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Regional place attachment and meat reduction: The role of perceived availability of traditional vegetarian meals and attachment to culinary traditions

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ABSTRACT

Meat consumption is among the most environmentally impactful human activities. Therefore, reducing meat intake represents a crucial step in addressing climate change. While researchers increasingly recognize that meat consumption is influenced by individual, environmental, and socio-cultural factors, the latter remain underexplored. The present study examined the association between regional place attachment and intentions to reduce meat consumption, focusing on the mediating roles of perceived availability of vegetarian dishes at the regional level and attachment to regional culinary traditions. The proposed model was tested using path analysis on a representative sample of 4066 Italian individuals ($M_{age} = 51.05$, $SD_{age} = 16.57$, range = 18–89, 51.50% women). Although regional place attachment was not directly associated with intentions to reduce meat consumption, the mediation analyses revealed two indirect effects operating in opposite directions. Regional place attachment was linked to a greater intention to reduce meat-based dishes through the perceived regional availability of vegetarian options. At the same time, regional place attachment was associated with stronger attachment to regional culinary traditions, which in turn was linked to a lower intention to adopt a sustainable diet. Overall, these findings underscored the complex role of regional place attachment in shaping intentions to reduce meat consumption and pointed to potential avenues for innovative, community-based interventions.

1. Introduction

Anthropogenic climate change and the depletion of non-renewable resources pose severe threats to ecosystems and human survival (Díaz et al., 2019). Despite global consensus, sustainability goals remain largely unmet, highlighting the central role of human actions in driving environmental crises (IPCC, 2023). Understanding the factors that foster or inhibit Pro-Environmental Behavior (PEB)—a prosocial response aimed at mitigating human impact on the planet (Otto et al., 2021)—is therefore essential.

The scientific literature on PEBs has historically placed greater emphasis on individual-level antecedents (Klöckner et al., 2024). In contrast, contextual features—such as place attachment, cultural

traditions and infrastructure—have received comparatively less attention. However, more recent research increasingly acknowledges the importance of these contextual and structural factors in shaping healthy and sustainable behavior (Guidetti et al., 2023; Klöckner et al., 2024). Among these factors, *place attachment*, broadly defined as the emotional bond between individuals and specific geographic locations, has been associated with PEB in several studies (e.g., Dang & Weiss, 2021). While research increasingly supports the role of place attachment in encouraging PEB, some findings remain inconsistent (for a review, see Jayakody et al., 2024). One of the reasons for these inconsistencies might be related to the types of sustainable behaviors studied, as each is characterized by distinct processes and predictors.

One dimension of pro-environmental living that may be better

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understood through the analysis of its contextual antecedents is meat reduction—a key component of sustainable diets (Lawrence, 2024). Indeed, animal agriculture places significantly greater demands on the Earth's limited resources compared to plant-based agriculture (Mekonnen & Hoekstra, 2012). The livestock sector contributes about 14.5% of global greenhouse gas emissions and is the largest source of methane (Gerber, 2013). Its climate impact stems from animal rearing and feeding practices, manure management, and related operations. Additional emissions arise from extensive land use for feed production and grazing. Thus, encouraging a shift toward more plant-based diets and reduced meat consumption is increasingly recognized as a crucial step in mitigating human impact on the planet (De Boer et al., 2013; Hedenus et al., 2014; Springmann et al., 2016; Willett et al., 2019), and identifying the antecedents of this shift remains a key research priority.

Nutrition in general, and meat consumption in particular, carry strong cultural significance, deeply rooted in national, regional, and local traditions. However, as with other sustainable behaviors, the role of contextual factors has remained largely underexplored (Klößner et al., 2024; Kwasny et al., 2022; Onwezen & Dagevos, 2024: in many contexts, meat consumption continues to be reinforced by established habits, cultural traditions, and social norms. These factors can hinder the translation of intentions into action, contributing to the persistent gap between consumers' stated goals and their actual dietary behaviors (Rees et al., 2018; Stubbs et al., 2018). In addition, both theoretical and empirical evidence suggest that place attachment may play a contradictory role in shaping meat consumption: it may either encourage or hinder sustainable food consumption, depending on the processes it activates (e.g. Klößner et al., 2024; Nguyen & Platow, 2021). This makes it essential to understand the mechanisms through which place attachment supports or hinders sustainable nutrition. For these reasons, the current work evaluates the association between place attachment to the region of residence and intention to reduce meat consumption, by considering the mediating role of perceived availability of traditional vegetarian meals in the region and attachment to regional culinary traditions in a representative sample of Italian adults.

