

Trust and distrust in food among non-dependent elderly people in Spain. Study on socio-cultural representations through the analysis of cultural domains

Cristina Larrea-Killinger^{a,b,c,d,e,*}, Araceli Muñoz^{c,f,g,h}, Ruth Echeverría^{c,k}, Oriol Larrea^c, Mabel Gracia-Arnaiz^{h,i,j}

^a Department of Social Anthropology, University of Barcelona, 08001, Barcelona, Spain

^b Research Group Anthropology of Crisis and Contemporary Transformations (CRITS), Department of Social Anthropology, University of Barcelona, 08001, Barcelona, Spain

^c "Toxic Body" Interdisciplinary Network. Department of Social Anthropology, University of Barcelona, 08001, Barcelona, Spain

^d INSA - UB María de Maeztu Unit of Excellence (grant CEX 2021-001234-M Funded By MICIN/AEI/FEDER, UEINSA-UB), University of Barcelona, 08921, Santa Coloma de Gramanet, Spain

^e CIBER de Epidemiología y Salud Pública (CIBERESP), 28029, Madrid, Spain

^f Training and Research Unit - School of Social Work, University of Barcelona, 08035, Barcelona, Spain

^g Research and Innovation Group in Social Work (GRITS), TRU - School of Social Work, University of Barcelona, 08035, Barcelona, Spain

^h Medical Anthropology Research Center (MARC), University of Rovira i Virgili, 43005, Tarragona, Spain

ⁱ Department of Anthropology, Philosophy and Social Work, University of Rovira i Virgili, 43005, Tarragona, Spain

^j Social Anthropology Research Group, Department of Anthropology, Philosophy and Social Work, University of Rovira i Virgili, 43005, Tarragona, Spain

^k Instituto de Investigación Sanitaria Hospital 12 de Octubre (imas12), 28041, Madrid, Spain

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ABSTRACT

The social and cultural representations of food are essential when it comes to understanding the perception of risk and the trust/distrust that people place on it. In this paper, we analyse the attributes and categories that non-dependent older people aged 65 and over living in Spain use when talking about trust/distrust in relation to food. In order to explore how they manifest different social meanings, we have conducted a study based on an analysis of cultural domains. The results of examining free-listing and pile-sort techniques were triangulated with the narratives obtained from interviews, life histories, food diaries and participatory workshops. The ethnographic research was conducted between June 2021 and June 2022 in the autonomous communities of Andalusia and Catalonia as well as the Valencian Community. Understanding the criteria for trust and distrust through the analysis of cultural domains allows us to better comprehend what food risks are perceived by older people and what value they place on food safety in their food choices. This study aims to provide qualified input for the development of healthier eating habits with recommendations for making ageing an easier process.

1. Introduction

1.1. Background

Over the past decades, Spain has experienced a rapid increase in its elderly population because of declining birth rates and rising life expectancy. In 2022, life expectancy reached 83.07 years, placing Spain among the most aged countries in the world. According to the projections of the National Institute of Statistics, by 2040 there could be more than 14.2 million elderly people –27.4% of a total population that

would reach some 52 million (Pérez Díaz et al., 2023). Thus the country is facing the challenge of generating adequate responses to the needs arising from steady demographic ageing. Some of these needs are closely related to health.

Ageing is a complex process that can be influenced by a myriad of factors including nutritional and environmental ones. In fact, at this stage of life, food security is an essential dimension of health and wellbeing (Wolfe et al., 1996). Indeed, covering basic needs such as healthy food is the basis for dignified and independent ageing. Better nutrition contributes to better ageing and most probably reduces or

* Corresponding author. Department of Social Anthropology, University of Barcelona, 08001, Barcelona, Spain.

E-mail address: larrea@ub.edu (C. Larrea-Killinger).

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slows down development of common chronic diseases (Caso & Vecchio, 2022). This means that it is not only important to have regular and sufficient access to food, but also, according to the FAO's definition of food security, that food should be safe and culturally acceptable (FAO, 2006).

To date, however, there are hardly any food policies focusing on ensuring food security and food safety in all its dimensions for this age group. There is, for example, a white paper on active ageing published by the Spanish Ministry of Health, Social Policy and Equality (MSPSE, 2011), which includes a brief section on food and nutrition. It highlights the need for a nutritional assessment of the general diet, since significant weight gain has been observed among the elderly. This weight gain, along with the physical deterioration inherent in the ageing process and other nutritional alterations related to disease, makes food a key issue. More recently, the Ministry of Consumer Affairs approved a programme of dietary recommendations aimed at healthcare professionals and institutions, promoting healthy and sustained nutrition for the elderly in nursing homes through the organization of diets and meals (AESAN, 2023).

However, most of these programmes are merely collections of individual dietary recommendations. Little is said about the difficulties faced by older people when it comes to maintaining healthy and safe eating habits. Financial limitations due to the high price of healthier food products, geographical limitations due to the lack of nearby stores that carry them, and social limitations due to solitude and lack of autonomy or information about the risks, can be found among said difficulties (Hawkey et al., 2020). Indeed, factors such as loneliness, sedentary lifestyles and low income increase the consumption of high-calorie foods by older people. Thus they present a higher risk of nutritional deficiencies –such as malnutrition– than the general adult population, while also facing “contemporary” nutritional issues such as an increase in obesity and chronic non-communicable diseases (Caso & Vecchio, 2022; Martínez Valero et al., 2020; Milà Villarreal et al., 2012). In a longitudinal study on diet quality in non-institutionalized persons over 80 years of age living in various regions of Spain between 2011 and 2013, it was observed that the quality index showed some nutritional imbalances among octogenarians, which worsened after the age of 90. Although the population participating in the study presented eating habits in line with a healthy diet or adherence to the Mediterranean diet, the consumption of vegetables was lower than recommended and the consumption of cured meats and cold cuts was higher than expected (Hernández Galot & Goñi Cambrodón, 2015). Almost a decade later, in a cross-sectional study on the diet quality for people over 65 years of age in Spain, using the healthy-eating index, it was observed that 86% of the population participating in the study required a change in dietary patterns and only 8.2% followed the guidelines for a healthy diet (Martínez Valero et al., 2020).

Understanding what factors influence food practices in this population group will enable us to assess what impactful changes must be made in welfare, health and nutritional programmes in order to provide food security for the elderly (Wolfe et al., 1996). For the general population, we know that social perceptions about the goodness or, to the contrary, the hazards associated with food, constitute one of the reasons for acceptance or rejection of food. In recent decades, much research has been conducted with the aim of analysing social perceptions of food safety and, in particular, social representations of risk (Augustin-Jean & Poulain, 2019; Callejo, 2009; Fischler, 2001; Gracia Arnaiz, 2004; Larrea-Killinger et al., 2016, 2019). Most of this research addresses the question as to why the population's negative perception of certain technological applications in food and, in general, of factory-made food, has increased just at a time when food is more abundant and the food chain is more controlled than ever. While it is true that part of this negative assessment can be chalked up to the split that has occurred between the prioritized activities of the population and the production or preparation of their food, it can also be claimed that it comes from a lack of knowledge about the technological processes involved and the

uncertainty about the safety of the ingredients and substances used throughout the food chain. What it is not known, however, is how older people relate to these issues, which is what will be addressed in this article.

