = c | \eta_i, \gamma_k, \lambda_k) = \Phi(\lambda_k \eta_i - \gamma_{k,c}) - \Phi(\lambda_k \eta_i - \gamma_{k,c+1})$$

where  $\Phi(\cdot)$  is the normal cumulative function.

## 2PNO-Multidimensional Graded Response Model

Test consisting of  $K$  ordered categorical items, measuring  $M$  latent traits,  
 $\eta = (\eta_1, \dots, \eta_M)$ .

Multidimensional formulation of the 2PNO model [Beguin and Glas, 2001]:

$$\begin{aligned} Pr(Y_{ik} = c | \lambda_k, \eta_i, \gamma_k) &= \Phi \left( \sum_{m=1}^M (\lambda_{km} \eta_{im} - \gamma_{k,c-1}) \right) - \Phi \left( \sum_{m=1}^M (\lambda_{km} \eta_{im} - \gamma_{k,c}) \right) \\ &= \Phi(\lambda'_k \eta_i - \gamma_{k,c-1}) - \Phi(\lambda'_k \eta_i - \gamma_{k,c}) \end{aligned}$$

- $\eta_i = (\eta_{i,1}, \eta_{i,2}, \dots, \eta_{i,M})$ : **person parameters**
- $\lambda_k = (\lambda_{k,1}, \lambda_{k,2}, \dots, \lambda_{k,M})$ : **factor loadings**
- $\gamma_k = (\gamma_{k,0}, \gamma_{k,1}, \dots, \gamma_{k,C_k})$ : **ordered thresholds**

## 2PNO Graded Response Model alternative formulation

A factorial measurement model can be used to represent some *continuous underlying response variables*,  $Z = (Z_1, \dots, Z_K)$ , as linear functions of the multiple latent traits

$$\mathbf{Z} = \Lambda \boldsymbol{\eta} + \boldsymbol{\epsilon}$$

$\Lambda$ : ( $K \times M$ ) matrix containing the discrimination parameters, or factor loadings.

$\boldsymbol{\epsilon}$ : disturbance vector.

Each categorical response  $Y_{ik}$  is linked to the latent continuous response  $Z_{ik}$  through a threshold model

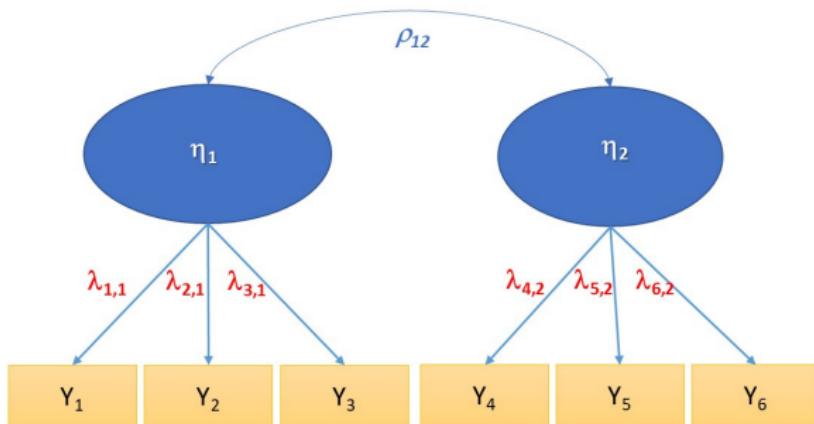
$$Y_{ik} = c \text{ if } \gamma_{k,c-1} \leq Z_{ik} \leq \gamma_{k,c}, \text{ for } c = 1, \dots, C$$

$$\gamma_{k,c-1} \leq \gamma_{k,c} \text{ and } \gamma_{k,0} = -\infty, \gamma_{k,C} = \infty$$

The two-parameter normal ogive (2PNO) formulation derives from the assumption of normally distributed error, i.e.  $\boldsymbol{\epsilon} \sim N(\mathbf{0}, \mathbf{I})$ .

# Stereotypes' scales and 2PNO parameters' interpretation

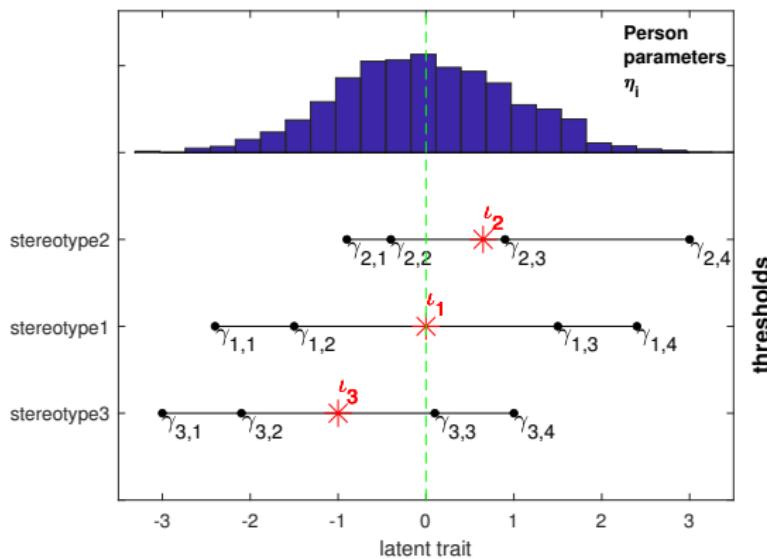
## Factorial structure of a Bidimensional Confirmatory Model



- $\lambda_{k,m}$  as **factor loading**: how the level of endorsement of stereotype dimension  $m$  influences the level of agreement with stereotype  $Y_k$
- $\lambda_{k,m}$  as **discrimination parameter**: how stereotype  $Y_k$  discriminates between individuals with high and low stereotypical attitudes on dimension  $m$

## Stereotypes' scale and 2PNO parameters' interpretation

## Person-item map



- $\{\eta_i\}$  - **person parameters** : degree of *endorsement* of the stereotypical view
  - $\iota_k = (C - 1)^{-1} \sum_{c=1}^{C-1} \gamma_{k,c}$  - **location parameter** : stereotype *rigidity* level - *lower values more ingrained stereotypes*

# Stereotyping Roma people in Italy

Romaphobia (*i.e. anti-Tsiganism, anti-Gypsyis*) is: “a very specific form of racism, an ideology of racial superiority, a form of dehumanisation and of institutionalised racism [...] based on historical persecution and negative stereotype” [Nicolae, 2007].

Although the prejudice on Roma people are overwhelmingly negative, traditional, historically rooted, ‘romanticised’ stereotypes are also widely shared.