1.1. Place attachment and pro-environmental behaviors

Place attachment is commonly understood as a positive psychological bond between individuals and specific places, encompassing processes of identification, emotional attachment, and feelings of belonging. Contemporary research emphasizes that place attachment reflects the extent to which places are integrated into individuals' self-concepts while also eliciting emotional ties that contribute to a sense of connectedness and meaning (Brown & Perkins, 1992; Manzo & Perkins, 2006; Lewicka, 2021; Scannell & Gifford, 2010). The tendency of individuals to care for and protect places to which they feel emotionally and symbolically connected (e.g., Kyle et al., 2004; Stedman, 2002) has led scholars to consider place attachment an important factor in explaining pro-environmental behavior.

According to the several theoretical frameworks (e.g., Kollmuss & Agyeman, 2002), PEBs are linked not only to individual characteristics, such as emotional and cognitive factors, but also to external (e.g., exposure to different types of food) and socio-cultural (e.g. social norms) ones. A growing body of research highlights the positive role that place attachment plays in fostering PEBs. People who feel connected to their community (e.g., neighborhood, city, region) often express stronger commitment to the preservation of the environment, driven by a sense of responsibility toward maintaining the ecological integrity of their home (Daryanto & Song, 2021). For instance, individuals with strong local community attachment are more likely to engage in behaviors such as recycling, conserving water, and supporting local environmental policies (Lewicka, 2011; Scannell & Gifford, 2010a; Vaske & Kobrin, 2001). Identification with a place can also evoke moral responsibility towards collective resources, prompting individuals to align their behaviors with environmental sustainability goals (Scannell & Gifford, 2013). However,

as noted above, research on this topic is limited, and the relationship between place attachment and PEB is not always straightforward, as shown by some contradictory findings. For example, some studies suggest that a strong attachment to the place of residence may result in resistance to initiatives designed to address environmental change, especially when policies or actions (e.g., renewable energy projects) are perceived as threatening local traditions or lifestyle (Devine-Wright & Howes, 2010; Marx et al., 2025). Thus, depending on how pro-environmental initiatives align with residents' sense of place and their bond to local traditions, place attachment might either support or hinder sustainable behaviors. Moreover, place attachment to a region extends beyond affective bonds with a physical setting to encompass symbolic meanings, cultural traditions, and identity-relevant representations. As a result, attachment to place may activate culturally shared understandings of regional food traditions and the practices associated with them (Jorgensen & Stedman, 2001; Scannell & Gifford, 2010).

1.2. Place attachment and meat reduction: exploring potential mechanisms

Given the strong cultural embeddedness of meat consumption, dietary practices related to meat represent a particularly informative domain for examining pro-environmental behavior from a contextual perspective (Lenzi et al., 2025; Stoll-Kleemann & Schmidt, 2017). Considering the relevance of the regional level for Italian culinary traditions and dietary habits (Kwasny et al., 2025; Scarsi et al., 2025), the present study focused on individuals' attachment to the region of residence.

Consistent to what has been found in relation to other PEBs, place attachment may motivate individuals to reduce meat consumption. At the local level, research indicates that place attachment can foster sustainable food consumption practices. Klößner et al. (2024), for instance, highlight neighborhoods as crucial settings for climate action, where collective, cultural, and socio-structural factors can shape dietary choices. Their findings show that neighborhood social capital enhances collective intentions to reduce animal product consumption and increase plant-based eating. Furthermore, Barbarossa et al. (2025) suggested that a stronger perception of collective efficacy is associated with greater adoption of sustainable diets. A strong emotional bond with the place of residence may also promote the consumption of locally produced food, which is frequently perceived as more sustainable, healthier, and fresher (Czarnecki et al., 2021). However, while the consumption of locally produced food may reduce transportation-related emissions, it does not necessarily correspond to the adoption of broader sustainable dietary practices, such as reducing meat consumption.

Place Attachment (Scannell & Gifford, 2010) and Cultural Capital theory (Bourdieu, 2019) provide useful frameworks for further exploring potential mechanisms linking regional attachment to sustainable food consumption. Together, these perspectives suggest that attachment to a region may not activate a single, uniform set of dispositions toward food consumption. Rather, because place attachment encompasses symbolic meanings, cultural traditions, and identity-relevant representations, it is likely to increase the salience of multiple culturally available food repertoires embedded within regional culture.

Since regional culinary traditions do not constitute a single homogeneous construct, the mechanisms linking place attachment to intentions to reduce meat consumption may not be straightforward. In Italy, in particular, the relationship with regional food encompasses both historically rooted plant-based traditions associated with peasant cuisine—such as the Mediterranean dietary pattern, legumes, vegetables, grains, and seasonal eating—and deeply embedded meat-centered symbolic foods that often occupy a more visible role in representations of regional identity. It is therefore plausible to hypothesize that regional attachment may activate two competing yet culturally grounded

repertoires of Italian food identity.