2. Materials and methods

2.1. Study design and setting

This article explores the sociocultural representations regarding trust and distrust in food in non-dependent people over sixty-five years of age. The main categories related to food and how they are associated and grouped are explored through the analysis of cultural domains (Spradley, 1979). Cultural domain analysis is a set of methods for analysing social meanings and shared knowledge, which allow us to explore how members of a particular society think about certain sets of items that have a collective presence in their culture (De Munck, 2009; Ryan & Bernard, 2000; Spradley, 1979). The items that make up a cultural domain determine a semantic structure of relationships, where the meanings and representations of these items derive from their position within that structure (Borgatti, 1999; Weller & Romney, 1988). We have explored the shared categories of trust and distrust in food in these older people and we have analysed how these categories influence their views on food risks. This kind of analysis is commonly used in the field of food and nutrition, and we can find many related references in the literature (Ares et al., 2014; Hough & Ferraris, 2010; Kanter & León Villagra, 2020; Kodish et al., 2019a; Kodish, Grey, Matean, Palaniappan, Gwa-vuya, et al., 2019; McCubbin et al., 2017; Melby & Takeda, 2014; Morizet et al., 2011; Muñoz et al., 2019, 2023; Sato et al., 2019; Schwendler et al., 2021; Shaikh et al., 2017; Takeda & Melby, 2017; Zobrist et al., 2017; Zycherman, 2019).

This research is part of an interdisciplinary research project titled “Eating Matters: Challenges for an inclusive, healthy and sustainable food for better ageing in Europe” (Ref. PID 2019-104253RB-C21&C22). This project was conducted to analyse ageing, social exclusion, poverty and social inequality, aiming to promote fairer and healthier eating habits, as well as healthy and sustainable lifestyles, thus contributing in transforming social policies. The field work of this research was carried out in the Spanish autonomous regions of Catalonia (CAT), the Valencian Community (VAC) and Andalusia (AND), all three of them on the Mediterranean coast and sharing similarities in their culinary culture (Gracia-Arnaiz & Larrea-Killinger, 2022).

2.2. Study sample

Based on the specific characteristics of this research, the sample selection process was intentional, aiming for variation and heterogeneity as well as the greatest intensity of experience, seeking a sample with a similar representation of sex, age group, educational level and socio-economic strata. All participants were aged over 65 and recruited in low-medium income neighbourhoods, following the required inclusion criteria. Those candidates with difficulties in speaking and/or understanding, and those who could not decide on their diet and/or did not purchase their own food, were excluded from the study. Approval from the relevant Ethics Committees was obtained. All participants were properly informed of the objectives and methodology of the research, and a written informed consent was signed by each participant.

The choice of the neighbourhoods and municipalities where the field work was carried out took into account the objectives of the research and heterogeneity criteria, based on social, demographic and environmental factors. In Andalusia the field work was carried out in the municipalities of Humilladero and Antequera (rural and semi-rural areas in Málaga province-RMP), and the city of Granada (GRN). The field work in Catalonia included three neighbourhoods in the city of Barcelona (BCN), several neighbourhoods in the city of Tarragona (TAR) and several municipalities in the regions of Tarragonés, Terra Alta, Ribera

d'Ebre and Priorat (rural areas in Tarragona province-RTP). In the Valencian Community the field work was performed in the municipality of Teresa (rural area in Castellón province-RCP) and in several neighbourhoods of the city of Valencia (VAL) (Fig. 1).

2.3. Data collection and analysis

The research was conducted in two phases: the first from June 2021 to January 2022, and the second from March to June 2022 (Fig. 2). In the first phase of the research, 90 interviews with people over 65 were conducted together with 12 life histories (Table 1), as well as 58 food diaries and 51 free listings (cultural domains) for people over 65. Also, 44 interviews with key informants (experts, professionals in the social and healthcare fields, organisations and activists) were carried out. In the second phase, participatory workshops with people over 65 were conducted together with 24 pile sorts (cultural domains), as well as 3 focus groups and 6 participatory workshops with key informants (experts, professionals from the social and healthcare fields, organisations and activists).

2.3.1. Items or categories of analysis from the free listings

One of the techniques used in the first phase of the research was the free-listing technique, through which we analysed the main shared items related to trust and distrust in food among elderly people of medium and low income. These elderly people presented ageing problems (such as a prevalence of non-communicable diseases, loneliness, malnutrition, reduced mobility, limited economic factors to access to healthy food) (Caso & Vecchio, 2022) and came from rural areas and urban neighbourhoods. Through free listings we can obtain a set of terms to build up a relevant cultural domain in a society or culture (Weller & Romney, 1988), allowing us to understand how elderly people incorporate different social meanings. We can then explore the most significant categories they use relating to trust and distrust in food.

Data on free listings was collected through food notebooks completed by 58 older people of the 102 participants in the interviews and life histories of the first phase of the research. These notebooks included food diaries and a space to incorporate the free listings. In the free listings, participants were asked to list foods that they trusted and distrusted (Table 2). Out of the 58 food notebooks collected, 51 (87.9%) provided information regarding free listings. Of these, 2 notebooks did not show any elements of distrust on their lists and thus were not used for analysis. As a result, 51 lists on trust and 49 on distrust were analysed (Table 3).

Later, words and short phrases written and obtained from participants in each domain were standardized, and then redundant items that could be interpreted as synonyms were grouped, avoiding repetitions, but without changing any concepts or constraining any categories (Weller & Romney, 1988).

2.3.2. Item sorts and categories of analysis

In the second phase of the research, the pile-sort technique was applied to 24 people over 65, who participated in 3 face-to-face participatory workshops conducted in Antequera (Andalusia), Barcelona (Catalonia) and Teresa (Valencian Community) (Table 4). Starting from the free listings (De Munck, 2009) and looking for similarities or differences between items of these lists (Bernard et al., 2017), the pile-sort technique was carried out by asking participants to group the main elements obtained from the free listings (Bogartti, 1998; De Munck, 2009). Specifically, the pile-sort technique was applied with those items of trust ($n = 20$) and distrust ($n = 17$) that showed a frequency equal to or greater than 6% in the free listings (Table 5).

In the pile-sort exercises, each elderly person was given a set of cards with the names of types of food associated with trust and another set with those linked to distrust, and they were instructed to group the cards by sorting them into a number of piles of their choice (Bernard et al., 2017; Weller & Romney, 1988).



Fig. 1. Provinces and autonomous communities in Spain in which the field work was performed, including number of participants in each autonomous community. Orange tags mark specific areas within provinces.