“The romantic image of Roma includes such elements as musical and dancing talent, capability of passionate love and other strong emotions, spontaneity, free and spiritual character, magical relatedness to nature, ability to enjoy themselves, etc.” [Cahn, 2002].

## Research AIM:

- analyse the ***ambivalent perception*** of Roma people: assessment of the level of dissemination and endorsement of **positive** and **negative** stereotypes;
- investigate ***how socio-demographic covariates affect the endorsement of a clichèd depiction of Roma***.

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Villano P., Fontanella L., Fontanella, S., Di Donato M. *Stereotyping Roma people in Italy: IRT models for ambivalent prejudice measurement*, Int. J. Intercult. Relat., 57,30-41, 2017



## Roma Stereotypes Scale

A Likert scale was developed drawing stereotypes on Roma people from a literature review and from reports of several projects.

- **Negative stereotypes:** Roma are seen as individuals involved in illegal and criminal activities, engaged in antisocial behaviours, who exploit the social welfare system instead of working, do not care for personal hygiene, house conditions and education.
- **Positive stereotypes:** romantic image of Roma as 'children of the wind', with carefree and cheerful temperament, predilection for freedom and artistic talents.

Each statement was rated on a five-point rating scale, ranging from '*strongly disagree*' to '*strongly agree*'.

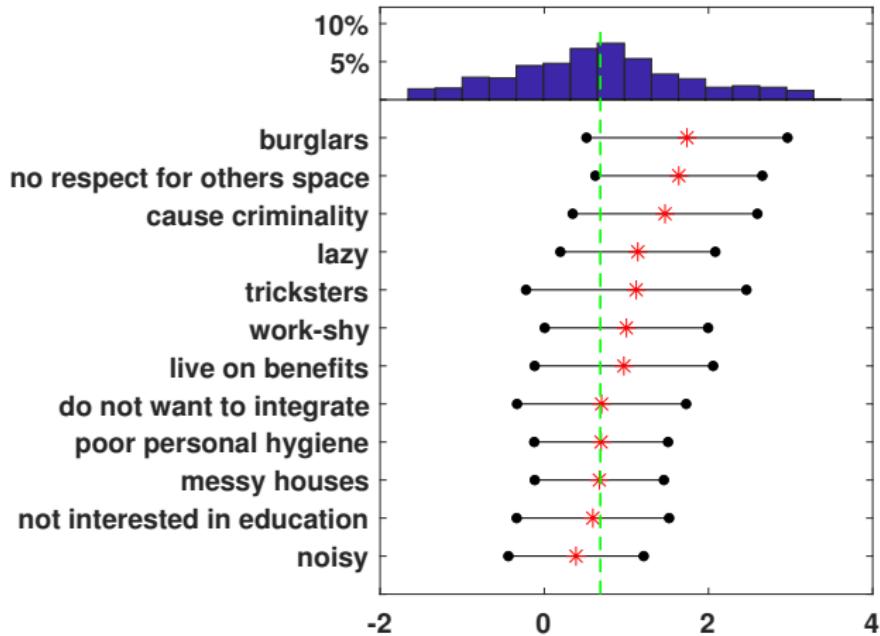
# Factor loadings for the Roma Stereotypes scale

Dimension	Roma:	Estimate	95% CI
Negative	have no respect for other people's space	2.06	(1.71;2.45)
	are burglars	1.71	(1.41;2.04)
	their presence causes criminality	1.69	(1.42;2.00)
	are work-shy	1.68	(1.43;1.97)
	prefer to live on benefits instead of working	1.63	(1.39;1.89)
	are tricksters	1.62	(1.38;1.89)
	do not want to integrate and prefer to be marginalised	1.52	(1.30;1.77)
	are lazy	1.16	(0.99;1.34)
	are not interested in education	1.10	(0.93;1.28)
	are dirty and have poor personal hygiene	1.03	(0.87;1.21)
Positive	are noisy	0.92	(0.77;1.08)
	houses are very messy	0.64	(0.53;0.77)
	are great musicians	1.52	(1.23;1.84)
	enjoy the small things in life	1.42	(1.17;1.70)
	have artistic talent	1.38	(1.13;1.70)
	girls are beautiful and seductive	0.99	(0.82;1.18)
	are freedom-loving	0.91	(0.74;1.09)
	are gifted craftsmen	0.88	(0.72;1.06)
	are passionate dancers	0.74	(0.59;0.88)
	are free spirits	0.71	(0.57;0.86)

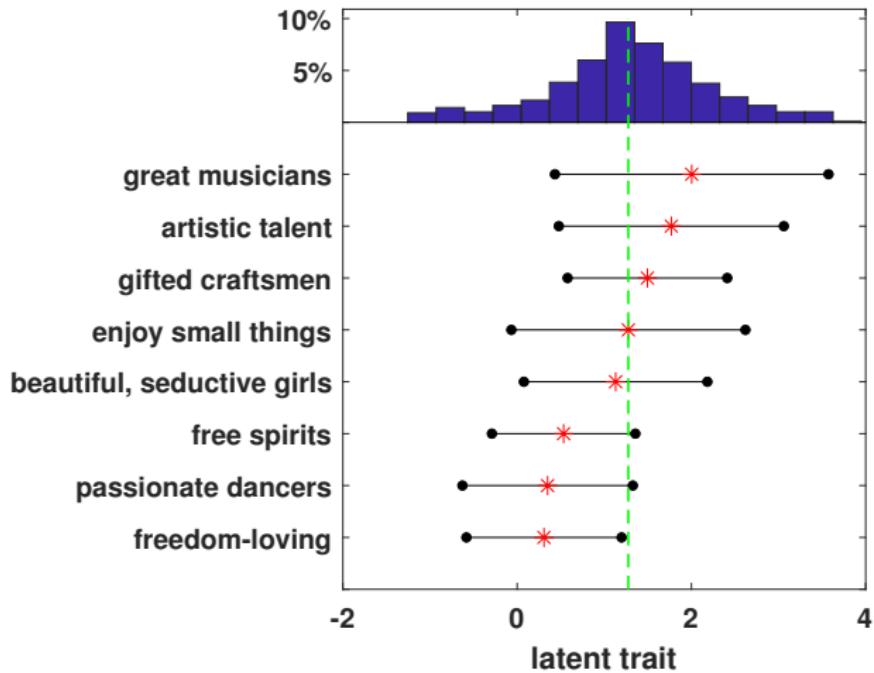
Sample size: 492



# Negative stereotypes: endorsement and dissemination



# Positive stereotypes: endorsement and dissemination



# Influence of socio-demographic features on stereotypes' endorsement

To detect possible effects of individual features,  $\mathbf{d}_i$ , on the endorsement of Roma stereotypes, we allow for the dependency of the person parameters on: *gender, age, educational attainment, regional area of residence and political position.*