One food repertoire activated by place attachment may draw on historically legitimate plant-based traditions, thereby strengthening perceptions of the availability of plant-based food options in the regional context. Indeed, plant-based food is part of the Italian cultural capital (Bourdieu, 2019) and is embedded within legitimate regional culinary culture: many traditional Italian dishes are historically plant-based, Mediterranean diet narratives valorize vegetables, legumes, olive oil, and grains, “cucina povera” and peasant traditions carry symbolic authenticity, and local seasonal food has high cultural prestige. Thus, people with stronger regional attachment may possess greater competence in recognizing vegetarian dishes as authentically regional rather than foreign or modern dietary innovations. Thus, an important yet underexplored mechanism that may explain the positive association between place attachment and meat reduction is the *perceived availability of plant-based dishes* within regional culinary traditions. This perception may stem from greater awareness of local culinary heritage and increased recognition of vegetarian dishes as authentic components of regional cuisine rather than as imported or contemporary dietary trends. Such a shift may activate the repertoire of traditional Italian plant-based foods associated with place attachment, including greater familiarity with locally rooted vegetarian options (Parthasarathi et al., 2022). Increasing familiarity with plant-based recipes may then help foster intentions to reduce meat consumption. Such familiarity can make sustainable diets feel more accessible and diminish perceived barriers. Studies on PEB frequently highlight the role of knowledge as a prerequisite for action (Kollmuss & Agyeman, 2002). For instance, Alonso and O’Neill (2012) found that raising awareness of regional food products can positively influence consumer behavior, particularly when these products align with existing cultural preferences.

On the other hand, although Italian regional cuisines include a wide variety of plant-based dishes, contemporary and socially salient representations of regional culinary heritage often foreground meat-based specialties, such as cured meats, sausages, and other animal-based products. Products such as cured meats, sausages, and other animal-based delicacies have become prominent symbols of regional identity, rendering less salient the historical importance of legumes, vegetables, and other plant-based foods in everyday local diets. While many highly symbolic meat-based specialties have historical antecedents, their elevation as iconic markers of regional identity is often relatively recent (Hobsbawm & Ranger, 1983; Montanari, 2013). This process reflects the transformation of occasional festive foods into emblematic cultural symbols through modern practices of heritage-making, identity construction, and regional branding, especially from the late nineteenth and twentieth centuries onward. As a result, these meat-based specialties have become particularly salient markers of regional identity, serving as highly visible and widely recognized symbols of local culture and potentially overshadowing traditional plant-based dishes (Mattarello et al., 2024). It is thus possible that place attachment, by fostering a stronger *attachment to local food traditions*, may act as a barrier to adopting sustainable diets when such traditions emphasize resource-intensive foods such as meat, especially in cultures where food is closely tied to heritage and tradition. Although no studies have directly examined this mechanism at the local or regional level, research on national identity suggests a similar pattern. Nguyen and Platow (2021) found that in the United States, the United Kingdom, and Australia—countries characterized by high meat consumption—strong national identification was associated with more positive attitudes toward meat, higher meat consumption and avoidance of vegetarian options. A comparable mechanism may operate at the regional level. Because food symbolizes cultural identity, heritage, and social belonging (Rozin, 2006), individuals with strong regional attachment may be more inclined to embrace local culinary heritage. In the Italian context, this heritage includes both historically rooted plant-based foodways and highly salient meat-based specialties that often function as visible markers of regional identity (Mattarello et al., 2024).

Therefore, stronger attachment to regional culinary traditions may be associated with lower meat-reduction intentions when these traditions are perceived as less compatible with reducing animal-based consumption. While such traditions provide continuity and a sense of identity, they may conflict with environmentally responsible principles that emphasize reducing animal-based consumption (Graça et al., 2015). The tension between innovation—often associated with plant-based and sustainable food consumption—and tradition highlights the challenges inherent in dietary change.

Overall, a strong attachment to one’s place of residence can trigger multiple, and potentially opposing, processes shaping dietary choices. Clarifying the mechanisms connecting place attachment to sustainable nutrition is therefore essential for understanding how communities may facilitate or hinder meat reduction. The present study aims to examine the association between regional place attachment and the intention to reduce meat consumption by testing a competing mediation model. Specifically, regional place attachment is expected to be associated with intentions to reduce meat consumption via two opposing indirect associations: a positive one involving the perceived availability of traditional vegetarian dishes in the region of residence and a negative one involving attachment to regional culinary traditions. The following hypotheses were examined:

H1. Regional place attachment is positively associated with intentions to reduce meat consumption through perceived availability of traditional vegetarian dishes in the region.

H2. Regional place attachment is negatively associated with intentions to reduce meat consumption via attachment to regional culinary traditions.

Given that the study tests two opposing pathways, no specific hypothesis was advanced concerning the direct association between regional place attachment and intentions to reduce meat consumption.

