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Savoring the past, preserving the future: a mixed-methods examination of culinary traditions among Pontic Greeks in Northern Greece

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Abstract

This mixed-methods study investigates how Pontic Greeks in Western Macedonia, Greece, preserve and adapt their culinary traditions amid modern challenges. Employing survey questionnaires (n = 390), interviews, and participant observation, we explored sociodemographic attributes, lifestyle factors, and food preferences. Statistical and thematic analyses revealed a strong preference for traditional delicacies, such as *pisia* (a type of pancake) and *tanomenon sorva* (yogurt soup), alongside a notable shift from butter to olive oil driven by health considerations. Qualitative findings underscored the deep cultural and emotional significance of these foods, revealing themes such as intergenerational knowledge transmission, urbanization's impact, and the dual role of heritage and convenience in shaping food choices. Integrated data analysis revealed a convergence regarding the importance of preserving culinary traditions in the face of societal change, illustrating the dynamic nature of Pontic Greek gastronomy. This study demonstrates how personal, cultural, environmental, and societal factors influence the maintenance and evolution of these culinary practices.

Keywords Culinary heritage, Greek cuisine, Intergenerational transmission, Local cuisine, Mixed methods, Pontic Greeks, Preservation, Traditional foods

Introduction

Food is a significant way to identify and distinguish regional and ethnic cultures [1]. Culinary practices indicate the cultural heritage of Greeks of Pontic origin and act to express their identity [2]. Pontic Greeks, originally from the Black Sea region (Karadeniz) in northern

Turkey, were displaced to Greece during the twentieth century and sustained their culinary heritage [3].

The preservation of this culinary heritage is largely due to oral tradition, which has shaped the collective memory of Pontic Greeks. The power of oral tradition lies in its ability to preserve and actively transmit cultural knowledge [4]. Pontic women have been instrumental in passing on customs and ways of life from their homeland [5]. Their central roles in social, educational, and family contexts have facilitated this crucial transmission [6, 7]. Specifically, culinary knowledge has been passed down through generations, often from grandmother to granddaughter, creating a lineage of culinary traditions [8].

Their role underscores how collective memory has maintained the cultural heritage of Pontic Hellenism for

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over a century [5]. This shared understanding of the past includes experiences, knowledge, and tales transmitted across generations [9]. As a result, the Pontic Greek identity remains strong and resilient. Key elements of modern Pontic Greek identity include trauma [10], music, dance, songs, and culinary practices [11].

Although food is important for cultural preservation and identity development, scholarly works on the Pontic Greek community have primarily focused on its history and culture [12–14], overlooking its cuisine [15, 16]. However, studying traditional foods (TFs) and their preparation methods is critical for understanding the complex connections between food quality, cultural identity, and where these culinary traditions come from [17]. In addition to contributing to the preservation of cultural heritage, this research provides the basis to determine and possibly establish the authenticity of unique culinary preparations [18]. Therefore, food has cultural significance and is associated with heritage, identity, and cultural values [19, 20]. As Swinbank [8] notes, food memories remain significant for refugees because they preserve identity and culture. The integration of Pontic Greek cuisine (PGC) with other regional Greek cuisines has enriched the broader Greek culinary landscape [21].

This study explores how culinary practices safeguard the culinary traditions of Pontic Greeks living in the Western Macedonia region of northern Greece. Using a mixed-methods approach, including questionnaires, interviews, and participant observation, it aims to enhance our understanding of the relationship between culinary traditions and cultural identity in this community.

Examining the cuisine of the Pontic Greeks: factors and theoretical foundations

Foodways of the Pontic Greeks: a theoretical and multidisciplinary approach

A multidisciplinary lens is necessary to analyze the foodways of Pontic Greeks [22]. This research highlights how foodways play a vital role in maintaining cultural heritage and identity. Foodways are integral to human identity, as they reflect the social and cultural significance of dietary customs [23, 24]. Emphasizing the communicative power of food [20], we build on the work of scholars who connect food choices to self-perception [25, 26] while noting their symbolic significance in social interaction [27]. Using the framework of Almansouri et al. [29], we emphasize the significant impact of heritage and geographical location on cooking methods. As Bourdieu [28] argued, people use cultural practices such as food choices to differentiate themselves socially and indicate their status. In conclusion, our multidisciplinary approach

provides valuable insights into the intricate relationships between food, culture, and eating habits within the Pontic Greek community.

The evolution and diversity of Greek Cuisine

Greek cuisine evolved over millennia, initially based on plant-based foods [30] before incorporating influences from the Roman, Byzantine, and Ottoman empires [31]. Greek refugees from Anatolia, including Pontic Greeks, at the beginning of the 20th century further enriched the regional culinary landscape in areas such as Macedonia and Epirus [15]. However, class distinctions, stereotypes, and the drive to “Europeanization” of Greek cuisine have overshadowed many local food traditions [32, 33].

Although numerous regional cuisines remain underexplored [16], the Cretan diet stands out as a notable exception, widely recognized as an exemplary representation of the Mediterranean diet [34, 35]. This disparity underscores the need to acknowledge and promote Greece’s culinary heritage.

The widespread use of olive oil in modern Greek cuisine [36, 37] contrasts with the traditions of Pontic Greeks and Vlachs, who primarily used butter. This highlights the complex nature of Greek culinary identity, in which regional variations and historical influences coexist. As Epikouros [38] stated, “Greek cuisine, much like the Greek soul, cannot be easily defined”.

In recent years, there has been renewed interest in regional Greek cuisine, with publications highlighting local recipes and culinary customs [39–43]. However, additional research, particularly into marginalized cuisines such as those of Pontic Greeks, is crucial to fully appreciate and preserve the diversity of Greek culinary heritage [16].

A thorough examination of the local culinary traditions of groups like the Greeks of Pontic descent could enhance consumer understanding and appreciation of their nutritional benefits, potentially leading to wider acceptance [44].

Fat sources in Pontic Greek cuisine: the role of olive oil and butter

Olive oil is well recognized as an important element of the Mediterranean diet and a staple of traditional Greek cuisine. Greece ranks among the top consumers and producers of olive oil globally (European Commission, 2023). However, Pontic Greeks have traditionally used predominantly cow butter. The consumption of butter and olive oil in Greek communities shows the diversity of Greek cuisine, shaped by its cultural heritage, geography, and history [45]. This difference in fat sources between Pontic Greeks and other Greek populations is a significant element of their unique culinary

identity. Furthermore, this variation might affect how Pontic Greek cuisine (PGC) fits into the wider context of Greek culinary traditions, particularly given the global focus on the Mediterranean diet.