Prior on endorsement level:

$$\begin{aligned}\boldsymbol{\eta}_i &\sim \mathcal{N}_2(\mathbf{B}\mathbf{d}_i, \boldsymbol{\Sigma}_{\eta}) \\ \mathbf{B} &\sim \mathcal{MN}_{2 \times p}(\boldsymbol{\mu}_B, \mathbf{V}_2, \mathbf{V}_p) \\ \boldsymbol{\Sigma}_{\eta}^{-1} &\sim \text{Wish}(3, s_{\eta_0} \mathbf{I}_2)\end{aligned}$$

	Negative				Positive			
	$\hat{\beta}_1$	95% CI		$\hat{\beta}_2$	95% CI			
Intercept	0.91	**	0.72	1.11	1.22	**	1.02	1.43
Age	0.00		-0.01	0.02	0.01	*	0.00	0.03
Male	0.10		-0.09	0.30	-0.15		-0.35	0.06
North-Central Italy	0.04		-0.16	0.25	-0.07		-0.29	0.14
Graduate	0.16		-0.05	0.36	0.08		-0.12	0.29
Left	-0.86	**	-1.07	-0.66	0.25	*	0.04	0.45
Right	0.56	**	0.26	0.87	-0.13		-0.44	0.18

Regression parameter posterior estimates

$$\hat{\sigma}_{\eta_{1,2}} = -0.28 (-0.35, -0.19)$$

# Roma stereotypes on Social Media



**Corpus: 25785 comments to Facebook posts and YouTube videos on Roma people<sup>1</sup>**  
**Methodology: Latent Dirichlet Allocation**

<sup>1</sup> Tontodimamma A., Fontanella L., Anzani S., Basile V. *An Italian lexical resource for incivility detection in online discourses*, Qual Quant, 2022

## Roma stereotypes on Social Media: examples of comments classified into Topic 6

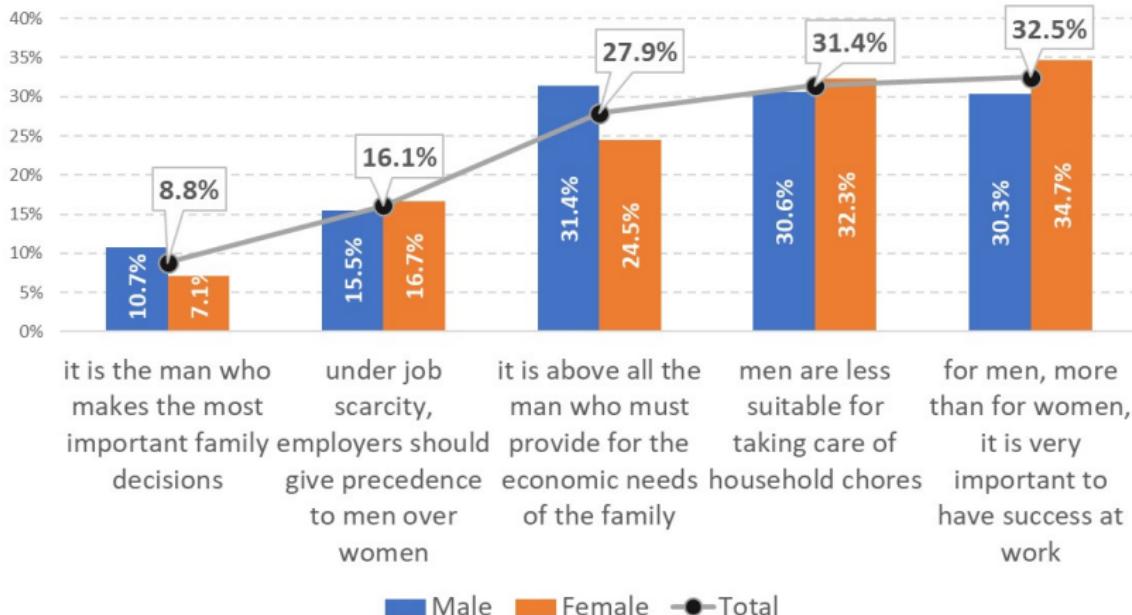
- "I would send them first of all to work and earn a living (there are many jobs where culture is not needed but arms) then I would make them pay for accommodation and various connections, no that they have to live on the shoulders of Italians (so we are fools and we all pay), and they are so grateful that they even come to steal in our house! ?? [...]"
- "They don't change... they don't want to work they never integrate because working costs effort and then they get everything the same ... never heard that they rent a house and look for work ..."
- "There are no words .....  
they do not respect the elementary rules of a civilized life .... they steal ...  
they want to be maintained ... They do not send their children to school .... they make them live in the garbage with the mice .... the municipalities pay them the light and they pay no tax ... etc etc ... but they are not nomads ...."
- "I do not put offensive comments but a real truth ... They steal in houses ...  
They are dirty ... They kidnap children ... They send children to steal in apartments because they cannot be tried as they are minors ... I am not racist, they make you a racist, they are a a slap in the face of poverty ... some Italian municipalities give them houses ... who will pay the rent?"

## Roma de-humanization on Social Media

The typical traits assigned to Roma suggest their having an essence different from that of humans, being represented as antisocial nomads with a questionable morality and a preference for isolation within a self-enclosed universe beyond the realm of the human species [Chulvi and Pérez, 2003].

- “*Non-human in the sense that they are not worthy of being considered human, that is, rational, sociable, honest beings with good feelings and obedient to rules and possessors of principles.*”
- “*Inhuman ..... They are ROMS.*”
- “*Inhuman is a compliment to these vile and parasitic beings.*”
- “*Inhuman ... but they really have nothing human at all.*”
- “*If you are born Rom you are already born inhuman*”.
- “*In addition to being inhuman, they are bastards*”.
- “*To be inhuman it is enough to be ROM*”.
- “*We are talking about Gypsies ... they are inhuman in the DNA*”.