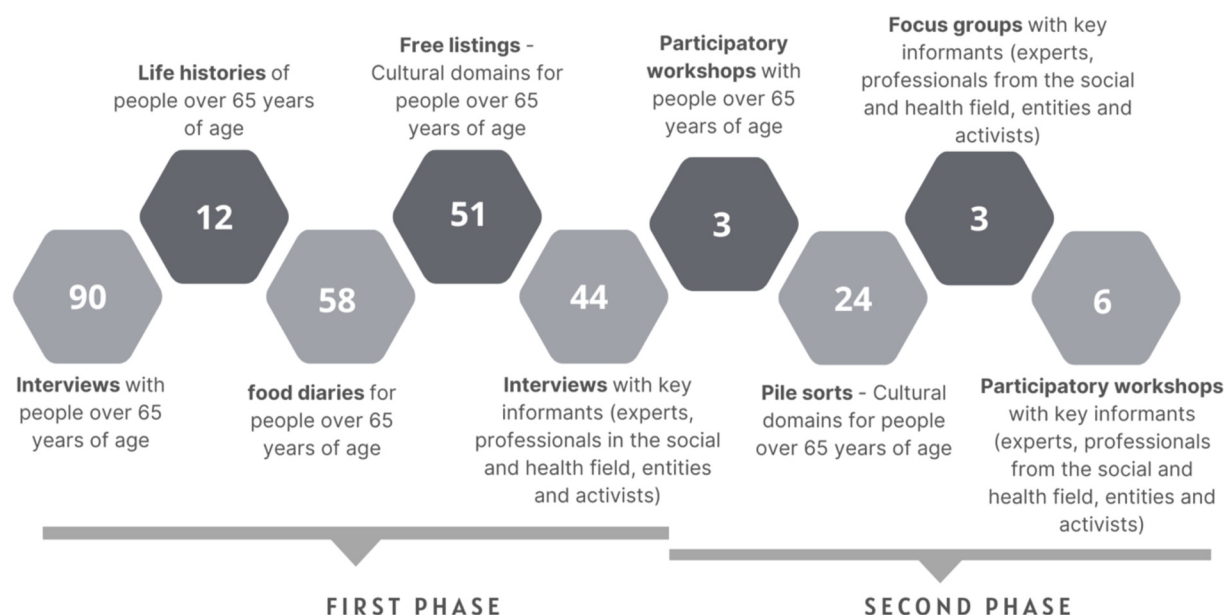


Fig. 2. First and second phases. Data collection instruments.

Table 1

Sociodemographic characteristics of the participants over 65 by region. First phase: interviews (N = 90) and life histories (N = 12).

	Andalusia (N = 33)	Catalonia (N = 36)	Valencian Community (N = 33)	Total (N = 102)
Sex				
Men	15 (45%)	14 (39%)	6 (18%)	35 (34%)
Women	18 (55%)	22 (61%)	27 (82%)	67 (66%)
Age				
≤64 yrs	3 (9%)	0 (0%)	1 (3%)	4 (4%)
65–69 yrs	3 (9%)	4 (11%)	7 (21%)	14 (14%)
70–79 yrs	19 (58%)	18 (50%)	17 (52%)	54 (53%)
≥80 yrs	8 (24%)	14 (39%)	8 (24%)	30 (29%)
Place or residence				
Rural	18 (55%)	17 (47%)	18 (71%)	53 (52%)
Urban	15 (45%)	19 (53%)	15 (29%)	49 (48%)
Living on their own				
Yes	12 (36%)	18 (50%)	9 (71%)	39 (38%)
No	21 (64%)	18 (50%)	24 (29%)	63 (62%)

Table 2

Sociodemographic characteristics of the participants in free-listing technique by region (First phase).

	Andalusia (N = 16)	Catalonia (N = 21)	Valencian Community (N = 14)	Total (N = 51)
Sex				
Men	8 (50%)	7 (33%)	0 (0%)	15 (29%)
Women	8 (50%)	14 (67%)	14 (100%)	36 (71%)
Age				
<75 yrs	9 (56%)	5 (24%)	10 (71%)	24 (47%)
≥75 yrs	7 (44%)	16 (76%)	4 (29%)	27 (53%)
Place of residence				
Rural	10 (63%)	5 (24%)	10 (71%)	25 (49%)
Urban	6 (37%)	16 (76%)	4 (29%)	26 (51%)

Table 3

Description of free listings on trust and distrust.

Free listings	Trust	Distrust
Number of lists	51	49
Average length of lists (number of items cited)	6	4
Number of different items cited among all free listings	94	63
Total number of times the items are cited	290	175

Table 4

Sociodemographic characteristics of the participants in pile-sort technique by region (Second phase).

	Andalusia (N = 4)	Catalonia (N = 11)	Valencian Community (N = 9)	Total (N = 24)
Sex				
Men	2 (50%)	2 (18%)	0 (0%)	4 (17%)
Women	2 (50%)	9 (82%)	9 (100%)	20 (83%)
Age				
<75 yrs	2 (50%)	7 (64%)	5 (56%)	14 (58%)
≥75 yrs	2 (50%)	4 (36%)	4 (44%)	10 (42%)
Place of residence				
Rural	4 (100%)	0 (0%)	9 (100%)	13 (54%)
Urban	0 (0%)	11 (100%)	0 (0%)	11 (46%)

2.3.3. Analysing with ANTHROPAC

2.3.3.1. Analysis of free listings. The free-listing and pile-sort data were analysed using ANTHROPAC software (version 1.0.1.36, Software for Cultural Domain Analysis, Borgatti, SP.; Analytic Technologies: Natick, MA, 2003) and FLAME version 1.1. (Free-List Analysis Under Microsoft Excel. Pennec, F., Wencelius, J., Garine, E., Raimond, C., Bohbot, H. 2012. Paris: CNRS).

In the case of free listings, we worked with analysis of frequencies, frequency percentages and salience indexes, and the data was shown in frequency tables. Specifically, frequency, average rank –average position of an item on the lists of all the respondents who mentioned it (De Munck, 2009) – and cultural or cognitive salience (Smith Index, Sutrop Index) are shown. The latter measure is the result of combining frequency and order of mention on the list and shows how significant and useful an item is (Borgatti, 1996; De Munck, 2009; Sutrop, 2001). Only

Table 5
Food categories associated with trust (n = 20) and distrust (n = 17) in the pile sorts obtained from free listings.

Pile sorts (f ≥ 6%)	Trust (n = 51)	Distrust (n = 49)
1	Fruits	Prepared food
2	Vegetables	Pre-cooked dishes/food
3	Legumes	Cold meats
4	White meat (chicken, turkey, rabbit ...)	Sweets, cookies, cakes, sugar ...
5	Milk	Processed and highly processed foods, sausages
6	Yoghurt, cheese, butter ...	Canned and preserved foods
7	Fish	Frozen foods
8	Eggs	Red meats (beef, pork, ox ...)
9	Fruits from own, relatives' or friends' garden	Packaged foods
10	Red meat (beef, pork, ox ...)	Fatty food
11	Rice	Soft drinks
12	Fruits from own, relatives' or friends' garden	Factory baked goods
13	Locally grown vegetables	Unappetizing food
14	Meat	Meat
15	Frozen fish	Fish
16	Pasta	Supermarket bread
17	Sweets, cookies, cakes, sugar ...	Food/Beverages that I don't like
18	Fresh fish	
19	Meat from trusted butcher	
20	All foods	

the items cited at least twice in free listings (Borgatti, 1998) were taken into account for subsequent systematization and analysis (Tables 6 and 7).

On the one hand, in the table on free listings about trust (Table 6), we can see that participating older people place more trust in some foods than others. Thus, fruits, vegetables and legumes are the most cited, followed by white meat, milk and dairy. On the other hand, when looking at the distrust free-listing table (Table 7), ready-made and pre-cooked food, followed by sausages and sugary products, are found at the top of the list.