Intergenerational transmission of culinary practices among Pontic Greeks

Passing down culinary practices from one generation to the next plays a vital role in maintaining cultural identity and promoting social unity. As a cultural element, food embodies the history and identity of a community [46]. Families pass down gastronomic knowledge across generations and adapt and change these customs [47]. This process holds particular significance for Pontic Greeks, as their culinary traditions support community bonds and strengthen their sense of identity [2].

Pontic Greek Cuisine: a fusion of cultural and geographical influences

Pontic Greek cuisine (PGC) is a unique amalgamation of cultural and geographical influences [48]. Seasonal changes, customs, and rituals, along with the religious and cultural importance of the yearly celebration cycle, shaped its evolution [49]. Fundamental staples in their food culture include cereals, pre-baked pasta, vegetables, wild greens, and dairy products. Those who inhabited coastal towns had abundant access to fish from the Black Sea [50]. Meanwhile, in the mountainous regions, locals used to consume river fish or purchase salted fish sourced from the nearby sea [49]. Although meat was a rare indulgence reserved for special celebrations, the Greeks of Pontus complemented their diet with various fruits and nuts.

The Pontic culinary tradition owes its diversity to the cohabitation of Pontic Greeks and Armenians in the region and continues to be carried forward by Turks to this day [51]. A variety of foods and dishes originating from the Greeks of Pontus are produced and cooked in the same way or are found in a similar form in the Black Sea region of Turkey. In addition, many of these foods and recipes have the same or similar names. The migration of Pontic Greeks to neighboring Russia, along with the presence of affluent Pontic Greeks near the commercial hubs along the southern Black Sea coast, led to the influence of Russian gastronomy on PGC [51, 52]. Some dishes of the gastronomy of the Pontic Greeks are common in Asia Minor and broader Anatolia, while several dishes are influenced by Turkish meat-based cuisine. Thus, PGC represents a synthesis of Pontic Greek, Armenian, Turkish, and Russian culinary influences.

Methods

Study design and ethics

The present study used a parallel convergent mixed-methods design [53] to investigate whether Greeks of Pontic origin safeguard the culinary traditions of their descendants. This model involves simultaneous qualitative and quantitative data, with results converging to provide a comprehensive understanding of the research topic.

The research protocol was approved by the Research Ethics Committee (REC-UOWM) of the University of Western Macedonia (REC-UOWM: 11/05–03-2021). In food studies, ethical issues can easily arise, and adherence to ethical principles is prioritized, including informed consent, ensuring participant anonymity, and maintaining ongoing communication [54].

The study involved three concurrent stages: survey distribution, interviews, and participant observation. The survey was used as a quantitative tool [55]. Furthermore, a qualitative research design was adopted [56], guided by a social constructivism approach [57], using interviews. Finally, participant observation involved building knowledge, maintaining an observatory field journal, and using all our senses to record data [58].

Study setting and recruitment

This study was conducted among inhabitants of rural and urban areas in the Western Macedonia region of Greece (Fig. 1). Many Greeks from the Pontus region initially settled in this area. According to data from 1926, 9377

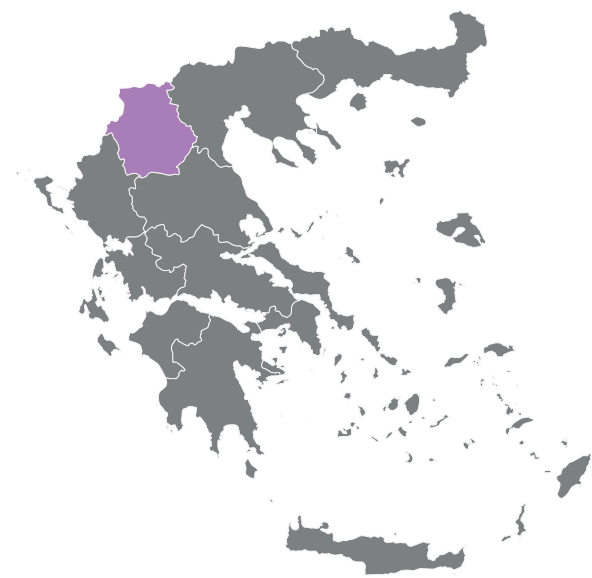


Fig. 1 The region of Western Macedonia is highlighted in pink

families of Pontic Greek origin settled in Western Macedonia [59].

For the first phase (survey), non-probability sampling (convenience and snowball sampling) was used to recruit study participants [60]. The sample size was set at a minimum of 384 participants, calculated using Cochran's formula for unknown population size, with a 95% confidence level and a 5% margin error [61]. Initially, 407 individuals aged 18–94 years consented to take part in the survey. However, due to missing data ($n=17$), the final sample consisted of 390 participants.

In the second parallel phase, we conducted semi-structured interviews with 11 women recognized for their expertise in traditional food knowledge (TFK) of Pontic Greek cuisine (PGC). Purposive sampling was used until data saturation was achieved [62].

In the final phase, we conducted participant observation [63] with three women and two men known for their expertise in preparing traditional foods (TFs). This approach allowed us to document their techniques, providing a deep understanding of their cooking practices. All data were verified and peer-reviewed for validity [64].

Development of the survey questionnaire and the interview guide

This study used a questionnaire to explore demographics, Pontic Greek identity, food self-sufficiency, preferences for traditional delicacies, and food choices among Greeks of Pontic origin. The questionnaire, guided by Hoffmeyer-Zlotnik and Warner [65], Vergeti [11, 66], and Galanidou-Balfousia [67], included simplified and modified versions of Food Frequency Questionnaires (FFQ1 and FFQ2) [68–71] and a Food Choice Questionnaire (FCQ) with a 1–7 scale [72]. This questionnaire was tested in a pilot survey and consisted of seven sections. The main sub-questionnaires (FFQ1, FFQ2, and FCQ) demonstrated high reliability, with Cronbach's alpha values of $\alpha=0.898$, 0.799 , and 0.845 , respectively.

For each FFQ, participants indicated their consumption frequency using five categories: “never,” “rarely (less than once per month),” “monthly (1–3 times per month),” “weekly (1 time per week),” and “daily (1 time per day).”

We then converted these categories into daily intake values: “never” = 0; “rarely” = 0.02; “monthly” = 0.07; “weekly” = 0.14; “daily” = 1.

We designed a semi-structured interview guide to complement this quantitative data. After conducting three pilot interviews to refine the questions, following the recommendations of Shakir and Rahman [73], we compiled the final semi-structured interview guide (Table 1).