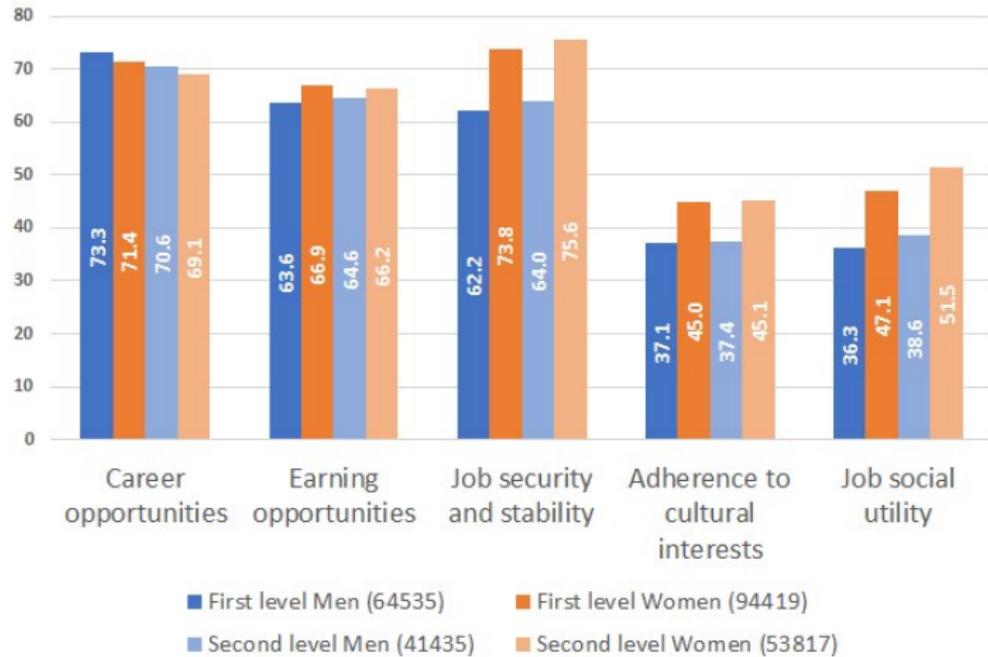
# Gender stereotypes endorsement in Italy



*Percentage of respondents who agree or strongly agree with each statement.*

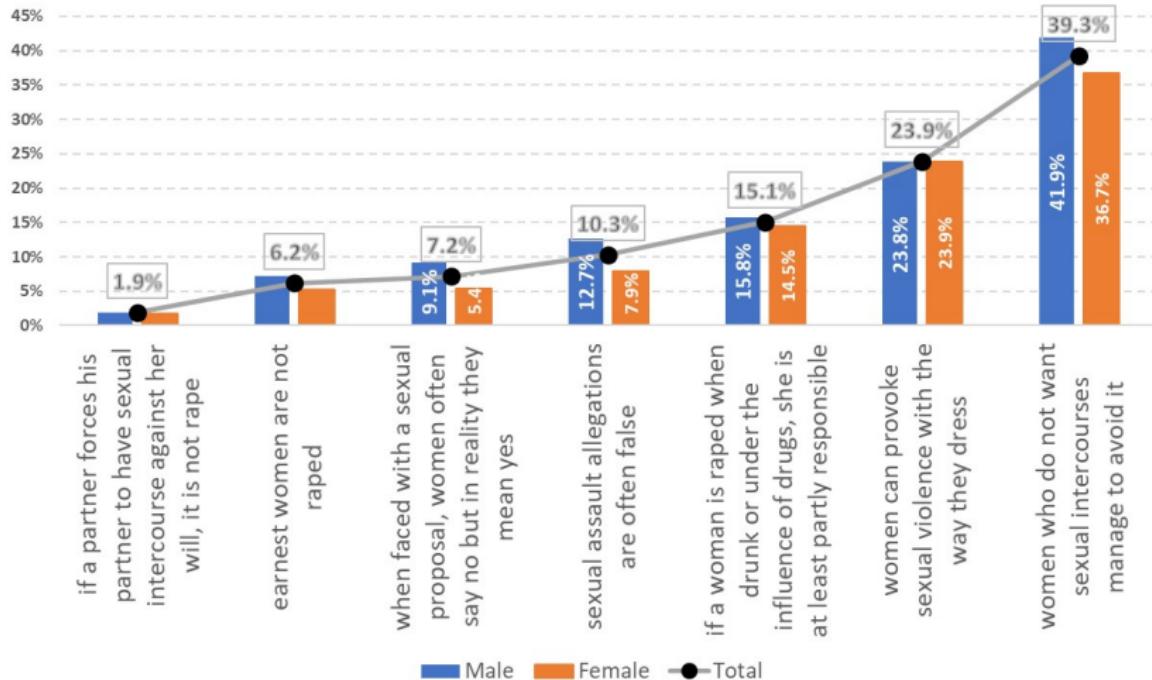
Source: ISTAT: Stereotipi sui ruoli di genere e l'immagine sociale della violenza sessuale, anno 2018

# Aspects considered relevant in the job search by gender



Source: **ALMALAUREA: XXIII Indagine (2021) - Profilo dei Laureati 2020**

# Rape myths endorsement in Italy



*Percentage of respondents who agree or strongly agree with each statement.*

Source: ISTAT: Stereotipi sui ruoli di genere e l'immagine sociale della violenza sessuale, anno 2018

## Rape myths as stereotypes

The social psychological approach to rape myths emphasizes the similarities with stereotypes.

Rape myths: “*prejudicial, stereotyped, or false beliefs about rape, rape victims, and rapists*” [Burt, 1980].

“*Rape myths are attitudes and beliefs that are generally false but are widely and persistently held, and that serve to deny and justify male sexual aggression against women*” [Lonsway and Fitzgerald, 1995].