2.3.3.2. Analysis of the pile sorts. Regarding pile sorts, in order to show the proximity/distance relationship of the categories in the elderly universe, a *nonmetric multidimensional scaling (nMDS)* on their trust and distrust in the food categories was carried out (De Munck, 2009). In a graphical display, the nMDS shows the elderly thought processes as semantic proximities without metric data, where distances between items represent distances that are correlational and not metric (Bernard, 2006; Walliman, 2006).

To analyse the pile sorts, the nMDS was interpreted taking into account the possible clusters of items (De Munck, 2009), where the subdomains in the perceptions of the elderly were overlaid. Thus, a set of 4–6 clusters relating to trusted items, and another set relating to distrusted items were taken for analysis. The item areas or dimensions that were proposed were only tentative, since the nMDS model allows for several possible interpretations.

The non-metric multidimensional scaling (nMDS) on trust in food shows that 6 associative subdomains relate to the proximity/distance of the items regarding trust in food in non-dependent people over 65 (Fig. 3).

The associative subdomains or clusters in the nMDS graphical representation of trust on food were labelled as: 1. fruits and vegetables and trust due to concerns about proximity in relation to their production; 2. grains and legumes; 3. meat and trust due to concerns about its different types and its distribution; 4. Eggs; 5. fish and trust due to concerns about its origin and its handling; 6. dairy products and other foods that are trusted if their consumption is moderate.

In the non-metric multidimensional scaling (nMDS) on trust in food,

4 associative subdomains relate to the proximity/distance relationship of the items regarding distrust in food in elderly participants (Fig. 4).

The associative subdomains or clusters of the nMDS graphical representation of distrust on food were labelled as: 1. ready-made and pre-cooked food and packaged products; 2. fish and meat and distrust due to concerns about its different types, its handling and its processing; 3. processed and fried products and foods distrusted due to concerns about their organoleptic properties; 4. soft drinks and bread and distrust due to concerns about processing and distribution.

2.3.4. Triangulation with narratives

The results of both techniques, free listings and pile sorts, were triangulated with the narratives obtained from interviews, life histories, food diaries and participatory workshops conducted during ethnographic research. All these techniques were complementary sources of information that allowed us to delve into the content, dimensions and meanings of the cultural domains around food, as well as the experiences lived by these elderly people. The diversity of techniques used increases confidence in the research findings (Bryman, 2008). This triangulation provided us with a more complete view of elderly representations and categories associated with food and allowed us to delve into the trust and distrust criteria and their relationship with how food and health risks are perceived. Thus, the narratives enabled us to analyse the meanings of free-listing items and associative subdomains in the pile sorts. They provide more information about sociocultural norms and perceptions, as well as providing social contexts regarding food.

The narratives were analysed through strategies of Grounded Theory (Glaser & Strauss, 1967; Strauss & Corbin, 1990) in order to detect themes, to interpret meanings and generate and group categories and codes. This qualitative data was systematized and categorized using ATLAS-ti qualitative analysis software (Version 22; ATLAS-ti Scientific Software Development GmbH; Berlin, 2022), through which diagrams and semantic maps were also generated to represent the relationships between the codes. All names of participants are fictitious to ensure anonymity.

3. Results. Trust and distrust in foods

When exploring the sociocultural representations that the elderly hold regarding trust and distrust in food, we observe a complex association of different aspects linked to food, which go beyond the qualities ascribed to the product itself (Fig. 5). We thus see that a whole series of factors linked to the processes within the food chain, as well as the different contexts and backgrounds of individuals, become intertwined in these representations.

3.1. Trust in foods

3.1.1. Fruits and vegetables: proximity and their production

Regarding the outcomes of free-listing and pile-sort groupings to the trust narratives from interviews and workshops (Table 5, Figs. 3, Figure 5), we can see that fruits and vegetables are the most trusted foods. We know that trust is a key criterion when it comes to buying and eating food. This social criterion of appreciation and safety is important for the development of food practices, but it is also complex, diverse and relational.

In this sense, the representation of the associative subdomains of pile sorts shows that trust in fruits and vegetables is related, above all, to proximity and production. However, not all of them are considered to be of the same quality, as it depends on their origin –unknown, conventional, garden, seasonal–, cleanliness of the products and stores where they are purchased, as well as quality of service in shops and supermarkets.

Another key element of trust is the sensory experience (colour, taste, appearance), an element that often elicits in respondents a comparison between the way of growing food now and before. Important as well is

Table 6

Frequency, Average Rank and Cultural or Cognitive Salience of free listings on trust in foods.

Original Name	Occurrence Number	Frequency	Summed Ranks	Average rank	Smith Index	Sutrop Index
Fruits	19	37.25%	52	2.737	0.294	0.136
Vegetables	19	37.25%	52	2.737	0.291	0.136
Legumes	16	31.37%	56	3.500	0.215	0.090
White meat	13	25.49%	49	3.769	0.157	0.068
Milk	12	23.53%	58	4.833	0.114	0.049
Dairy products	11	21.57%	57	5.182	0.107	0.042
Fish	10	19.61%	41	4.100	0.112	0.048
Eggs	8	15.69%	43	5.375	0.068	0.029
Self-grown fruits	7	13.73%	18	2.571	0.091	0.053
Red meat	7	13.73%	37	5.286	0.062	0.026
Rice	7	13.73%	30	4.286	0.079	0.032
Self-grown vegetables	7	13.73%	14	2.000	0.113	0.069
Local vegetables	6	11.76%	10	1.667	0.099	0.071
Meat	5	9.80%	13	2.600	0.071	0.038
Frozen fish	5	9.80%	30	6.000	0.032	0.016
Pasta	5	9.80%	30	6.000	0.031	0.016
Sugary products	4	7.84%	21	5.250	0.038	0.015
Fresh fish	4	7.84%	19	4.750	0.031	0.017
Meat from trusted store	4	7.84%	10	2.500	0.068	0.031
All foods	4	7.84%	4	1.000	0.078	0.078
Bread	3	5.88%	7	2.333	0.042	0.025
Cold meats	3	5.88%	26	8.667	0.014	0.007
Fruits from trusted store	3	5.88%	9	3.000	0.029	0.020
Fish from trusted store	3	5.88%	10	3.333	0.034	0.018
Self-produced white meat	3	5.88%	14	4.667	0.024	0.013
Seasonal fruits	3	5.88%	10	3.333	0.027	0.018
<i>Gazpacho, porra, salmorejo</i> (traditional raw vegetable soups)	3	5.88%	12	4.000	0.035	0.015
Grains	3	5.88%	13	4.333	0.040	0.014
Homemade sweets	3	5.88%	18	6.000	0.014	0.010
Olive oil	3	5.88%	18	6.000	0.025	0.010
Vegetables from trusted store	3	5.88%	7	2.333	0.039	0.025
Local fruits	3	5.88%	7	2.333	0.039	0.025
Self-made olive oil	3	5.88%	6	2.000	0.047	0.029
Local bread	3	5.88%	7	2.333	0.052	0.025
Self-produced eggs	3	5.88%	15	5.000	0.024	0.012
Local milk	2	3.92%	3	1.500	0.036	0.026
Self-grown legumes	2	3.92%	12	6.000	0.012	0.007
Mushrooms	2	3.92%	11	5.500	0.017	0.007
White fish	2	3.92%	14	7.000	0.016	0.006
Blue fish	2	3.92%	14	7.000	0.016	0.006
Beer	2	3.92%	10	5.000	0.016	0.008
Self-produced meat	2	3.92%	11	5.500	0.016	0.007
Virgin olive oil	2	3.92%	12	6.000	0.014	0.007
Water	2	3.92%	12	6.000	0.021	0.007
Homemade product	2	3.92%	8	4.000	0.023	0.010
Brown rice	2	3.92%	15	7.500	0.013	0.005

Note: Result of the total free lists (n = 51). The names of items mentioned at least twice are included. Saturation with 31 individuals out of 51 (R2 = 0.9935).

the kind of production that they consider “natural”: food grown in their own gardens or those of relatives and friends, without any chemical products –fertilizers, pesticides, herbicides ...