Data collection

Data were collected in three phases. The first phase, from February 2022 to March 2023, used a pre-tested questionnaire distributed via Google Forms (<https://forms.gle/zAu2VYKPioYEmHW6A>). The survey was promoted through online channels (e.g., social media, email) and printed materials such as flyers. Additionally, we placed posters with QR codes for the survey in public services and universities.

The second phase, conducted from August 2021 to September 2022, consisted of semi-structured interviews lasting approximately 10 to 40 min each. These interviews were held outdoors following COVID-19 safety measures [74]. One interview was conducted via telephone since one participant was sick with COVID-19. All interviews were audio/video recorded, using smartphones and additional equipment (e.g. external microphone, tripod), with participants' consent.

In the third phase (August - October 2022), we documented participant observations of traditional food preparations [75]. These observations provided rich descriptive and interpretive data on these traditional practices.

Data analysis

Quantitative section

Statistical analysis

Quantitative data were analyzed using various statistical tools (Microsoft Excel for Mac 16, IBM SPSS Statistics 26, GraphPad Prism 9, and RawGraphs). Sociodemographic data and responses from the Food Frequency Questionnaires (FFQs) and the Food Choice Questionnaire (FCQ)

Table 1 Interview guide

Question number	Interview question
Question 1	Could you tell me about your background and relationship with the Pontic Greek community?
Question 2	What do some traditional foods and traditional food practices mean to you?
Question 3	How does food connect you to your childhood and your Pontic heritage?
Question 4	Is cooking traditional dishes a way of expressing your identity as a descendant of the Pontic Greeks?
Question 5	How have these food traditions been preserved or passed down in your family or community? Have you noticed any changes in these traditions over time?
Question 6	Do you buy traditional delicacies from a store, or do you personally prepare them?

underwent statistical analysis. To analyze associations between categorical variables, we used the chi-square test. For non-normally distributed variables, we used the Mann–WhitneyU and Kruskal–Wallis tests. When Kruskal–Wallis test statistics demonstrated a significant effect ($p < 0.05$), pairwise comparisons with Bonferroni correction were performed. Before these analyses, we conducted normality tests (Kolmogorov–Smirnov), reliability tests (Cronbach's alpha), and multiple response analyses.

Furthermore, preliminary tests were performed to validate the use of exploratory factor analysis (EFA). The suitability of the dataset for EFA was assessed through examination of the correlation matrix, Bartlett's test of sphericity, and the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy. The number of factors retained in the scale was determined using a scree plot.

Qualitative section

Thematic analysis

Qualitative data was analyzed using thematic analysis following the six-step framework described by Braun and Clarke [76]. Transcripts were coded and analyzed using Atlas.ti software (version 23.1.1) to ensure precise and clear identification of themes [77]. We coded the data independently and developed initial themes, which were then reviewed and merged in the second phase. The final themes were: (1) Transmission of culinary traditions; (2) Changing ingredients due to health considerations or convenience; (3) Preference and interest of the younger generation; (4) Concern about the potential erosion of culinary traditions; (5) Efforts to preserve the culinary traditions.

Merging quantitative and qualitative findings

Following the approach outlined by Fetters et al. [78], we identified areas of convergence and divergence between the two datasets and mapped these findings onto a visual representation (a joint display). This joint display, inspired by the work of Fetters and Tajima [79], allows for a deeper exploration of the dynamic interaction between quantitative data and the qualitative narratives associated with the Pontic Greek culinary traditions.

Results

Quantitative results

This study revealed key sociodemographic and lifestyle attributes. The sample of participants ($n = 390$) consisted of 59.74% females (mean age = 50.21 ± 13.817 , range = 18–86) and 40.26% males (mean age = 52.68 ± 14.227 , range = 21–94). Table 2 presents the sociodemographic and lifestyle characteristics of the study participants by age group.

The statistical analysis demonstrated significant associations between age groups and several variables. For instance, 34.1% of urban residents were between 38 and 57 years old, showing a marked age demographic in city areas. Furthermore, individuals in this age group were more likely to have Pontic ancestry from both parents, did not grow vegetables, and were married.

Educational level was associated with factors such as heritage, vegetable cultivation, marital status, cooking responsibility, and residence. Additionally, those responsible for cooking were significantly more likely to be female. The top-ranking aspects of Pontic Greek identity were rituals, music, songs and dance, and language. Cuisine was especially important among most females (72.8%), particularly those who were responsible for cooking, lived in urban areas, were postgraduates, and were unmarried with children.

The investigation of the most preferred traditional foods (TFs) and dishes of the Pontic Greek cuisine (PGC) in the region of Western Macedonia revealed *pisia* (a type of pancake) (51%) as the most popular, followed by *tanomenon sorva* (yogurt soup) (40%), and *chavitz* (a type of porridge) (31%). RAWGraphs (<https://rawgraphs.io/>) was used to generate a circular dendrogram (Fig. 2) of the 15 most favored TFs and dishes of PGC in Western Macedonia.

Furthermore, the statistical analysis showed associations between preferences for traditional dishes and demographic factors such as age, gender, and place of residence. Younger participants (18–37) and town residents primarily favored *pisia* (62.1%). *Tanomenon sorva* was popular among females (53.2%) and those over 38, particularly village residents. *Chavitz* was predominantly preferred by males (35.7%) and older individuals living in villages.

Significant correlations were found between age, residence, and preferences for *pisia*, *varenika* (a type of dumplings), and *otia* (a sweet, dough-based dessert). Delicacies like *evriste* (pre-baked pasta), *mavrolachana* (kale), *trimman* (soup with small crumbs of dough), *sorvas nistisimos* (soup made from grains and legumes), and *chavitz* were also linked to specific age groups, while *gatteria* (a type of pie similar to *perek*) and *perek* (a type of pie made with baked thin sheets of dough) were associated with residence (Supplementary Material, Table S1). Interestingly, *pligouri* (bulgur) showed a significant gender preference. An alluvial diagram (Fig. 3), created using RAWGraphs, was used to better visualize the relationship between gender, food preference, and preference proportion. The diagram is divided into two main sections, one for males and one for females. Each section is divided into 11 smaller sections, one for each food preference. The width of each section corresponds to the proportion

Table 2 Comparative analysis of sociodemographic and lifestyle attributes across age groups in the study population