2. Method

2.1. Sampling procedures and participants

The sample size was determined within the framework of a larger research project aimed at collecting a population-representative survey. Therefore, no *a priori* power analysis was conducted for the specific analyses presented in this study. However, the large sample size ensures high statistical power to detect even small effects. Participants were recruited online through Norstat (<https://www.norstatpanel.com/>), a data collection company that maintains consumer panels composed of individuals who have consented to participate in survey research. Panel access is subjected to invitation-only procedures and a two-step verification process, ensuring protection against bot contamination. To enhance sample representativeness, Norstat monitors demographic variables and response patterns across surveys. The study received approval from the Ethics Committee of the University of Padova (Protocol No. 460-a). This study was not preregistered because it was conceived as a broad exploratory investigation aimed at identifying relationships among multiple predictors of sustainable dietary intentions and informing the development of manipulations for subsequent experimental studies. Although the two primary theoretical processes of interest were derived from existing empirical evidence and theoretical frameworks, the study also included an exploratory component, and the analytical approach evolved as additional questions emerged during the research process. Because some analyses were not specified in advance, we report all analyses transparently and interpret the findings with appropriate caution.

A stratified sampling procedure using gender, age and region as stratification variables was used to obtain a sample representative of the Italian population on these key demographic variables. Participants were recruited using proportional quotas to ensure that each region was

represented according to its population size. Consequently, regional sample sizes ranged from 28 participants (Valle d'Aosta) to 673 participants (Lombardia). Slight oversampling was applied in the regions of Molise and Valle d'Aosta to account for their relatively small populations. In addition, educational level was monitored during the sampling procedure to ensure an adequate degree of heterogeneity (i.e., soft stratification). Overall, 4066 participants ($M_{\text{age}} = 51.05$, $SD_{\text{age}} = 16.57$, range = 18–89) were included in the study. 51.5% identify as women ($n = 2094$), 48.2% as men ($n = 1960$), 10% as non-binary ($n = 4$) and 20% prefer not to answer ($n = 8$). With respect to educational level, 26.7% of participants had a middle school degree or lower ($n = 1085$), 61.5% had a high school degree ($n = 2500$), 7.1% had a bachelor's degree ($n = 288$), 4.3% had a master's degree ($n = 176$), and 4% had a specialization or Ph.D. ($n = 17$). Finally, the sample showed adequate heterogeneity in terms of political orientation ($M = 3.93$, $SD = 1.41$), with 38.3% identifying as left-wing ($n = 1557$), 27.2% as centrist ($n = 1108$) and 34.4% as right ($n = 1401$).

Overall, the sample closely reflected the Italian population in terms of gender distribution (51.5% women in the sample vs. 51.0% nationally) and showed a broadly comparable age profile, although participants were slightly older on average (51.05 vs. 46.9 years; [Istituto Nazionale di Statistica \[ISTAT\], 2025](#)). Differences emerged with respect to educational attainment, with our sample including a higher proportion of individuals with secondary education and a lower proportion of those holding a university degree compared with national estimates. This discrepancy may be attributable to the fact that education was monitored during recruitment through a soft-stratification procedure rather than through strict quota sampling ([Istituto Nazionale di Statistica, 2025](#)).

2.2. Measures

Participants reported demographic characteristics, including gender, age, municipality, area of residence, and political orientation. The study was part of a larger survey encompassing several psychosocial variables. The full details of the measures, including the complete list of items and the respective codes, are available in the OSF data repository at the following link: osf.io/6scq4. For the purpose of the present analyses, the following measures were included.

Meat reduction intention. Participants were asked to indicate their intention to reduce meat consumption over the next week using a 3-item scale (e.g., “Over the next seven days, I intend to reduce my meat consumption”). Participants responded on a 7-point Likert scale from 1 (*completely disagree*) to 7 (*completely agree*) ([Carfora et al., 2022](#); $\alpha = .96$).

Regional Place Attachment. The construct was measured through an adapted version of [Hornsey and Hogg's \(2000\)](#) 4-item scale (e.g., “I feel strong connections with other people who live in the same region as me”). Given constraints on questionnaire length, the scale was employed as a parsimonious proxy for place attachment. The original items were reformulated to refer to participants' region of residence and its inhabitants. Although the scale primarily encompasses identity-based attachment, it includes items referring to belonging and emotional ties, thereby capturing both cognitive and affective components of attachment. One additional item has been included to assess positive affect toward living in the region, thereby broadening the measure beyond social identification alone. Participants responded on a 7-point Likert scale from 1 (*completely disagree*) to 7 (*completely agree*) ($\alpha = .91$).

Attachment to regional culinary tradition. Attachment to regional culinary traditions was assessed using three items developed for this study and informed by research on local food identity, attachment to tradition, and the role of food in expressing place-based cultural identity (e.g., [Graciotti and McEachern, 2024](#)). Specifically, the items were designed to capture participants' preference for, appreciation of, and inclusion of traditional regional dishes and products in their diet (e.g., “I like to eat traditional dishes from the region where I live”). Participants

responded on a 7-point Likert scale ranging from 1 (*completely disagree*) to 7 (*completely agree*) ($\alpha = .90$).

