The taste palette: unraveling the effect of gender and savoury taste phenotypes on food acceptance, consumption and body mass index

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The present study explored the effect of taste functionality on eating habits and nutritional status verifying whether this effect is mediated by gender. Two-thousand-eight-hundred-seventy-eight participants (54.5% female; aged 18–60) rated liking and perceived intensity of salty, umami, and overall flavor sensations for a model food (bean purée) spiked with increasing NaCl levels. Anthropometric and food consumption data for a serie of food categories were self-reported. K-means clustering, by gender, identified two female phenotypes: 'Savoury-taste-Likers' (n=698) and 'Savoury-taste-Dislikers' (n=872), showing respectively increasing or decreasing liking with NaCl concentration. For males, a 'Savoury-taste-Dislikers' phenotype (n=838) and 'Savoury-taste-Lovers' phenotype (n=470) emerged, displaying the highest liking for salty foods. Female 'Likers' had lower sensitivity to taste sensations compared to 'Dislikers', while this association was less pronounced in males. Both ‘Likers’ and ‘Lovers’ phenotypes (irrespective of gender) displayed a higher consumption frequency of caloric breakfast products, caloric meals or junk foods, red and cured meat and both saturated and unsaturated fats, with only 'Savoury-taste-Lovers' associated with increased BMI (p=0.09). The present data suggest the importance of taste as explanatory variable in the development of unhealthy eating patterns and stress the need of considering gender-related differences for the implementation of personalized dietary interventions.

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