	Mean (SD)	Minimum–maximum						
Age (years)	51.20 (14.018)	18–94						
			Age Groups %					
	N	%	18–37 y	38–57 y	58–77 y	< 78 y	x ²	p
Gender							6.037	0.110
Female	233	59.7	11.5	32.3	14.1	1.8		
Male	157	40.3	5.4	20	12.6	2.3		
Residence							17.264	0.008
Village	121	31.0	4.1	14.6	9.5	2.8		
Town	32	8.2	1.5	3.6	3.1	0.0		
City	237	60.8	11.3	34.1	14.1	1.3		
Education							178.744	0.000
Elementary school degree	35	9.0	0.0	1.0	4.6	3.3		
Secondary school degree	39	10.0	0.0	3.3	5.9	0.8		
High school degree	129	33.1	5.4	19.2	8.5	0.0		
Certification of vocational training	40	10.3	2.3	5.1	2.8	0.0		
Education academy	1	0.3	0.0	0.3	0.0	0.0		
Bachelor's degree	106	27.2	6.4	16.7	4.1	0.0		
Postgraduate degree	40	10.3	2.8	6.7	0.8	0.0		
Marital Status							155.281	0.000
Unmarried/Single	65	16.7	9.7	5.6	1.3	0.0		
Unmarried/Single Parent	3	0.8	0.0	0.3	0.5	0.0		
Married	23	5.9	1.8	2.8	1.3	0.0		
Married parent	250	64.1	4.6	38.5	19.0	2.1		
Divorced or widowed	9	2.3	0.0	1.0	1.3	0.0		
Divorced or widowed parent	35	9.0	0.0	3.8	3.1	2.1		
Co-residence with a partner	5	1.3	0.8	0.3	0.3	0.0		
Pontic descent							31.465	0.000
Mother's side	72	18.5	5.9	9.7	2.8	0.0		
Father's side	54	13.8	3.1	8.5	2.3	0.0		
Both	264	67.7	7.9	34.1	21.5	4.1		
Responsibility of cooking							6.389	0.381
Me	202	51.8	7.7	28.5	13.6	2.1		
Other	120	30.8	5.1	14.4	9.7	1.5		
Shared with someone else	68	17.4	4.1	9.5	3.3	0.5		
Growing vegetables							23.258	0.001
Yes	184	47.2	5.1	23.3	15.6	3.1		
No	179	45.9	11.0	24.9	9.5	0.5		
I used to grow vegetables	27	6.9	0.8	4.1	1.5	0.5		
Animal husbandry							8.432	0.208
Yes	122	31.3	4.6	14.6	10.0	2.1		
No	239	61.3	11.5	33.3	14.9	1.5		
I used to keep domestic animals	29	7.4	0.8	4.4	1.8	0.5		

of people who prefer the specific food. For example, the segment for *pisia* is the widest in the male section, suggesting that *pisia* is the most popular food choice among men. The segment for *chavitz* is the largest in the female

section, indicating that *chavitz* is the most preferred food among women.

Additionally, the analysis revealed a strong association between preferences for *makarina* (dried homemade

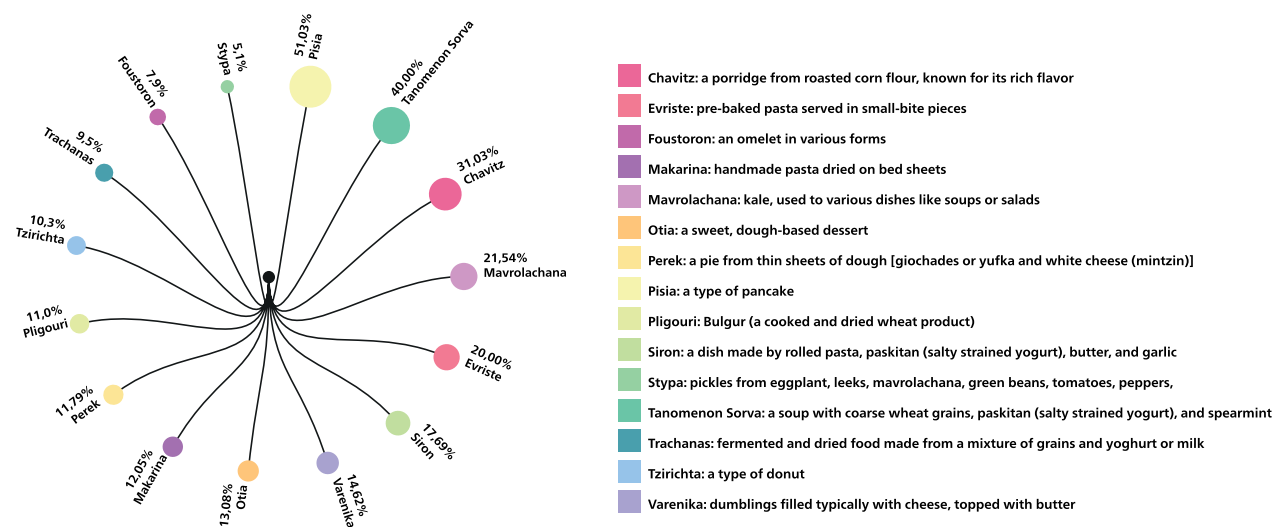


Fig. 2 Circular Dendrogram displaying preferences for traditional delicacies of Pontic Greek Cuisine