Perceived availability of vegetarian dishes. Perceived availability of vegetarian traditional dishes in the region was measured using three items developed ad hoc (e.g., “In the region where I live, many traditional dishes are meatless”), as no established scale assessing this construct specifically in relation to regional culinary traditions was identified in the literature. However, items in the scale closely align to established measures of perceived food availability ([Contreras-Manzano et al., 2022](#)), but with an explicit reference to vegetarian meals in the region. Items were designed to assess respondents' perceptions of the presence, accessibility, and overall richness of vegetarian options within the traditional cuisine of their region of origin. Participants responded on a 7-point Likert scale from 1 (*completely disagree*) to 7 (*completely agree*) ($\alpha = .85$).

2.3. Data analyses

Analyses were performed using the software R ([R Core Team, 2025](#)). For all analyses the significance threshold was set at $p < .05$. In order to assess the relationship between the study variables, a correlation analysis was performed.

The hypothesized model was tested by performing a path analysis using the lavaan package in R ([Rosseel, 2012](#)), with all the variables entered into the model at the same time. More specifically, we evaluated a path analysis model including intention to reduce meat consumption as the dependent variable, regional place attachment as the independent variable, and perceived availability of vegetarian dishes and attachment to culinary traditions as mediators. To test our hypotheses, we estimated both the direct effect of the independent variable on the dependent variable and the indirect effects through the mediators.

3. Results

3.1. Preliminary analyses

Descriptive statistics of the study variables are presented in [Table 1](#). A series of t-tests were performed to explore gender differences. The results indicated that women reported significantly greater intention to reduce meat consumption than men, $t(3813) = -2.15$, $p = .032$, 95% CI $[-.21, -.01]$. However, the mean difference was small ($\Delta M = -0.11$). No significant gender differences were detected for the other study variables.

Preliminary correlation analyses (see [Table 2](#)) indicated medium to strong correlations between regional place attachment and perception of availability of vegetarian dishes in the region ($r = .32$, $p < .001$) and between regional place attachment and attachment to culinary traditions ($r = .60$, $p < .001$).

In addition, a modest positive association was found between the perceived availability of vegetarian regional dishes and the intention to reduce meat ($r = .20$, $p < .001$), while no bivariate association emerged between attachment to regional culinary traditions and meat reduction intentions.

Table 1
Means and standard deviations of the study variables.

	M	SD	M _{women}	SD _{women}	M _{men}	SD _{men}
Meat Reduction Intention	3.75	1.57	3.80	1.59	3.69	1.56
Regional Place Attachment	4.89	1.21	4.86	1.19	4.92	1.22
Attachment to Culinary Traditions	5.41	1.15	5.40	1.15	5.42	1.15
Perceived Availability of Vegetarian Dishes	4.09	1.27	4.09	1.27	4.09	1.26

Table 2
Correlations between the study variables.

	Regional Place Attachment	Perceived Availability of Vegetarian Dishes	Attachment to Culinary Traditions	Intention to Reduce Meat Consumption
1. Regional Place Attachment	-			
2. Perceived Availability of Vegetarian Dishes	.32***	-		
3. Attachment to Culinary Traditions	.60***	.28***	-	
4. Intention to Reduce Meat Consumption	.03*	.20***	-.03	-

Note: * $p = .032$ *** $p < .001$.

3.2. Evaluation of the hypothesized model using path analysis

We evaluated a path analysis model in which intentions to reduce meat consumption were included as the dependent variable, regional place attachment as the independent variable, and perceived availability of traditional vegetarian dishes and attachment to culinary traditions as mediators—controlling for age, gender, political orientation, and region of residence. While age, gender, and political orientation have been shown to be associated with meat-reduction intentions and are therefore typically included as confounding variables, region of residence was included to account for the influence of other potential regional factors on meat-reduction intentions.

Results from the path analysis depicted in Fig. 1 indicates that regional place attachment is positively associated with both the perceived availability of vegetarian meals in the region of residence ($\beta = .32$, 95% CI [.28, .35], $p < .001$) and attachment to regional culinary traditions ($\beta = .59$, 95% CI [.56, .62], $p < .001$). Additionally, the model revealed a positive association between perceived availability of vegetarian meals and intentions to reduce meat consumption ($\beta = .21$, 95% CI [.17, .24], $p < .001$), whereas attachment to regional culinary traditions was negatively associated with such intentions ($\beta = -.11$, 95% CI [-.15, -.07], $p < .001$).