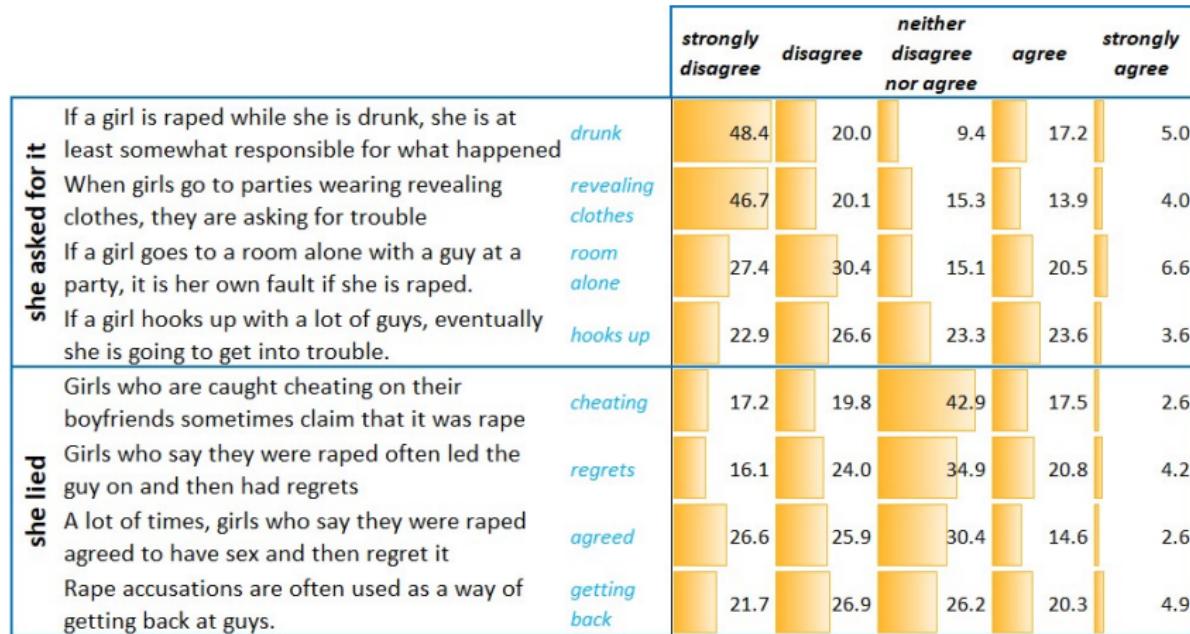
“*As stereotypes, rape myth acceptance is a cognitive schema that can influence how people interpret social information*” [Chapleau and Oswald, 2013].

Dimensions of the **Assessing Subtle Rape Myths scale** [McMahon and Farmer, 2011, Martini et al., 2022]:

- “**She asked for it**”
- “He didn’t mean to”
- “It wasn’t really rape”
- “**She lied**”
- “He didn’t mean to because of intoxication”.

Rating scale: 1 = “Strongly disagree” - 5 = “Strongly agree.”

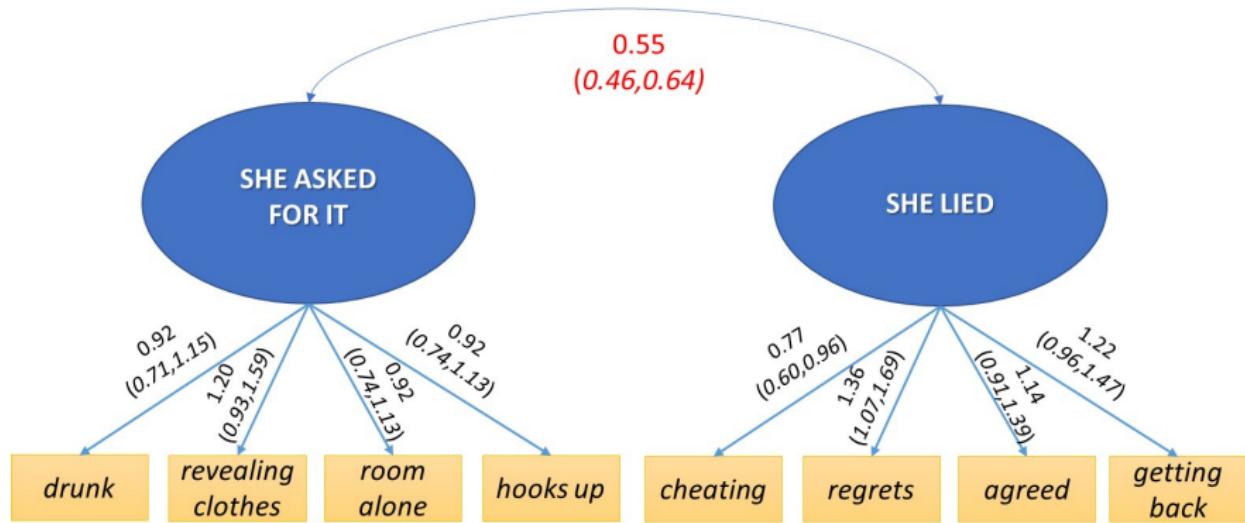
# Rape myths agreement



Source: Data collected in the project Scardaccione G., Maretti M., Fontanella L. *Gender roles and identities*.