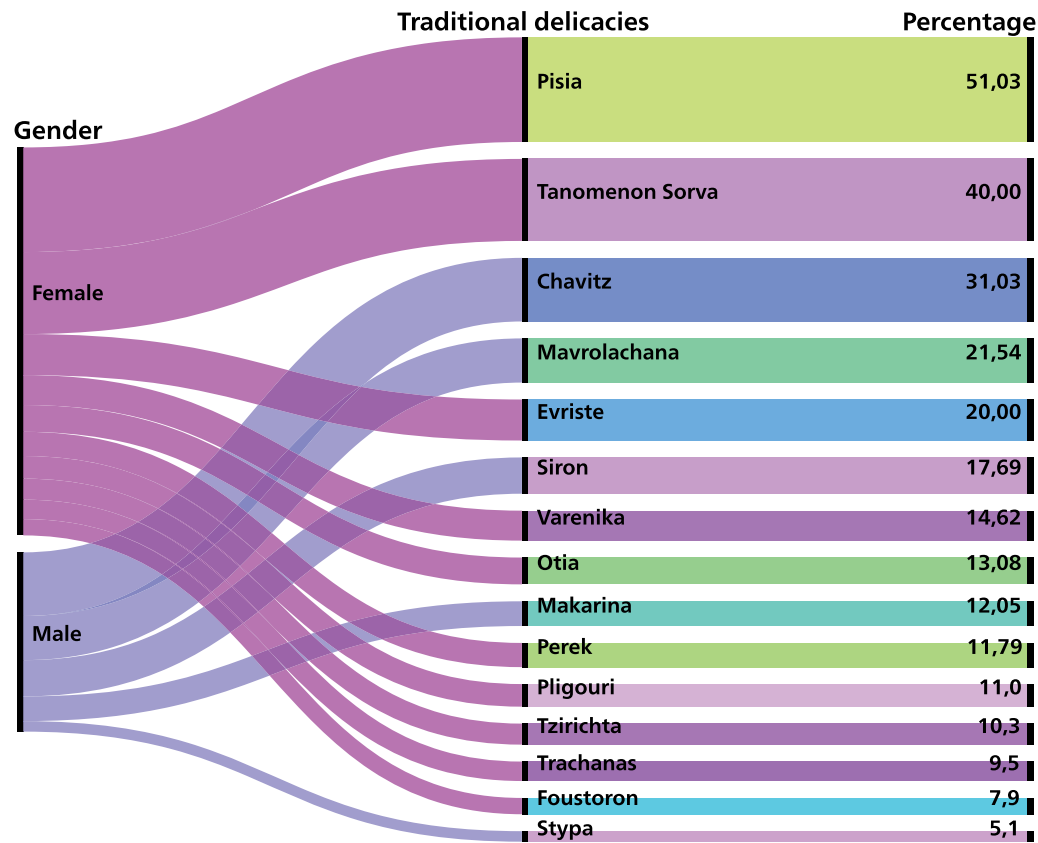


Fig. 3 Alluvial diagram of gender differences in traditional delicacies preferences and proportions

pasta), *evriste*, *chavitz*, *pisia*, and Pontic descent. The most frequently consumed traditional Pontic Greek delights included *voutoron* (butter), *stypa* (pickles), *trachanas* (fermented soup), *foustoron* (omelette), and wild

greens. *Pisia*, *tanomenon sorva*, *evriste*, and *makarina* are also considered frequently consumed dishes (Table S2, Supplementary Material).

A Mann–Whitney U test showed significant gender differences in consumption patterns. Females significantly favored *pligouri* ($p=0.002$) and *korkota* (groats) ($p=0.021$) compared to males, who consumed less *trachanas* than females ($p=0.028$). According to the Kruskal–Wallis test, consumption patterns of traditional foods (TFs) significantly differ among various age groups. For instance, older age groups, particularly those between 58 and 77 and those above 78, consume more *korkota* ($p=0.013$) and *stypa* ($p=0.000$) than younger individuals (18–37 years old). Additionally, the consumption of *evriste* and *chavitz* was also significantly higher in groups aged 38–57 ($p=0.002$) and those 78 years and older ($p=0.009$) compared to the 18–37 year group, respectively.

Significant differences were also found between the place of residence and the average daily intake of several traditional delicacies ($p < 0.05$). Specifically, village residents consumed *korkota*, *evriste*, *tanomenon sorva*, and *kolokytha* (pumpkin) more frequently than town residents, whereas *pisia* was consumed in higher quantities in towns than in villages. Participants of Pontic descent from both parents exhibited significantly higher consumption of *korkota*, *stypa*, *evriste*, and *chavitz* than those with only one parent of Pontic origin.

Furthermore, an exploratory factor analysis was conducted on a 10-item Food Choice Questionnaire (FCQ) using principal component analysis with Varimax rotation. The results confirmed the questionnaire's high validity and revealed two factors, labeled “Health and Ethical Considerations” and “Convenience and Pleasure,” indicating different motivations behind food choices (Table S3, Supplementary Material). Figure 4 further illustrates the comparison of mean Likert scale ratings for various food choice motives, with emphasis on health importance (on a scale of 1–7). Health was rated as the most important factor in food choice. Sensory pleasure and mood enhancement followed in second and third place, respectively. The choice of food, in terms of familiarity and tradition, came in second to last place.

The FFQ2 data revealed that olive oil is the most frequently consumed staple among participants, followed by coffee or tea, bread, fresh salads, and dairy products. By comparison, fish or seafood, alcohol, and fast food are less commonly consumed. A Mann–Whitney U test compared olive oil and butter consumption, showing a statistically significant preference for olive oil ($p < 0.001$). A summary of this analysis can be found in Supplementary Material, Table S4.

Qualitative results

Results from interviews

The thematic analysis of the 11 interviews revealed five themes related to Pontic Greek cuisine (PGC): Cultural Heritage and Tradition, Health Considerations, Generational Change and Knowledge Transmission, Changes in Cooking Methods and Ingredients, and Urbanization and its Impact on Traditional Culinary Practices.

Cultural heritage and tradition

Participants frequently highlighted the significance of Pontic Greek cuisine (PGC) as a cornerstone of their cultural heritage. Food and its associated practices serve as a representation of this heritage, showcasing the unique history, values, and identity of diverse social groups [46]. Family plays a central role in transmitting these traditions through shared meals, the passing down of recipes, and storytelling about the cultural significance of various dishes [1, 24]. For instance, W02 (personal communication, August 7, 2021) shared:

My culinary skills stem from my grandparents.

Likewise, W05 (personal communication, August 14, 2022) highlighted the role of the family in passing down traditions:

My grandfather instilled in us a love for Pontic traditions and food.

These personal accounts reflect broader observations about the role of women in preserving culinary heritage. Bessière [80] notes that rural women, often grandmothers or mothers, are key figures in safeguarding traditional food knowledge (TFK). Historically, Pontic Greek women have been the primary guardians of culinary knowledge, responsible for feeding their families and communities while maintaining traditional practices [49]. Their kitchens have become symbolic spaces, representing not only food but also women's lived experiences, acting as repositories of memory and history [2].

Eating traditional delicacies, such as those found in PGC, represents a meaningful journey into shared memories and histories, serving as a medium for the transmission of cultural values and practices across generations [20, 81, 82]. However, the transmission of these traditions is not static, especially among the younger population. While participants like W08 expressed a strong desire to pass down traditional dishes to their grandchildren, recent studies, such as the Hydria survey [37], reveal that younger generations in Greece may be deviating from traditional food practices. This shift is further evidenced by research on Greek college students [83]. While pre-pandemic food choice motives (FCMs), including