As we observe in this first narrative, trust in fruits and vegetables depends on various related factors, as indicated by this woman, interviewed together with her husband:

[I]: ‘As for fruits and vegetables, do you notice if they come from here, if they are from near here or if they come from far away?’

‘Sometimes, like now, they are in season and they are grown nearby. But in winter, whatever is not in season comes from anywhere out there.’

[I]: ‘Does it matter to you whether it is seasonal or that it comes from far away?’

‘I like it better if it’s in season, because it has more flavour and it’s much better. Because those that come from out there, after being in refrigerated containers, they don’t have any taste at all.’

[I]: ‘So you’re more interested in the taste.’

‘Yes, of course, the taste and that it is good fruit.’

[I]: ‘Does it worry you whether they spray pesticides on them, what you call poison around here?’

‘Of course it does.’

[I]: ‘And how do you know if they spray a lot or just a little?’

‘You don’t know that, but you can see it in the olive trees, we see them being sprayed every day when we go out for a walk, it’s rare not to see farmers spraying that liquid, and it goes into the olives, although they spray more on those fruits and other stuff that get easily spoiled, they just have to be sprayed, don’t they?’ (Acacia, 62, and husband 68, RMP, AND).

Shopping routines are a key element in food trust. The majority of respondents tend to always purchase basic products in the same stores and choose the same types of products, creating a bond of loyalty with the sellers. Proximity generates trust both in the salesperson and product safety.

For example, in the following narrative, this woman talks about how she chooses different stores in her daily routine, according to product-quality criteria:

Table 7
Frequency, Average Rank and Cultural or Cognitive Salience of free listings on distrust in foods.

Original Name	Occurrence Number	Frequency	Summed Ranks	Average rank	Smith Index	Sutrop Index
Ready-made food	19	38.78%	37	1.947	0.278	0.199
Pre-cooked food	14	28.57%	33	2.357	0.198	0.121
Sausages	9	18.37%	27	3.000	0.107	0.061
Sugary products	9	18.37%	45	5.000	0.099	0.037
Processed food	8	16.33%	16	2.000	0.138	0.082
Cans and preserves	7	14.29%	23	3.286	0.085	0.043
Frozen foods	7	14.29%	16	2.286	0.112	0.063
Red meat	6	12.24%	14	2.333	0.093	0.052
Packaged food	5	10.20%	11	2.200	0.078	0.046
Fatty food	5	10.20%	10	2.000	0.092	0.051
Soft drinks	5	10.20%	32	6.400	0.053	0.016
Factory baked goods	5	10.20%	7	1.400	0.095	0.073
Unappetizing food	4	8.16%	12	3.000	0.046	0.027
Meat	4	8.16%	13	3.250	0.058	0.025
Fish	4	8.16%	11	2.750	0.055	0.030
Supermarket bread	3	6.12%	7	2.333	0.039	0.026
Products not liked	3	6.12%	5	1.667	0.041	0.037
Frozen fish	2	4.08%	9	4.500	0.010	0.009
Salty food	2	4.08%	7	3.500	0.031	0.012
Alcohol	2	4.08%	11	5.500	0.021	0.007
Palm oil	2	4.08%	18	9.000	0.013	0.005
Spicy food	2	4.08%	11	5.500	0.022	0.007
White bread	2	4.08%	2	1.000	0.041	0.041
Dairy products	2	4.08%	7	3.500	0.029	0.012
Milk	2	4.08%	9	4.500	0.017	0.009
Beer	2	4.08%	15	7.500	0.007	0.005
Snacks	2	4.08%	18	9.000	0.015	0.005
Very sweet fruit	2	4.08%	8	4.000	0.023	0.010
Legumes	2	4.08%	3	1.500	0.034	0.027

Note: Result of the total free lists (n = 49). The names of items mentioned at least twice are included. Saturation with 22 individuals out of 49 (R2 = 0.9979).

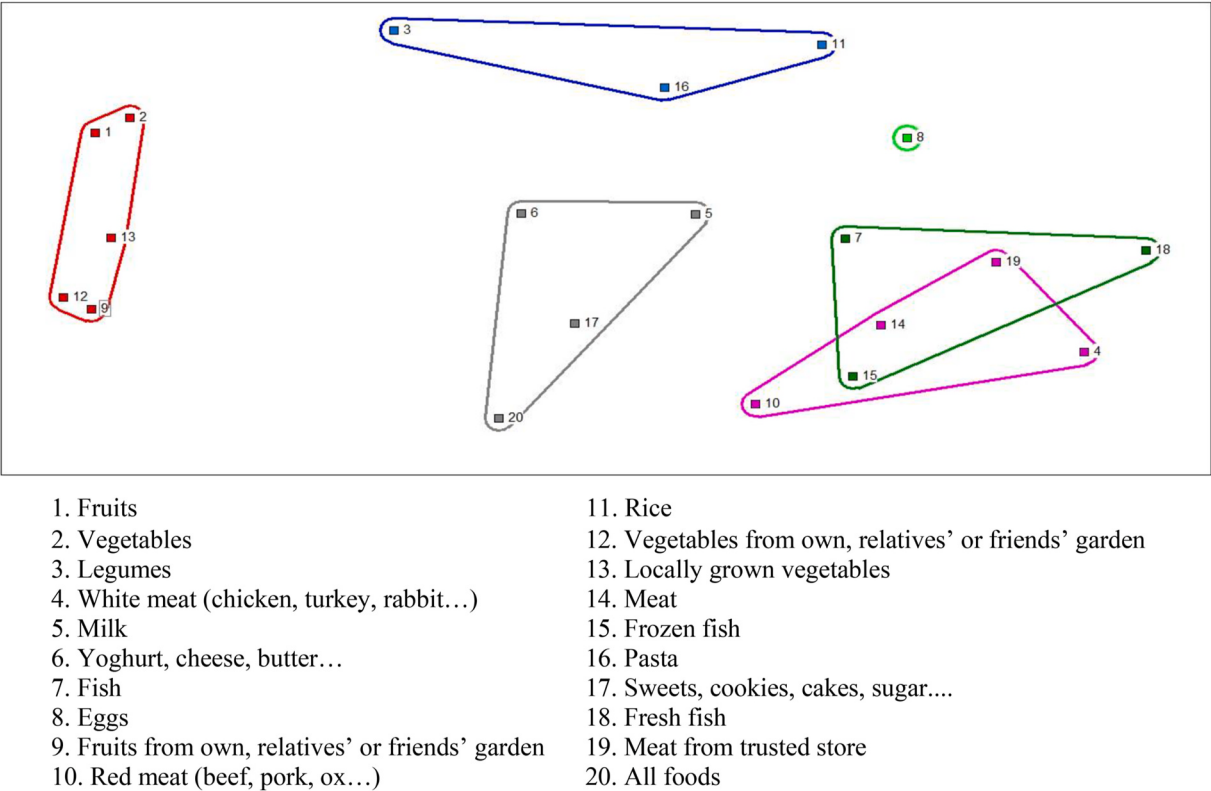


Fig. 3. Nonmetric multidimensional scaling (nMDS) of trust in food. Representation of the total number of pile sorts (n = 24), showing the proximity/distance of the categories in the elderly perceptual universe. Numbers correspond to the categories listed in Table 4. The nMDS model allows for several interpretations, and therefore the proposed item areas are tentative.