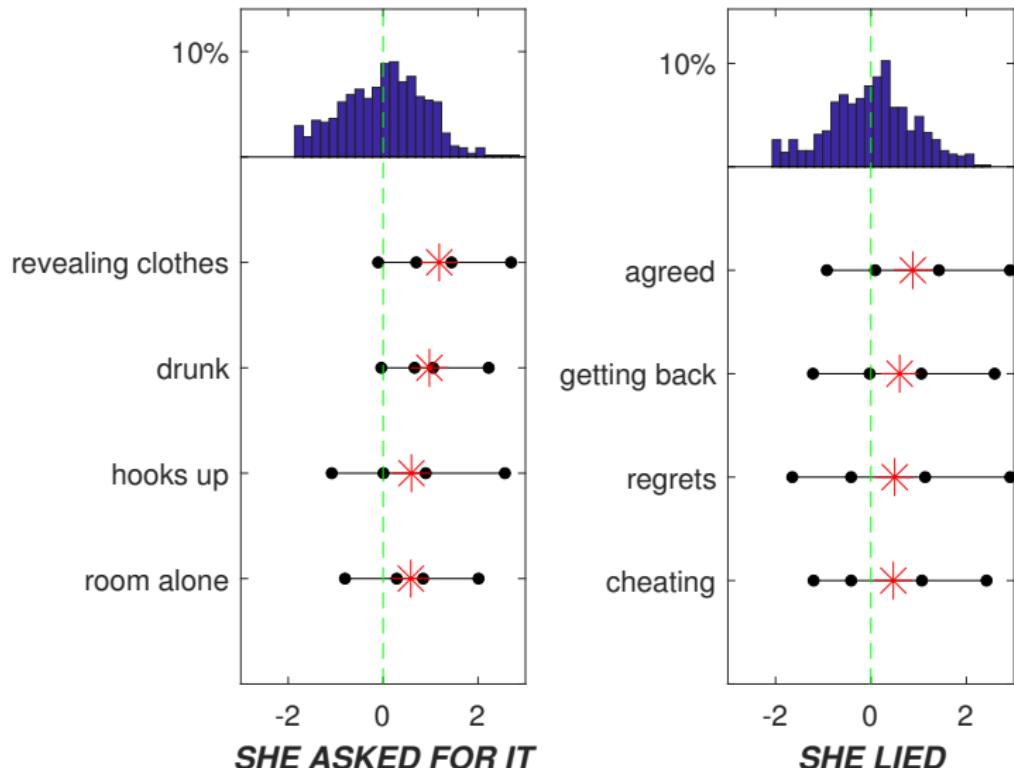
**Sample size: 577**

# Factor loadings for the reduced Subtle Rape Myths scale

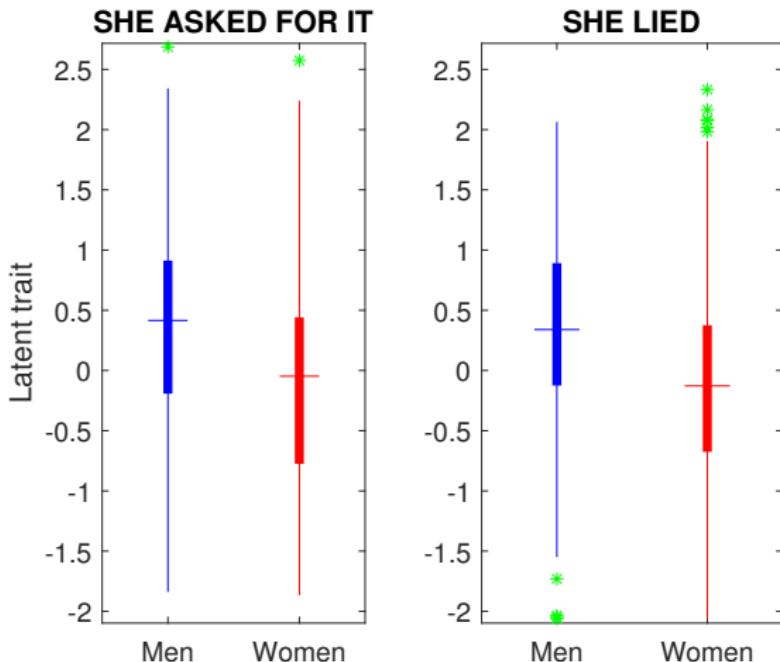


Posterior estimates for the factor loadings and the latent trait correlation.  
95% CI in brackets

# Rape myths: endorsement and dissemination



## Rape myths endorsement by gender



Sample composition: Men 171 (29.7%); Women 404 (70.3%)

# Rape stereotypes on Social Media



**Corpus:** 36158 Facebook comments to 50 newspapers' articles on "Terrazza Sentimento" case<sup>2</sup>

**Methodology:** Latent Dirichlet Allocation

<sup>2</sup>Di Eduardo S. *TE LA SEI CERCATA! Analisi riguardante le considerazioni sullo stupro nel tempo e sui social media*, Tesi di Laurea, 2021

## Rape stereotypes on Social Media: examples of comments classified into Topic 6

- “the girls knew very well what kind of parties they were. No justification, but those who go to these parties know very well what they are getting into.”
- “They knew very well what kind of parties they went to. Now all saints raped.”
- “I don't think they were so ‘santarelline’ .... it is logical that rape is not acceptable but surely they knew what they were facing.”
- “So the naive ‘santarelline’ knew very well what they were getting into !!”
- “the girls were willing, they took drugs ... they knew what they were getting into”
- “Young girls first go to these parties and then play victims.”
- “Where did they think they were going, to the parish oratory?”
- “Obviously they didn't know anything about what was going on at those parties ... They thought they were going to play monopoly.”
- “Do you want to tell me that all the girls who absolutely wanted to be invited to these parties thought they were playing checkers????”
- “Normal girls don't go to those men they don't know ...”
- “Instead of going to these parties, go and study like good girls do!”

# Are sexist female stereotypes misogynistic?

## Funded research project on Identifying and Countering Online Misogyny<sup>3</sup>

First step: *What do we mean by «Misogyny»?*

**Misogynistic communication expresses hatred towards women** through insulting, sexual harassment, male privilege, belittling of women, violence against women, body shaming, and sexual objectification.

Misogynistic language has often been treated as an expression of sexist offences.

However, Manne [2017] makes an essential **distinction between misogyny and sexism**:

- **sexism** is the 'justificatory' branch of the patriarchal order, a body of ideas that exists to justify social relations through beliefs, theories, **stereotypes**, and cultural narratives that present women as naturally inferior;
- **misogyny**, characterized by a **hostility component**, is the 'law enforcement' branch, which rewards 'good' women who comply with societal norms while punishing those who misbehave.

<sup>3</sup>Project funded by EU Next Generation, MUR-Fondo Promozione e Sviluppo-DM 737/2021 - ICOMIC: Identifying and Countering Online Misogyny

## Misogyny: has its meaning shifted?

« Those who looked up "misogyny" in Merriam-Webster's online dictionary would find a terse definition: "a hatred of women". [...] But given the modern usage of the word, is that definition in need of a rewrite? » Ben Zimmer, THE WALL STREET JOURNAL, May 30, 2014

Merriam-Webster's online dictionary (2022):

- Definition of misogyny: hatred of, aversion to, or prejudice against women
- The (Etymological) Roots of Misogyny: Misogyny may be distinguished from the closely related word sexism, which signifies discrimination based on sex [...] and also carries the meaning "behavior, conditions, or attitudes that foster stereotypes of social roles based on sex."

Misogyny refers specifically to a hatred of women. The word is formed from the Greek roots *misein* ("to hate") and *gynē* ("woman").

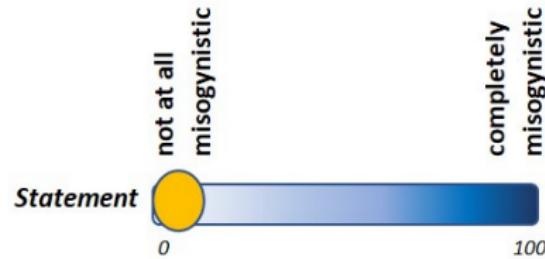
- The Oxford English Dictionary revised its definition of misogyny back in 2002, changing it from "hatred of women" to "a feeling of hate or dislike towards women, or a feeling that women are not as good as men."
- Australia's Macquarie Dictionary: Misogyny 1. hatred of women. 2. entrenched prejudice against women.
- American Heritage Dictionary: Misogyny: Hatred or mistrust of women.
- Treccani online Italian dictionary: Misoginia: Atteggiamento di avversione generica per le donne.

## Misogyny acknowledgement scale: slider questions

**AIM:** Investigate the level of acknowledgement of misogynistic content in sexist stereotypes.

For each statement below, please evaluate how misogynistic you feel it is.