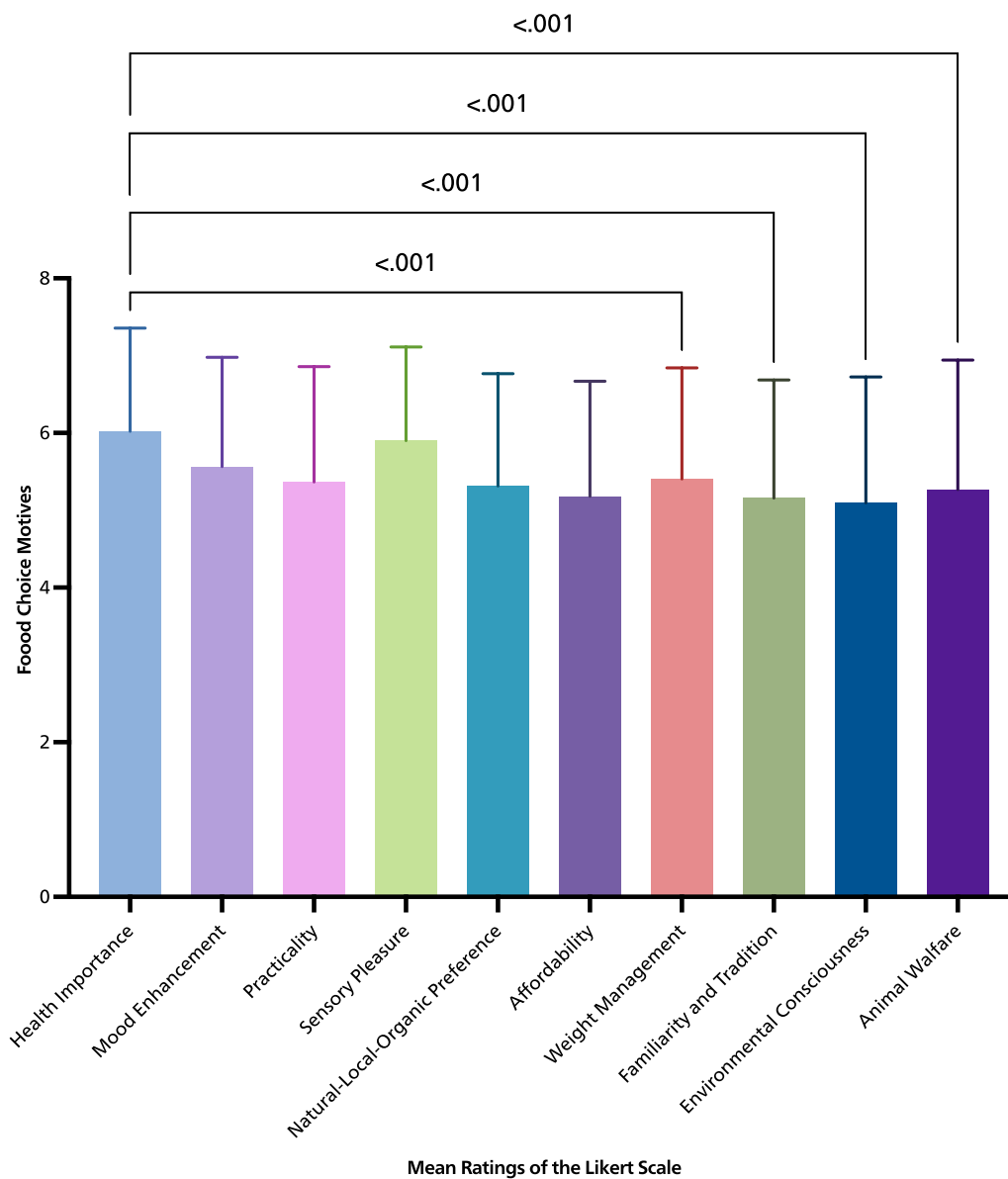


Fig. 4 Comparison of mean likert scale ratings for various food choice motives with emphasis on health importance

convenience options, had re-emerged, a preference for home-cooked meals persisted. Furthermore, younger generations are actively adapting and reinterpreting TFK, reflecting a dynamic interplay between tradition and innovation (Juzwiak et al., 2018; Sharif et al., 2016) [84, 85].

Health considerations

Health consciousness plays a pivotal role in shaping dietary choices and adapting culinary traditions. The acknowledgment of health consciousness by participants and their subsequent modification of traditional recipes

further illustrates the dynamic nature of Pontic Greek culinary practices. Krystallis and Ness [86] found that health-conscious consumers prioritize quality and health when selecting food products. In the context of Greek consumers of Pontic origin, this translates to a preference for olive oil over butter due to its perceived health benefits. W01 consciously adapted Pontic delicacies by replacing butter with olive oil due to cholesterol concerns. Based on the interviews, there is a general tendency to choose olive oil rather than butter for health reasons, which was also evident from the data collected from the survey. This conscious effort to modify traditional recipes

for health reasons shows the adaptability of these cooking traditions to contemporary health concerns.

The willingness to modify recipes while preserving their essence highlights the balance between respecting cultural heritage and prioritizing individual health. It underscores the notion that tradition and innovation can coexist, ensuring that Pontic Greek cuisine (PGC) remains relevant and sustainable for future generations.

Generational change and knowledge transmission

A recurring theme was participants' concern about the fading interest in Pontic Greek cuisine (PGC) among younger generations. As an example, W03 (personal communication, July 6, 2022) expressed this concern:

Younger generations now prefer pre-prepared foods.

Likewise, W08 (personal communication, July 5, 2022) noted a potential discontinuity in transmission, stating, "My daughter does not enjoy most Pontic food and, hence, does not pass it on to her children." However, participant W05 (personal communication, August 14, 2022) offered a constructing perspective, noting, "My children were not initially fond of traditional Pontic dishes, but their interest has grown."

These statements highlight a potential decline in the transmission of culinary traditions. Nevertheless, they also suggest that, with encouragement and exposure, younger generations can develop an appreciation for traditional foods (TFs). Bourdieu [28] argues that food preferences and practices, being deeply embedded in social and cultural capital, play a key role in reinforcing cultural identity through their transmission.

Changes in cooking methods and ingredients

Several participants mentioned the evolution of traditional Pontic recipes over time. As W03 noted (personal communication, July 6, 2022), "Some recipes have been modified for convenience with new cooking tools or ingredients." Adding to this point, W11 (personal communication, September 12, 2022) expressed the opinion:

I believe that future generations will continue to prepare Pontic Greek cuisine delicacies, although they might substitute ingredients. For instance, they might use rice or pasta instead of korkota in tanomenon sorva.

Urbanization and its impact on traditional culinary practices

The influence of urbanization on culinary customs was evident in the transcripts. W08 observed that younger housewives living in urban settings might be reluctant to prepare traditional dishes due to their complexity and potential mess. Similarly, interviewee W09 commenting

a potential discontinuity in culinary traditions in cities compared to villages. These observations indicate that urbanization makes it harder to preserve the traditional Pontic Greek culinary traditions. This is an issue that has been a subject of study among researchers [87–89].

Results from participant observation

Participant observation highlighted the rich depth of Pontic Greek culinary traditions. The tools used in the cooking process range from traditional implements like the rolling pin to more modern devices. Although the use of modern utensils was extensive, many aspects of the preparation retained their traditional character. Even with modern advancements, traditional cooking techniques, such as kneading dough by hand and baking thin sheets of dough on a heated iron plate (satz) (Fig. 5), are still practiced.