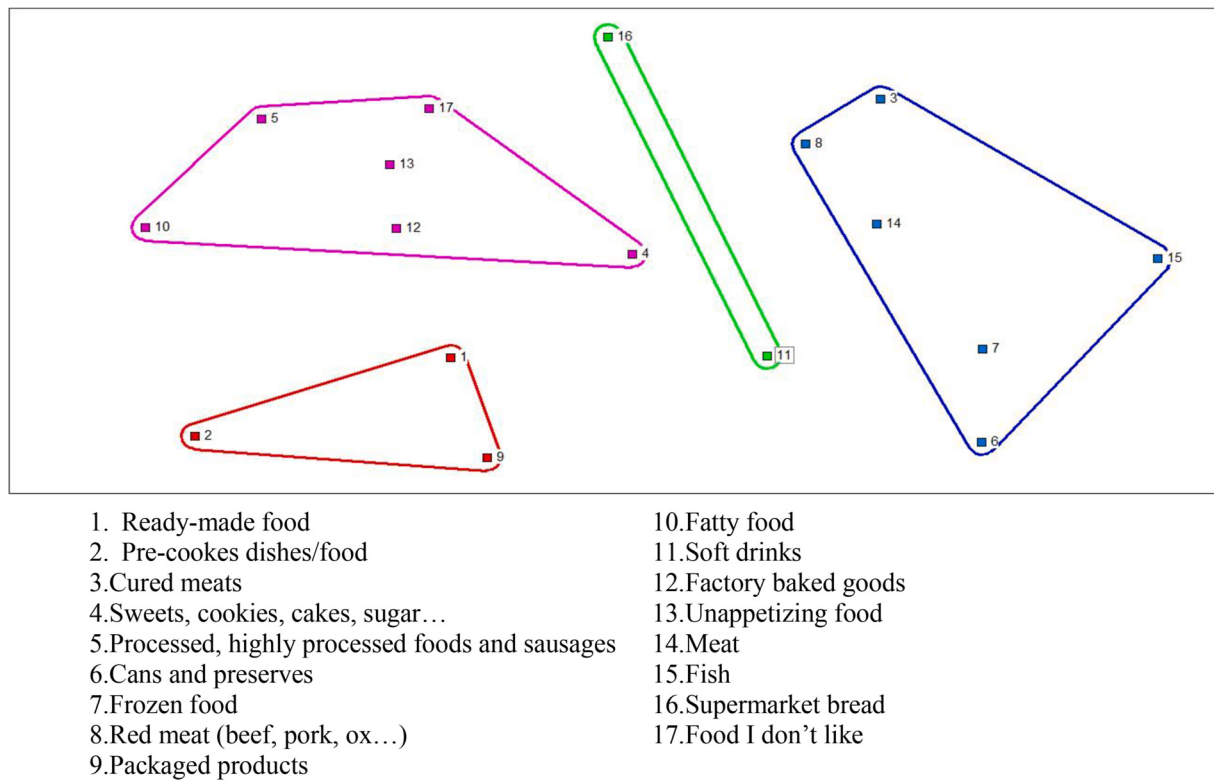


Fig. 4. Nonmetric multidimensional scaling (nMDS) of distrust in food. Representation of the total number of pile sorts ($n = 24$), showing the proximity/distance of the categories in the elderly perceptual universe. The nMDS model allows for several interpretations, and therefore the proposed item areas are tentative.

‘... I shop around for fruit, because there are places, fruit places, which are better than others. There is one store nearby, then, there is another, two, three, four ... so I keep browsing to see what they have. Especially now, in summer, you have to be careful, as it spoils quickly, so I prefer to shop almost every day, which I don't like at all, especially now with the pandemic, because when I go out ... I used to do it a little differently, but now I buy my fruit almost every day – a melon here, a watermelon there and all that ... Yes, now I go to the shops every day’ (Gertrudis, 81, BCN, CAT).

In addition to the closeness of the store, the kind of assistance provided by employees also builds customer loyalty, as in the following case: ‘I always liked to go where service was good and I found that what I bought was also good. That was ... I have always been this way’ (Melisa, 89, VAL, VAC).

The senses play a key role in the trust that people place in food. The sum of experiences in buying and consuming food make for a good benchmark for trust. When it comes to trust in food, especially among older people, taste and appearance are crucial. As people age, they accumulate a wealth of experiences and memories related to food, often evoking past events such as family meals. Based on perceived and evoked sensoriality, they differentiate fresh and quality foods from those that are considered inferior, usually ready-made and ultra-processed foods. This will be addressed in the following section on distrust. Culinary and sensory skills developed over the years allow them to classify products as authentic and of good quality, versus those that are considered to be of poor quality.

In this narrative, the importance of food sensoriality and its evocative capacity of pleasant memories are clearly expressed. It highlights the evocative capacity of the most consumed foods, such as meats, rice and bread:

‘Me, in the old days ... in the old days everything was ... more real, and everything tasted the way it was supposed to. It is said that flavours keep memories, and I agree. I remember the taste of a piece

of meat! Me, I grew up in a butcher shop, and we made a broth where you would just throw in four things ... And it was so wow ... And now you make a casserole ... and I'm talking about a butcher shop, mind you! And you add this and add that and that, but no matter how much you throw in, it just doesn't seem the real thing. Or you make *paella*, and you think, I can't believe it – all the stuff I have put in and it still doesn't taste good! Anyhow, I find it's like that with many things. A lot of things, tasteless and ... ugh ... I notice that a lot, but hey, people nowadays don't notice anyway. ... Sure, maybe they don't have anything to compare it to, but it's true that flavours keep memories. I remember certain flavours ... And now you just can't find them ... It's just that now many things can't be found. I'm telling you, pastries and what have you, it all tastes the same! This is unbelievable, or chemical or ... I don't know. Oh, and the bread, the bread! Eating a loaf of bread and ... I'm not a great bread lover, but [my husband] is, and the bread is ... ugh ... I hate to say it, but it makes you want to kill some of those bakers, but ... It's just not fair!’ (Antònia, 72, VAL, VAC).

In this sense, trust in food is built on the search for flavours considered culturally acceptable: “traditional food”, “being used to it”, “my mother's cooking”. Most of the older women learned to cook from their mothers. That memory of the flavours is an evocative resource that takes them back to childhood and mealtimes. However, we observed some differences in how they associate these memories with greater temporal and geographic proximity to farming production.