When answering, keep in mind that **the term misogyny indicates an attitude of aversion, mixed with contempt and hostility, towards women in general.**

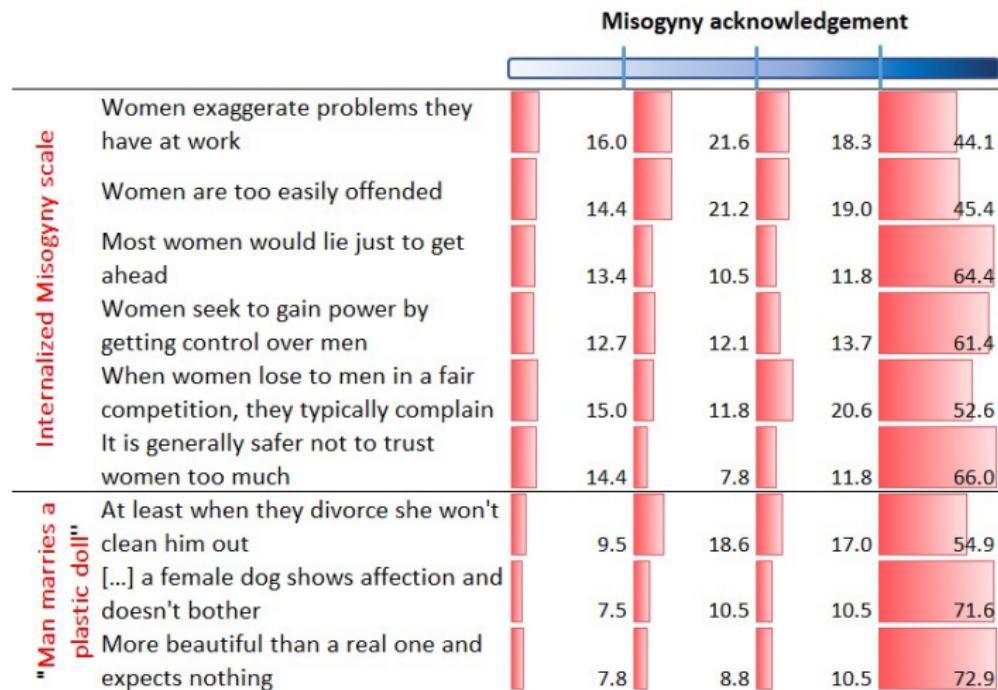


Italian version: ‘*Nel rispondere, tieni a mente che il termine misoginia indica un atteggiamento di avversione, misto a disprezzo e ostilità, verso le donne in generale*’ - definition adapted from the «misoginia» entry in the online Treccani Italian dictionary.”

# Sexist Stereotypes scale

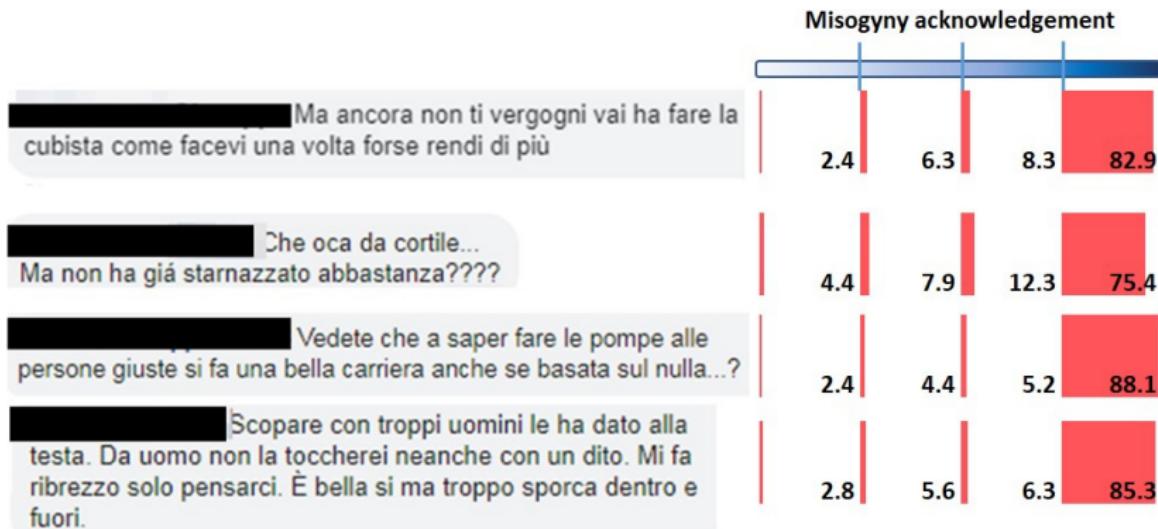
Items drawn from the <b>Internalized Misogyny</b> <b>scale</b> {Szymanski et al., 2009, Rottweiler and grill, 2021)	Women exaggerate problems they have at work Women are too easily offended Most women would lie just to get ahead Women seek to gain power by getting control over men When women lose to men in a fair competition, they typically complain about being discriminated against It is generally safer not to trust women too much
Comments to <b>"Man marries a plastic doll"</b> <a href="https://ihaveavoice.it/misoginia-nei-social">https://ihaveavoice.it/misoginia-nei-social</a>	<p>[REDACTED]            Almeno, quando divorzieranno, lei non lo lascerà in mutande..</p> <p>[REDACTED]            No no anzi certo con una bambola insomma magari no ma un cane femmina si almeno quando ti ritiri a casa lei ti fa le feste e soprattutto non rompe le balle</p> <p>[REDACTED]            È più bella di una vera e non pretende niente.</p> <p>At least when they divorce she won't clean him out</p> <p>[...] a female dog shows affection and doesn't bother</p> <p>More beautiful than a real one and expects nothing</p>