Regional place attachment was indirectly and positively associated with the intention to reduce meat consumption through perceived availability of vegetarian meals in the region ($\beta = .06$, 95% CI [.05, .08], $p < .001$) and indirectly and negatively through attachment to regional culinary traditions ($\beta = -.06$, 95% CI [-.09, -.04], $p < .001$). Fit indices

for the model indicate an overall acceptable fit to the data: CFI = .909, TLI = .819, RMSEA = .082, 90% CI [.073, .091], SRMR = .037. Although the RMSEA slightly exceeded the more conservative cutoff of .06 (Hu & Bentler, 1999), recent contributions suggest values up to .10 as indicative of modest fit, supporting the acceptability of the present estimate (Sathyanarayana & Thangamuthu, 2024). In addition, in the path analysis based exclusively on observed variables, global fit indices are often considered less informative (e.g., Lenzi et al., 2013). Accordingly, while fit indices are reported for completeness, interpretation primarily focuses on the estimated path coefficients. Overall, the model accounted for 7% of the variance in meat reduction intention, 10% in perceived availability of vegetarian meals, and 35% in attachment to culinary traditions. The total coefficient of determination (TCD) for the model was .408.

4. Discussion

The main goal of the current work was to evaluate the association between regional place attachment and the intention to reduce meat consumption. Moreover, the competing mediation mechanism involving perceived availability of traditional vegetarian meals in the region and attachment to regional culinary traditions has been examined. Our findings suggest that regional place attachment is positively associated with intentions to reduce meat consumption through the perceived availability of traditional vegetarian meals in the region and negatively associated with such intentions through the mediation of attachment to regional culinary traditions. Regional place attachment was not directly

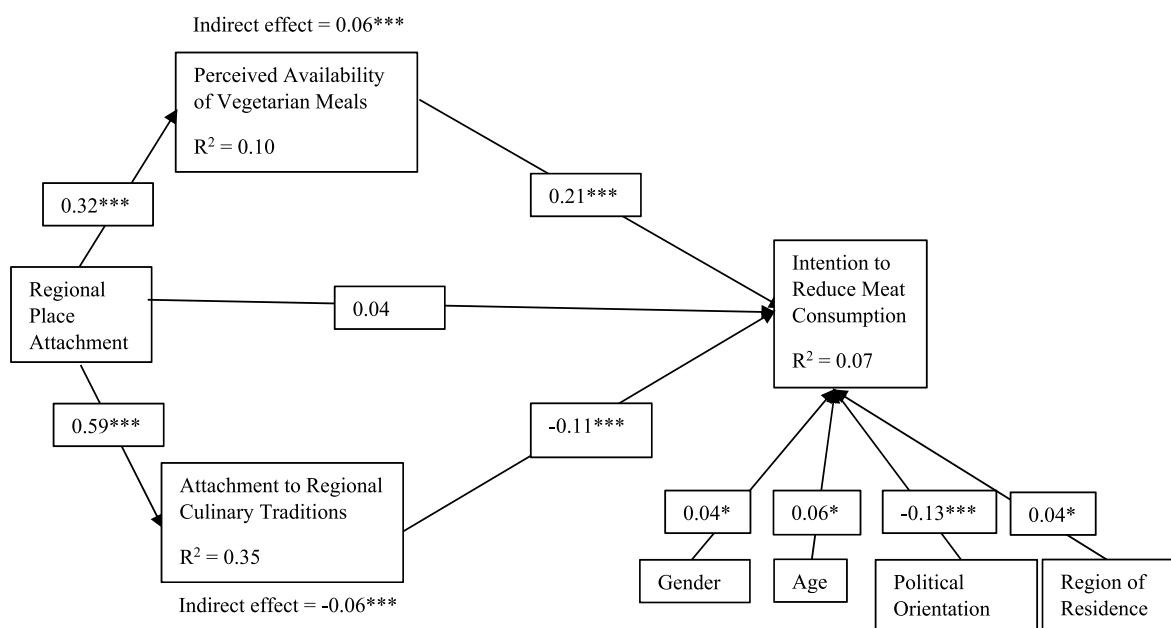


Fig. 1. Path analysis model predicting intentions to reduce meat consumption.
Note: * $p < .05$. *** $p < .001$.

linked to meat reduction intentions, in contrast with previous studies directly linking place attachment to other PEBs (e.g. Lewicka, 2011).

Our findings are consistent with the notion that place attachment is neither inherently supportive nor obstructive of sustainable behavior; rather, its association with sustainable behavior appears to be mediated by specific cultural meanings and practices. In particular, in the Italian context, regional attachment may simultaneously activate competing culinary repertoires that, in turn, can either promote or hinder meat reduction intention.