The preparation sites carried a sense of history and continuity, as previous generations had cooked in those spaces. Throughout the process, there was a friendly and collaborative atmosphere that encouraged a stronger connection with the participants. Thematic analysis uncovered three key themes: Traditional Food Preparation and Recipes, Traditional Food Knowledge and Transmission, and Community and Togetherness.

Traditional food preparation and recipes

Traditional Pontic Greek delicacies like *otia*, *makarina*, *siron*, and *trimman* are explored, with detailed explanations of their preparation methods provided (Fig. 6). The process of making these delicacies is often intricate and requires a good understanding and considerable skill. Figure 7 illustrates the step-by-step preparation process of *makarina*, a traditional handmade pasta. This aligns with the complexity and richness of traditional recipes, which are integral to the culinary heritage. Sutton [20]



Fig. 5 Baking a thin sheet of dough on an iron plate



Fig. 6 Four delicacies of Pontic Greek cuisine: **A** Trimman, **B** Siron, **C** Otia, and **D** Makarina

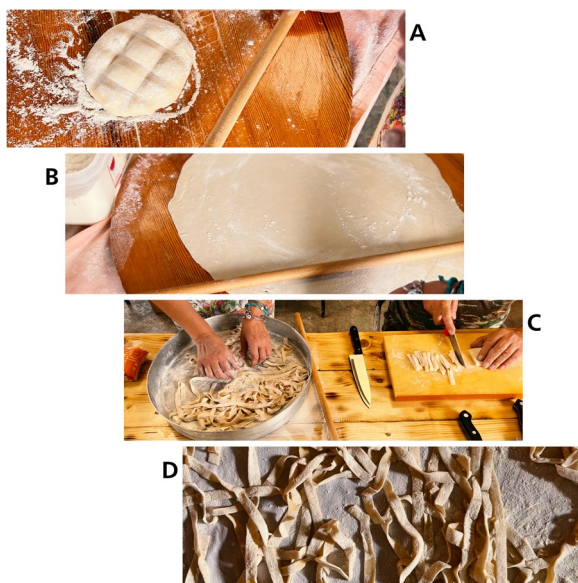


Fig. 7 Four steps in the preparation of Makarina: **A** The dough is formed into a ball and prepared to be rolled out into a thin sheet., **B** The dough is rolled into a thin sheet using a rolling pin., **C** The thin sheet of dough is sliced into strips., **D** The strips of dough are laid out to dry for several days on clean sheets

emphasizes the significance of customary and detailed culinary practices in maintaining cultural continuity.

Traditional food knowledge and transmission

Evidence of intergenerational food knowledge transmission, a recurring theme in the transcripts, is provided by

the statement from participant WC02 (personal communication, September 22, 2022):

I have made makarina myself five times before, learning the process from my mother-in-law.

This statement reflects the importance of passing down culinary traditions and techniques from one generation to the next. The preservation of Pontic Greek gastronomy is a prime example of this intergenerational knowledge transfer in action [2, 49].

Community and togetherness

The preparation of traditional dishes promotes a sense of community through shared experiences and collaborative efforts. For instance, participant observation suggests that the preparation of *makarina* often involved active collaboration from both family members and neighbors (WC02). Similarly, the tradition of serving *trimman* to worshippers (WC04) and preparing *otia* for weddings highlights the role of food in community engagement. These examples highlight how culinary practices can strengthen social bonds and reinforce community identity. The study by Chrysou-Karatza [2] on the Pontic Greek community in Attica similarly emphasized this role.

Overall, participant observation provided a rich and multi-dimensional view of Pontic Greek culinary traditions. The detailed insights into the cooking processes of the traditional delicacies showcased their socio-cultural context, emotional significance, and their role as a medium for preserving culinary traditions.

Merging of results

The mixed-methods study provides a comprehensive overview of the Pontic Greek cuisine (PGC) in the region of Western Macedonia, Greece. The quantitative data unveiled the sociodemographic and lifestyle characteristics of the participants, as well as their preferences and consumption patterns regarding Pontic Greek delicacies. The qualitative data showed the cultural and emotional meanings of the Pontic culinary traditions, as well as the challenges and opportunities for their preservation and transmission.

The perspectives from the data sets were merged into convergent concepts and integrated in a joint display (Fig. 8), which illustrates the interplay of factors influencing Pontic Greek culinary traditions. These concepts included Generational Change and Traditional Food Knowledge Transmission, Preservation of Culinary Traditions, Urbanization Impact, Cuisine in Pontic Greek Identity, Traditional Cooking Methods, and Health Considerations. The main idea behind all convergent concepts is that the culinary traditions of Greeks of Pontic

Concept	Divergent/ Convergent	Quantitative Data	Qualitative Data	Merge Results
Generational Change and Traditional Food Knowledge Transmission	Divergent	Survey results show declining interest in Pontic Greek cuisine among the younger generation, with 65% of respondents aged 18–30 reporting infrequent consumption of traditional dishes.	Interviews indicate concern among elders about the declining interest, however, some participants noted a growing interest among their own children in traditional cuisine.	Variations in attitudes towards traditional cooking and food preferences across different age groups. A nuanced perspective emerges that while interest may be declining overall, there is an increased interest for preservation of culinary traditions.
Preservation of Culinary Traditions	Convergent	Traditional foods and dishes of Pontic Greek cuisine are frequently consumed, with preferences showing associations with age, gender, place of residence, and Pontic descent. Voutyron, Stypa, Trachanas, Foustoron, Wild Greens, Pisia, Tanomenon Sorva, Evriste, and Makarina are among the most consumed traditional delicacies.	The preference and preparation of traditional foods is an integral part of preserving and passing down cultural heritage, and it plays a significant role in maintaining Pontic Greek identity. In interviews various delicacies has been referred continuously like chavitz, tanomenon sorva, and evriste.	Traditional foods are regularly consumed by a significant proportion of the respondents, indicating that culinary traditions are actively preserved through daily practices.
Urbanization Impact	Convergent	Among city dwellers, 35.1% don't grow vegetables, and 41% don't keep domestic animals. Preferences for traditional dishes vary significantly depending on whether individuals live in a city or a village.	Participants observed that urban lifestyles make it more challenging to preserve traditional practices, yet some urban participants still manage to maintain their culinary traditions despite these challenges.	Younger participants living in urban areas may be moving away from traditional practices, although they still regard cuisine as a significant part of their cultural identity.
Cuisine in Pontic Greek identity	Convergent	Among respondents, 68.2% state that cuisine is important to their Pontic Greek identity, with higher percentages among females, those responsible for cooking, urban dwellers, postgraduates, and unmarried parents.	Cuisine is integral to the cultural identity of Pontic Greeks, serving as a symbol of cultural preservation and connection to heritage.	The traditional cuisine of Pontic Greeks acts as a cultural bond, linking individuals with their heritage.
Traditional Cooking Methods	Convergent	The data shows that 43.8% of those who are responsible for cooking are female. There's also a significant association between cooking responsibility and cooking.	Participants often discussed learning traditional cooking methods from older family members, indicating these methods are being passed down through generations. Cooking is often seen as a woman's role, aligning with the quantitative data.	The role of cooking, particularly traditional methods, appears to be gendered, with a higher percentage of females undertaking this role. However, the tradition continues to be passed down through generations.
Health Considerations	Convergent	Almost half of the respondents (46.9%) rated Health as the Factor that influences their food choices. In the survey, 55% of respondents indicated they had modified traditional recipes for health reasons, such as reducing butter use and increasing olive oil use.	Health consciousness also reflected in qualitative responses with participants noting changes to traditional recipes for health reasons, like W01's adaptation due to cholesterol concerns.	Both sets of results show that health considerations are an important factor in how traditional Pontic Greek recipes are being adapted in modern times.