# Misogyny acknowledgement for the Sexist Stereotypes scale



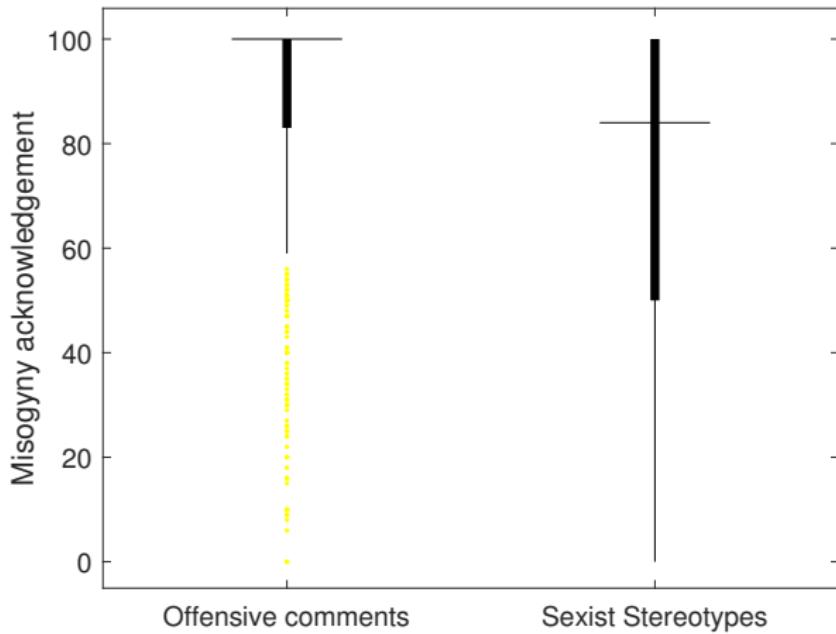
**Sample size: 306**

# Misogyny acknowledgement for offensive sexist comments



**Sample size:** 306

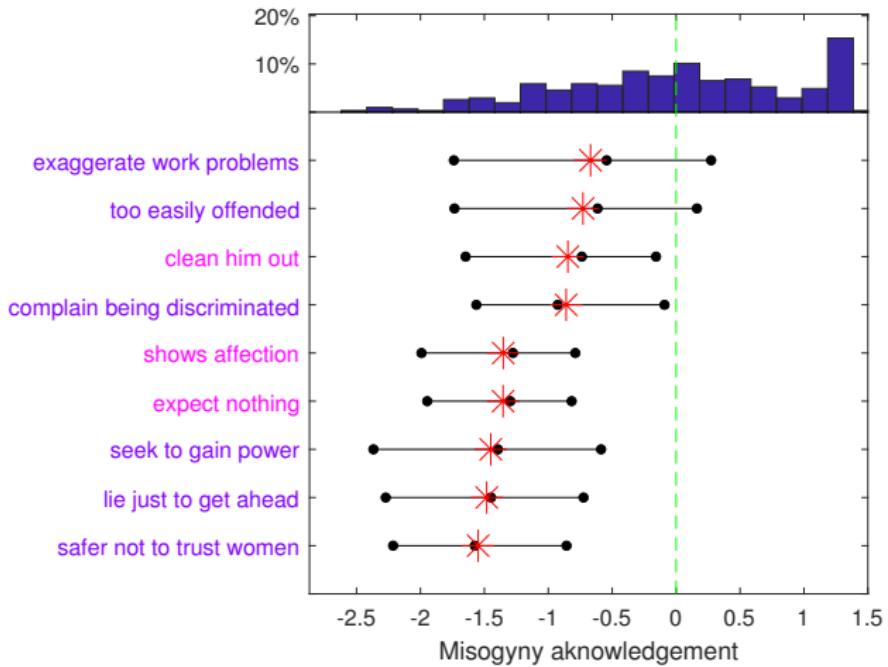
# Misogyny acknowledgement for the offensive and the sexist statements



## 2PNO IRT model for the Sexist Stereotypes scale: factor loadings

Stereotypes	Posterior mean	95% CI	
It is generally safer not to trust women too much	1.84	1.35	2.95
Women seek to gain power by getting control over men	1.81	1.38	2.40
Most women would lie just to get ahead	1.77	1.29	2.29
Women exaggerate problems they have at work	1.45	1.12	1.86
Women are too easily offended	1.30	1.00	1.68
When women lose to men in a fair competition, they typically complain about being discriminated against	1.11	0.85	1.40
[...] a female dog shows affection and doesn't bother	0.95	0.64	1.29
More beautiful than a real one and expects nothing	0.93	0.65	1.27
At least when they divorce she won't clean him out	0.75	0.51	1.01

# Sexist Stereotypes scale person-item map



# Influence of individual features on misogyny acknowledgement

**Individual features:** gender, educational attainment, age.

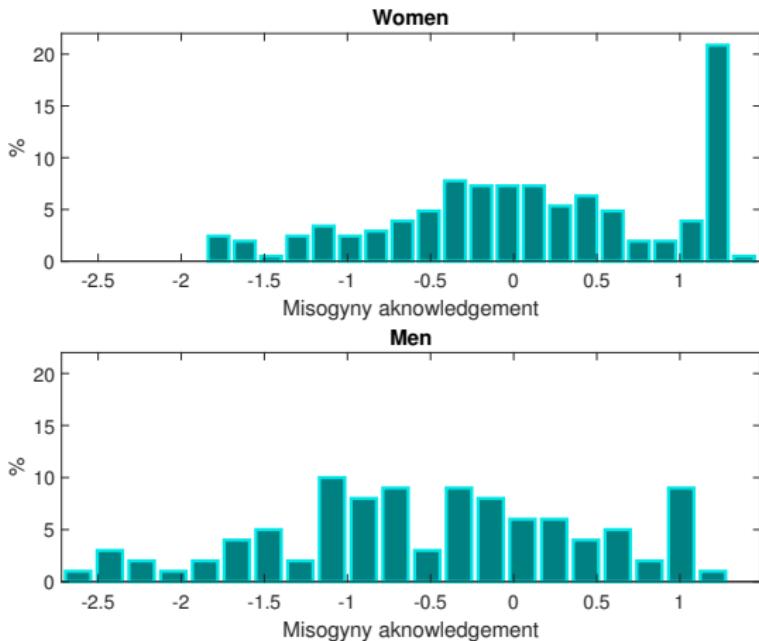
Prior on acknowledgement level:  $\eta_i \sim \mathcal{N}(\mathbf{d}'_i \boldsymbol{\beta}, 1)$

$$\boldsymbol{\beta} \sim \mathcal{N}_p(\boldsymbol{\mu}_{\beta_0}, \mathbf{V}_p)$$

Regression coefficients

	Posterior estimates	95% CI		
intercept	0.691	**	0.317	1.068
man	-0.541	**	-0.804	-0.291
first level degree	0.104		-0.214	0.443
second level degree and higher	0.116		-0.164	0.415
age	-0.016	*	-0.025	-0.008

# Misogyny aknowledgment by gender



**Sample composition:** Men 100 (32.7%); Women 206 (67.3%)

# Conclusions

Research on Roma and gender stereotypical representation has shown how **direct measures coupled with IRT models** allow to

- identify the *more ingrained explicit stereotypes*,
- recover *different patterns of endorsement* according to respondents' characteristics.

***Blatant explicit stereotypes are constantly being circulated on social media.***

Social media

- allows people to remain in an *ideological subculture*, communicating with like-minded people
- offers the potential for people to engage with a *diversity of representation* and counter-stereotypical information.

For a change in the stereotypical view, the Bayesian brains requires a prolonged exposure to counter-stereotypical alternative representations.

# *Thank You for Your Attention*



*My nephew at 5 years old*

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