For example, in rural areas with farming activity and personal experience with vegetable gardens, participants speak of food tasting better when they are involved in food production or when they know how it is produced. Their discourse is rooted in the consumption of local foods –with their “homemade”, “free-range”, “garden” taste– as highly valued products. The community is proud of its ability to produce quality food and bartering of products among neighbours is encouraged, generating a strong sense of trust in local food, as stated, for instance, by

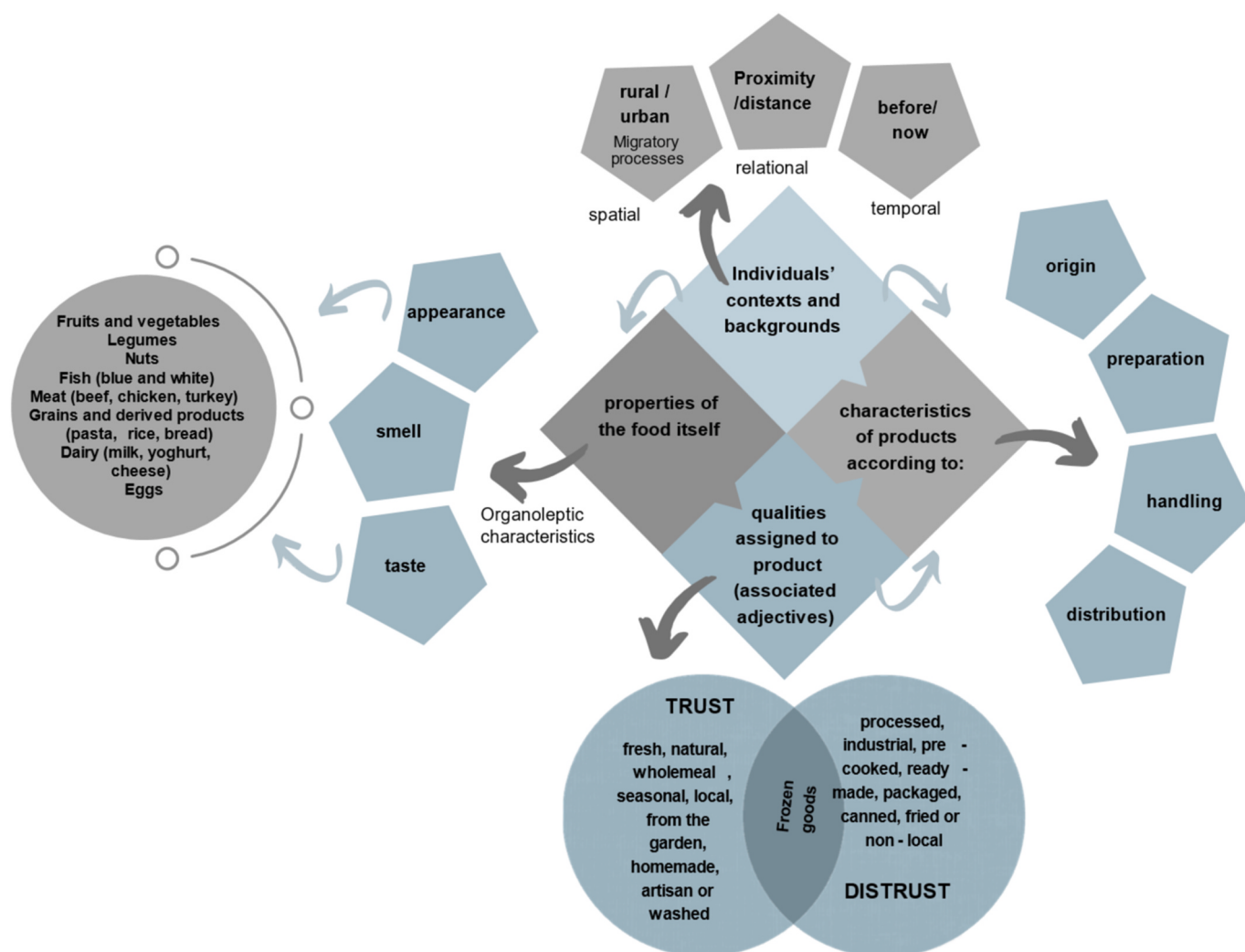


Fig. 5. Semantic network from narratives of elderly people in explanations about trust and distrust in the foods.

this man from the town of Humilladero who used to work as a farm day labourer:

[I] 'Don't you trust olives now? Would you eat olives now, or rather not?'

'Yes, I do trust and eat them, but they are not like they used to be! And it's the same with everything! Tomatoes used to be grown in vegetable gardens, and that was organic, there was no spraying or ... And the tomatoes were tastier than these ... that we find now. (Lorenzo, 89, RMP, AND).

Most people prefer garden food. In the following narrative by Pascual, a member of the organic urban garden network in Barcelona, he recognizes the advantages of organic farming compared to the fruits and vegetables being sold in the supermarket:

'... in the old days you used to buy some, I don't know ... fruit, and it was better than now, I don't know why but I, well, at least I, for my part ... and, well, and most of them ... and my wife also says "jeez, look at this". For example, just to say something, the tomatoes that are coming now ... you eat a tomato from the garden and it's really good. You eat a tomato from a store and sometimes it doesn't even taste like a tomato. And well, then I see the difference. Well, and it's the same with tomatoes as with fruit. For example, you buy beans, you cook beans from the garden, you eat some beans and they are delicious. The ones from the stores need to be riper, they don't have

the same flavour, they don't taste like beans either. ... They taste different, and beans from the garden taste much better.'

[I]: "Why do you think that is so?"

'Well I ... well, because beans ... let's see, it takes time for them to grow ... and in other places they use fertilizers and stuff to make things grow fast. So of course, it's not the same, they use fertilizers and maybe in two or three weeks they already have ... the harvest. Whereas here, you have to wait for two months' (Pascual, 78, BCN, CAT).

In urban areas, there are also older people who recognize that the organoleptic properties of vegetables were better in the past than those of today's supermarket goods. A woman who was born in a small town in Galicia and migrated to Barcelona at a very young age compares the past and present quality of food based on sensoriality:

'As the years went by, these many [chemical] products worsened the ... fruits and all this stuff got much worse. There shouldn't be so many of those products. Things should be more natural. It would be better for everybody ... Now they produce very large quantities, but there is no quality. You eat a potato and it doesn't have any taste. I say, turnips in my hometown tasted better. Yes, there [she refers to her hometown] you would eat a cabbage, a lettuce or whatever ... and it had such a smell, a something, a ... it made you feel alive, but here, when you take it out of the shopping cart ... I go, what does this

smell like ... well, it doesn't have any smell' (Hortensia, 70, BCN, CAT).

Growing up in a rural environment also implies use of certain preservation practices, such as those described below by this woman, a Barcelona resident who was born and lived in a village in Jaén (Andalusia) until the age of 26:

'I used to have a little house in the country ... and I used to make tomato preserves ... without any chemicals, mind you. You know how I made them? Bain-marie. You know, I would just make a pot of tomatoes, I would peel them and then put them in a glass jar, put a lid on them and then seal the jars in a bain-marie. And I stored them. Now you don't know what's in them ... the canned stuff' (Ana, 77, BCN, CAT).

