# This study shed light on the interaction of psychological factors and individual characteristics with the perceived environmental impact of foods.

## The role of individual characteristics in sustainable food choices: A cross-cultural study between Italy and Turkey

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## Introduction

Given the environmental challenge we face globally, a transition to sustainable diets seems essential. However, the cognitive aspects underlying sustainable food consumption have received little attention to date.

The aim of this study was threefold:

1. Investigating the role of impulsivity traits and participants' perception of the environmental impact of food in influencing the frequency of consumption of animal- and plant-based foods.
2. Understand how sociodemographic characteristics, BMI, food preferences and sustainability knowledge of participants modulate the evaluation and the consumption of both animal- and plant-based food products.
3. Investigate whether there were differences between Italian and Turkish participants in a cross-cultural comparison perspective.

## Methods

An online survey investigating sociodemographic characteristics and eating habits, impulsivity traits, sustainability knowledge and ratings of diverse food items was designed and administered to respondents from Italy (N=992, M = 41.3 years old, SD = 13.6, 62.7% F) and Turkey (N=896, M = 30.6 years old, SD = 11.8, 63.7% F).

To investigate if an inverse interaction may exist between impulsivity and participants' perception of the environmental impact of food, we used multiple linear regression models. The models were tested on the Italian and Turkish samples separately to explore the differences between the two cultures. Subsequently, we adjusted the model for sociodemographic characteristics, BMI and eating behaviors. Finally, we added the interaction effect of sex and knowledge of sustainability as predictor.

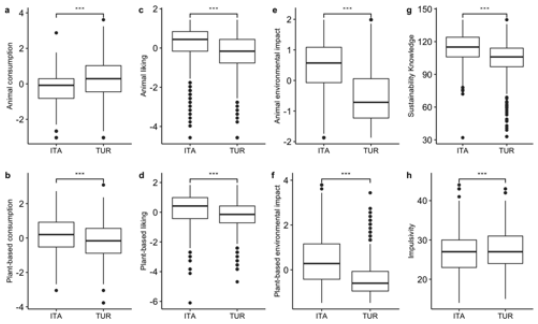


Figure 1: Main differences between the Italian (ITA) and the Turkish (TUR) samples. a) Animal consumption, b) Animal liking, c) Animal environmental impact, d) Sustainability knowledge, e) Plant-based consumption, f) Plant-based liking, g) Plant-based environmental impact and h) Impulsivity traits

## Results

Turkish respondents were higher in impulsivity and animal products consumption, regardless of their sex, BMI, generation or educational level. Italians had greater sustainability knowledge and consumed more plant-based foods. Females in both groups reported greater knowledge of sustainability, consistent with previous findings. However, sex differences within groups were milder in the Turkish sample. The lowest consumption of animal products was reported by Turkish Generation Z and Italian Millennials. Our results confirmed a previously found positive association between education level and the higher consumption of plant-based products in the Italian sample, but not in the Turkish.

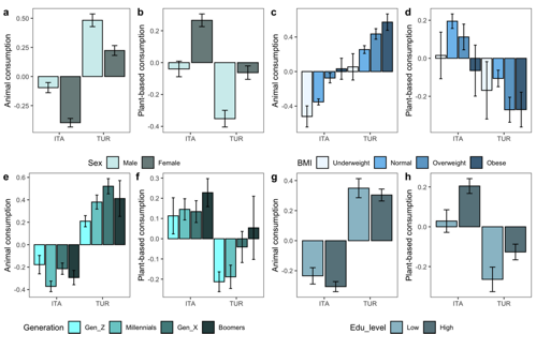


Figure 2: Summary of the results taking into account demographic characteristics: sex (a-b), BMI (c-d), generation (e-f), and education level (g-h) modulations on the frequency of consumption of animal- and plant-based foods among Italian (ITA) and Turkish (TUR) populations.