First, regional place attachment is linked to intentions to reduce meat consumption through a positive indirect pathway. Indeed, individuals reporting stronger regional place attachment also tended to perceive their region as offering a wider variety of traditional vegetarian dishes, potentially reflecting differences in familiarity with plant-based local food traditions (Brown & Perkins, 1992). Because Italian regions do not differ substantially in the availability of traditional vegetarian dishes (Helstosky, 2021), greater awareness is likely to stem from a broader and deeper understanding of regional heritage, including their cuisine and its plant-based components (Parthasarathi et al., 2022). Attachment to local culture may enhance familiarity with historically rooted plant-based foodways embedded in Mediterranean and peasant cuisines and in Italy's culinary heritage, thereby increasing the perceived availability and legitimacy of vegetarian dishes, even though they are not always widely recognized as markers of tradition (Mattarello et al., 2024). The concept of cultural capital may help explain why perceived availability is inherently subjective rather than merely reflecting the objective presence of food options. Individuals with a strong attachment to their regional food culture may be better able to recognize plant-based dishes embedded within local culinary traditions, classify them as legitimate vegetarian options, and know where to find them (Bourdieu, 2019; Lewicka, 2008). Moreover, they may be more likely to perceive such dishes as culturally authentic and socially valued rather than as alternative or niche choices. As a result, regional attachment may relate not only to preferences and identities but also to how individuals perceive and navigate their local food environment, potentially extending to their views on the availability and accessibility of vegetarian options. Greater familiarity with, and perceived availability of, local plant-based recipes may therefore support intentions to reduce meat consumption by making sustainable diets more accessible and appealing, and by lowering perceived barriers such as limited variety or the perceived complexity of vegetarian meals (Tregear et al., 1998).

On the other hand, our findings revealed a negative indirect association between regional place attachment and meat reduction intentions through attachment to local culinary traditions. It is possible that a sense of attachment to the region fosters a stronger attachment to its specific cultural elements, including local food traditions (Nguyen & Platow, 2021). Such traditions can become a barrier to adopting sustainable diets when they emphasize resource-intensive foods like meat. This is especially relevant in cultures like the Italian one (Mattarello et al., 2024), where food carries deep symbolic meaning and meat consumption is closely intertwined with cultural and historical heritage. This pathway may be partly driven by the symbolic value currently associated with highly salient meat-based specialties, whose status as emblematic markers of regional tradition is, in most cases, a relatively recent cultural development. As such, resistance to reducing meat consumption may reflect not only attachment to specific foods but also a desire to preserve valued cultural heritage, traditional culinary practices, and the social rituals in which meat consumption is embedded. Our findings are in line with existing literature showing that place attachment can be linked to resistance to PEBs, especially when they are perceived as threatening local traditions (Marx et al., 2025). Since vegetarianism can be viewed as a threat to local traditions (Branković, 2021), individuals who are strongly attached to local culinary heritage may perceive changes in eating habits as threatening. This attachment to culinary heritage may partly stem from their attachment to the region.

In particular, the promotion of predominantly plant-based diets may be seen as a challenge to established culinary practices, which are often meat-based.

Overall, our findings suggest that regional attachment may operate through both progressive and conservative cultural pathways, reflecting the ambivalent role of Italian culinary heritage in sustainable food transitions. Italy represents a particularly relevant context in which to examine this duality, as its food culture has historically combined strong symbolic associations with meat consumption and rich plant-based everyday traditions. While traditional rural diets were largely plant-based due to economic and material constraints, meat retained a distinctive symbolic status, often associated with celebration, prestige, and social value. As a result, Italian food culture embodies a long-standing tension between the practical centrality of plant-based foods and the cultural significance attached to meat. This coexistence reflects the kind of ambivalence captured by our model, with symbolic meanings and everyday dietary practices potentially linked to different historical, social, and cultural processes.

Our findings reveal an important link between the perceived availability of traditional plant-based dishes and intentions to reduce meat consumption. When regional cuisine is seen as rich in vegetarian options, reducing meat may feel easier and less restrictive (Pechey et al., 2022). Moreover, if vegetarian options were given a more prominent role within a region's culinary tradition, stronger attachment to local cuisine might no longer translate into lower intentions to reduce meat consumption. Indeed, by strengthening the link between plant-based foods and regional culinary traditions, adopting a diet with a limited amount of meat may no longer be perceived as a threat to local traditions. This may open the way to a new pathway in which a deeper awareness and appreciation of regional culinary traditions that include plant-based foods is associated with perceiving reduced meat consumption as compatible with, rather than threatening to, tradition. These mechanisms may be particularly salient in contexts characterized by strong and well-defined regional culinary traditions, whereas they may operate differently in more globalized or culturally fragmented food environments.