Fig. 8 Factors driving the evolution of Pontic Greek culinary traditions

descent are dynamic and shaped by personal, cultural, environmental, and societal factors.

By combining quantitative and qualitative findings, the study emphasizes the resilience and adaptability of Pontic Greek culinary traditions in the face of modern challenges. The preservation of these traditions relies on balancing the maintenance of cultural heritage with adaptation to contemporary health concerns and lifestyle changes.

Discussion

This mixed-methods study investigated the dietary habits, preferences, and underlying motives of Pontic Greeks in the Western Macedonia region of Greece. This comprehensive approach provided insights into the cultural, emotional, and practical aspects of culinary traditions, as well as the sociodemographic and lifestyle characteristics of the participants. Our findings suggest that culinary traditions emerge from a multidimensional interaction of personal, cultural, environmental, and societal factors. Age, education, and place of residence play a significant role in shaping food preferences, aligning with findings from previous research [90, 91].

From the perspective of cultural identity, cuisine is particularly significant for women, suggesting that food is a key factor in cultural identity and heritage. This observation is consistent with earlier studies [1, 25]. Traditional

foods (TFs) and dishes, like *pisia*, *tanomenon sorva*, and *chavitz* remain popular, indicating a rich culinary heritage, as highlighted in a recent study [70]. The prominence of these foods illustrates how cultural heritage continues to influence food choices [92].

Many Pontic Greeks value their TFs, with older generations pointing out changes in the quality of staple ingredients like flour and butter [93]. This perceived change is believed to alter the authentic taste of the food, illustrating the emotional connection and the importance of authenticity in their culinary heritage. The prominence of these foods illustrates how cultural heritage continues to influence food choices [47]. Furthermore, the shared preparation of food within Pontic Greek cuisine (PGC), along with its cultural and religious dimensions, fosters unity and a sense of belonging. This observation aligns with previous findings by Chrysou-Karatza [2] on Greeks of Pontic descent.

Although many respondents felt that Pontic Greek culinary traditions remain preserved, there is also evidence that these traditions are gradually changing. Urbanization and a growing disinterest in traditional culinary customs are hindering the transfer of traditional food knowledge (TFK) to younger generations. This decline in traditional cooking practices, particularly among young people, also has been documented in other parts of Greece [94]. In urban areas, there is a shift toward more industrialized

food consumption patterns, though this trend is less evident in rural areas of Greece [95].

Health considerations also significantly impact the preparation of traditional foods. Participants preferred traditional Mediterranean staples, including olive oil, fresh salads, wild greens, and dairy products, known for their health benefits [96]. A key modification in traditional recipes is the substitution of butter with olive oil as a healthier alternative. Such modifications offer a promising path to healthier dietary goals if they satisfy consumer sensory expectations [97]. Greeks of Pontic origin consume significantly more olive oil daily than butter, a practice associated with a healthier lifestyle [98].

However, some participants expressed a strong desire to safeguard these traditions and continue to transmit them to younger generations. The preservation of culinary traditions plays a pivotal role in safeguarding cultural heritage and identity. Engaging younger generations in culinary traditions could be an effective way to maintain and transmit TFK. Initiatives to preserve these culinary traditions could include publishing cookbooks [70], conducting research [44], hosting culinary festivals [99], using social media [100], and supporting small-scale producers [1].

Although the research provides valuable insights, its scope is limited by a relatively small sample size and a focus on Western Macedonia. Future research could benefit from larger, more diverse populations, and employing in-depth ethnographic methods to further explore the distinct elements of PGC.

Conclusion

This mixed-methods study provides an analytical examination of the Pontic Greek culinary traditions within the Western Macedonia region of Greece, marking their central role in shaping cultural identity and heritage. The findings confirm that Pontic Greeks still actively preserve traditional culinary practices, while quantitative and qualitative data highlight the importance of food as a key cultural marker for the community. Signature dishes like *pisia* and *tanomenon sorva* retain their popularity despite evolving dietary habits and urbanization pressures.

These traditional culinary practices, while valued, they are also evolving due to personal circumstances, health considerations, and social context. A generational shift and declining interest among younger generations further challenge the preservation of this cultural heritage. Nevertheless, the dynamic nature of the Pontic Greek culinary traditions and their adaptability show the resilience of the community in safeguarding and evolving its cultural practices.

The findings suggest that these traditions could promote local development and cultural tourism,

showcasing the rich culinary heritage of the Pontic Greeks. Moreover, preserving these practices not only safeguards a unique cultural identity but also contributes to social cohesion, cultural diversity, and the sustainability of local food systems. Future research could expand this exploration to other regions with a Pontic Greek population to provide a comparative understanding of the factors influencing the preservation and evolution of their culinary traditions.

Abbreviations

FCM	Food choice motives
FCQ	Food choice questionnaire
FFQ	Food frequency questionnaire
PGC	Pontic Greek cuisine
REC-UOWM	Research Ethics Committee of the University of Western Macedonia
TFK	Traditional food knowledge
TFs	Traditional foods
UOWM	University of Western Macedonia

Supplementary Information

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Additional file 1.

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Author contributions

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Availability of data and materials

Data and materials related to this study are available upon request from the corresponding author.

Declarations

Ethics approval and consent to participate

The research protocol for this study was approved by the Research Ethics Committee (REC-UOWM) of the University of Western Macedonia (REC-UOWM: 11/05–03–2021). All participants provided their informed consent in writing prior to their participation in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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