## Extra Tables

Table 1: Characteristics of the participants

| Characteristic | ITA N (%) | TUR N (%) |
|---|---|---|
| Sex (F) | 622 (62.7) | 571 (63.7) |
| Age * | 41.3 (13.6) [18, 75] | 30.6 (11.8) [18, 75] |
| *Generation* | | |
| Z | 140 (14.1) | 461 (51.5) |
| Millennials | 389 (39.2) | 251 (28) |
| X | 293 (29.5) | 154 (17.2) |
| Boomers | 170 (17.1) | 30 (3.3) |
| *Education* | | |
| Primary school | 1 (0.1) | 4 (0.4) |
| Middle school | 14 (1.4) | 10 (1.1) |
| Some high school | 16 (1.6) | 28 (3.1) |
| High school graduate | 267 (26.9) | 225 (25.1) |
| Bachelor's Degree | 161 (16.2) | 441 (49.2) |
| Master's Degree | 398 (40.1) | 143 (16) |
| Ph.D. | 135 (13.6) | 45 (5) |
| *Education level* | | |
| Low | 298 (30) | 267 (29.8) |
| High | 694 (70) | 629 (70.2) |
| *BMI* * | 23.3 (3.9) [15, 43.9] | 24 (4.6) [15.7, 45.4] |
| Underweight | 63 (6.4) | 63 (7) |
| Normal | 673 (67.8) | 521 (58.1) |
| Overweight | 197 (19.9) | 221 (24.7) |
| Obese | 59 (5.9) | 91 (10.2) |
| *Diet* | | |
| Vegan | 7 (0.7) | 7 (0.8) |
| Vegetarian | 56 (5.6) | 13 (1.5) |
| Flexitarian | 181 (18.2) | 86 (9.6) |
| Omnivorous | 748 (75.4) | 790 (88.2) |
| *Dietary restrictions* | | |
| None | 751 (75.7) | 567 (63.3) |
| Allergies/intolerances | 132 (13.3) | 70 (7.8) |
| Religious beliefs | 2 (0.2) | 163 (18.2) |
| Other personal reasons | 107 (10.8) | 96 (10.7) |
| *Location of residence* | | |
| City | 564 (56.9) | 814 (90.8) |
| Suburbs | 212 (21.4) | 28 (3.1) |
| Countryside | 216 (21.8) | 54 (6) |

* mean SD [min, max]

Table 2: Coefficients, standard errors (SE) and p values for the Italian and Turkish regression models for animal-based food consumption and for plant-based food consumption. The models are adjusted for sociodemographic characteristics, BMI, eating behaviors and the interaction between sustainability knowledge and sex.

| | Animal-based consumption | | | | Plant-based consumption | | | |
|---|---|---|---|---|---|---|---|---|
| | Italian | | Turkish | | Italian | | Turkish | |
| (Intercept) | -1.355 | (0.46) | 0.349 | (0.50) | 0.416 | (0.54) | 1.028 | (0.55) |
| Impulsivity | | | -0.015* | (0.01) | | | -0.017 * | (0.01) |
| Sustainability knowledge | -0.007 * | (0.00) | | | | | | |
| Sex (*F*) | -0.977 * | (0.40) | | | | | | |
| Sex(*F*)*Sustainability knowledge | 0.008 * | (0.00) | | | | | | |
| Education level (*High*) | | | -0.227 *** | (0.06) | 0.15 * | (0.06) | | |
| **Generation** | | | | | | | | |
| *Millennials* | -0.171 * | (0.07) | | | | | | |
| *X* | -0.155 * | (0.07) | 0.183 * | (0.08) | | | | |
| *Boomers* | -0.271 ** | (0.08) | | | | | | |
| **Location** | | | | | | | | |
| *Suburbs* | | | -0.399 ** | (0.15) | | | | |
| *Countryside* | | | -0.334 ** | (0.11) | | | -0.273 * | (0.12) |
| **BMI** | | | | | | | | |
| *Normal* | | | | | 0.214 * | (0.11) | | |
| Obese | 0.291 * | (0.13) | | | | | | |
| **Diet** | | | | | | | | |
| *Vegetarian* | 1.008 *** | (0.28) | | | | | | |
| *Flexitarian* | 1.299 *** | (0.28) | | | | | | |
| *Omnivorous* | 1.898 *** | (0.28) | 0.912 ** | (0.34) | | | | |
| **Dietary restrictions** | | | | | | | | |
| *Religious beliefs* | | | -0.159 * | (0.071) | | | | |
| *Other reasons* | | | | | 0.271 ** | (0.09) | | |
| Animal liking | 0.258 *** | (0.03) | 0.571 *** | (0.03) | -0.065 * *** | (0.03) | -0.091 * *** | (0.4) (0.03) |
| Plant-based liking | -0.072 ** | (0.02) | | | 0.423 *** | (0.03) | 0.509 *** | (0.03) |
| Adjusted r-squared | 0.428 | | 0.406 | | 0.334 | | 0.261 | |
| *p* | < 0.001 | | < 0.001 | | < 0.001 | | < 0.001 | |

Standard errors are in parenthesis.

Signif. codes: 0.001 '***' 0.01 '**' 0.05 '*'

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