The study has some limitations to acknowledge. First, the use of cross-sectional data precludes any claims of causality, even though the mediation models were specified according to clear theoretical assumptions regarding variable ordering. Longitudinal research is needed to examine causal associations and to identify the determinants of sustained reduction in meat consumption. Moreover, meat reduction was measured through behavioral intentions, which do not always correspond to actual dietary changes and may have been subjected to social desirability. However, the questions on intentions to reduce meat were presented before any explicit reference to the link between plant-based diets and sustainability in the questionnaire. In addition, all measures were self-reported, which may have introduced reporting biases. Future studies should include behavioral measures of meat reduction to determine whether the observed associations also extend to actual dietary change. Furthermore, not all measures included in the study were previously validated. Although they were developed or adapted based on existing literature and established instruments, future research should seek to employ more comprehensive and psychometrically validated measures of these constructs. Finally, although the Italian context provided a particularly relevant setting for examining the cultural pathways associated with place attachment, caution is warranted when generalizing these findings to other contexts. Because cultural traditions, food practices, and food-related meanings vary across regions and countries, the relationship between place attachment and food-related attitudes and behaviors may likewise differ across contexts (Kwasny et al., 2025), underscoring the need for research across diverse regional and national contexts.

Notwithstanding these limitations, to our knowledge this is the first study to analyze the role of regional place attachment in meat reduction on a large, representative sample of the Italian population. Our findings

highlight important mechanisms that, once confirmed, could be leveraged in community-based interventions aimed at promoting sustainable food consumption by encouraging meat reduction. More broadly, these findings align with approaches suggesting that behavior change interventions may be more effective when they build on existing social and cultural identities rather than challenge them. Framing meat reduction as consistent with regional identity and traditions may therefore represent a particularly promising strategy. These results suggest that highlighting plant-based dishes as an established and authentic part of regional cuisine may function as a form of soft normative cue, reinforcing meat reduction without eliciting resistance associated with externally imposed norms. Regional vegetarian culinary traditions thus emerge as a promising focus for informational campaigns and context-level interventions. From an intervention-design perspective, future experimental studies could test whether messages emphasizing regional vegetarian traditions increase meat reduction intentions more effectively than generic sustainability messages. Perceived availability of traditional vegetarian dishes in the region appears to be a key factor in strengthening intentions to reduce meat consumption and could be promoted across different contexts and through various intervention strategies. For example, communication campaigns promoting sustainable food consumption have the potential to promote knowledge of regional vegetarian traditions (e.g., through social media or public spaces), encouraging meat reduction while highlighting alternative foods that are also part of local culinary heritage. Cookbooks and restaurants may enhance the visibility of traditional plant-based dishes on their menus, while emphasizing their connection to regional culinary traditions. School and workplace environments can also contribute by promoting knowledge of regional vegetarian dishes and offering these dishes in their canteens. Local events, such as traditional Italian food festivals, also provide an important context for experimenting with vegetarian dishes in a familiar, low-threat setting. Finally, at the policy level, local administrations could integrate the promotion of traditional vegetarian dishes into cultural and gastronomic initiatives, thereby aligning sustainability goals with regional identity rather than positioning them as external impositions.

5. Conclusions

Together, these findings suggest that regional place attachment may activate multiple, and potentially opposing, processes related to dietary choices. Framing plant-based dishes as authentic components of regional culinary heritage may therefore represent a promising strategy for demonstrating that sustainability and tradition are not mutually exclusive, thereby addressing an important barrier to the adoption of more sustainable diets. Future research should investigate how sustainability-oriented interventions can be tailored to regional culinary contexts, enabling dietary transitions that build on existing food practices rather than replacing them, while also contributing to the refinement of current theoretical models. More broadly, promoting sustainable dietary change may require approaches that integrate innovation with tradition, preserving cultural food identities while advancing environmental goals. Regionally grounded initiatives may be particularly well suited to this purpose, enabling individuals to support their local communities while contributing to broader sustainability efforts.

CRedit authorship contribution statement

Michela Lenzi: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Supervision, Writing – original draft. **Davide Naddeo:** Conceptualization, Data curation, Formal analysis, Methodology, Writing – original draft. **Luciana Carraro:** Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Writing – original draft. **Luca Cussigh:** Conceptualization, Formal analysis, Investigation,

Methodology, Writing – original draft. **Margherita Guidetti:** Conceptualization, Data curation, Funding acquisition, Writing – original draft. **Giulia Scaglioni:** Data curation, Formal analysis, Methodology, Writing – original draft. **Andrea Scatolon:** Data curation, Writing – original draft. **Valentina Carfora:** Conceptualization, Funding acquisition, Investigation, Supervision, Writing – original draft.

Ethical statement

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. The study received approval from the Ethics Committee of the University of Padova (Protocol No. 460-a). All participants provided written informed consent prior to participation, and their privacy rights were respected throughout the study.

Research data

Research data have been deposited in the OSF data repository (www.osf.io) at the following link: osf.io/6scq4.

Declaration of generative AI and AI-assisted technologies in the manuscript preparation process

During the preparation of this work, the authors used ChatGPT to check the correctness of the English in some sections and revise some paragraphs accordingly. After using this tool/service, the authors reviewed and edited the content as needed and took full responsibility for the content of the published article.

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Declaration of competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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