In contrast, in urban environments, the importance of "traditional" taste may be overshadowed by other factors. People may be more influenced by brand recognition and advertising. Access to a wide variety of choices as well as convenience may also be determining factors in food choice in urban environments.

'I have been told by people who know, that it comes from so and so, that the milk from [white supermarket brand] is very good, has a good reputation, and also speak well of another one. Tomatoes are also a brand from I don't know where. When someone tells me about it, I don't care if it's from [white supermarket brand] or not, but if I have no information, I take my usual brand ... For example, frozen foods: between [brand of frozen foods] and this or that brand, I'll take [mentioned brand of frozen foods]' (Anita, 72, VAL, VAC).

Preference for a pesticide-free production also has a bearing on trust in food. This awareness increases along with greater closeness to a farm or vegetable garden. Consumers increasingly value the safety and quality of organic products. The certainty that the food we consume does not contain harmful chemicals provides peace of mind and trust, having a positive impact on the perception of health care. In the following excerpt, a woman describes how they used to fertilize the fields in her village in the province of Jaén.

'Nothing [referring to no chemical fertilizers being used], they just watered the plants ... and that was it. They used to lay manure from farm animals –horses, donkeys, those that were kept in the ... outskirts of town, piles of manure, and in those times they planted ... And that's what made a tasty tomato. Now, for all their talk about tomatoes on the vine, it's not true, they carry a lot of stuff in them ... In the old days, yum! Yes, yes, yes, yes ... tomatoes and everything else was planted, then manure was laid, this was ... that was the vitamin, my dear, but now ... they're as bland as they come' (Ana, 77, BCN, CAT).

In recent times, concern about the use of chemicals in agriculture has grown in Spain, impacting food trust (Callejo, 2009). This perception reinforces the importance of natural products and their benefits towards trust in food.

However, we also found some opposing views. For example, that of an 85-year-old man living in the town of Humilladero who looks after his wife and son. He considers the most important factors to be quantity, variety and access to food. For this reason, he believes that food in general is better now than it used to be:

'Yes, between when I was young and now ... it has changed 100%. In the old days we used to make everything at home, in those times everything we ate was made at home, we only bought the odd fruits and ... But not today, today you go to the shops every day. Today we eat much better than before.'

[I] 'Do we eat better and more varied? More varied?'

'Oh, totally, totally! Anything you like!'

[I] 'Do you think that the food offered in supermarkets is healthy? Is all food trustworthy?'

'Yes, yes, absolutely.'

[I] 'Do you think that everything they put within our reach ... ?'

'What they offer today is all good and fresh food. It's not like in the old days, when they kept food for two or three days and kept reheating it ... Not today! What you eat now is always from the same day' (Juan Luis, 85, RMP, AND).

3.2. Distrust in foods

The outcomes of free-listing and pile-sort groupings were triangulated with the narratives of the elderly taken from the conducted interviews and workshops. This triangulation shows that ready-made, pre-cooked and ultra-processed products are what the elderly most distrust (Table 6, Figs. 4, Figure 5). Organoleptic properties also continue to play a central role in distrust, and actually provide for a product-surveillance strategy. The elderly most distrust food when they don't know how any given product has been produced, handled, preserved and distributed before reaching the market.

However, distrust often comes with dichotomous meanings with respect to trust. For example, some participants stated that a clean and tidy establishment inspires trust when buying, while a messy and dirty one generates distrust. Similarly, a food product that looks and tastes good engenders trust, in contrast to one that looks and tastes unpleasant, which brings about distrust. We see that some of the categories coincide with those of trust, but in the opposite sense. For example, fruits and vegetables picked from the tree before ripening and then placed in refrigerators, as well as meats from old or feed-fed and hormone-treated animals, are a source of distrust. So while these staple foods are trusted, they can also be distrusted depending on how they have been produced and marketed.

3.2.1. Processed, ultra-processed and pre-cooked food

The industrial foods that all study participants rated the worst were ready-made and/or ultra-processed products. This distrust is brought about by the use of chemicals, including preservatives and other additives. These chemicals prolong the shelf life of products, although they are considered harmful to our organisms, while altering the taste and appearance of products. Their unknown origin also constitutes a source of distrust.

In the following narrative, this man, a resident of a small town in the province of Tarragona, is suspicious of ready-made food sold in a supermarket, such as a potato omelette or a packaged chicken:

'[I] 'Do you now eat, buy, prepared food?'

'What do you mean, prepared? Like from pigs and stuff?'

[I] 'No, I mean when you go to the supermarket and you find a ready-made potato omelette.'

'Oh, right! No, I can't stand them. They don't look good to me. They are good but don't look good to me.'

[I] 'I mentioned an omelette but it could be chicken with whatever, I mean, something that's already cooked.'

'I see, I see, chicken, packaged chicken? No, I don't like it, not my thing. When I open any of this packaged stuff, it smells like something that hasn't had good ventilation' (Albert, 88, RTP, CAT).

In the following narrative, a woman expresses her preference for avoiding certain foods that she considers unhealthy and is wary of buying them:

'No, I cook it all my own way, and I wouldn't eat those pizzas, as I said, I've never tried them yet ... But my daughter does, on Fridays

she buys them and bakes them and adds more stuff to them, you know? ... but I never buy them, I make my own sandwiches' (Ana, 77, BCN, CAT).

Another key factor in the creation of distrust in food is the use of pesticides and other chemical products in the agri-food industry. The same is true for products that are not considered natural or local. The public's lack of knowledge about and disconnection from the agri-food/meat industry and its products (utilizing hormones, fertilizers, animal feed, pesticides, etc.) generate distrust on account of possible health-risk factors that may occur when ingesting such foods. This distrust increases if food taste is altered by the use of such products.

[I]: 'Why do you trust them less now than before?'

'I don't know ... the taste is not the same, and I can see that they make things go faster. For example, a pig, just to say something ... it used to take two or three years ... I don't know how long ... well, it took a long time. And now in just a few days ... they inject a hormone, some stuff that fattens it in a moment, and then it doesn't have the same taste as in the old days: a pig in a village that was taken care of in the street, just to say something, eating whatever was around and so on, and it could move about ... And now they have them locked up in farms under whatever conditions ...' (Pascual, 78, BCN, CAT).

In the following narrative, when this woman is asked about the issue of chemicals in food she talks about clean and fresh food, as well as avoiding packaged products:

'... I never buy ready-made or canned food ... It's just not my thing. Not my thing at all. Even when people say "Oh, this *gazpacho* is very good", but I won't try this *gazpacho*. Anything that comes in a carton, already made with who knows what ... no, thanks' (Diana, 87, BCN, CAT).

Distrust also leads to adopting certain behaviours, such as washing fruits before eating them. As he's suspicious that pesticides could be present, this man always washes fruits before consuming them:

'Actually, when I buy oranges, the first thing I do is add a little vinegar, add it to the water, and ... for four or five, I soak them for a while, dip-dip-dip, and then another rinse. That's what I always do. And with apples I do the same. ... I throw them in water to soak and then, with a cloth ... and I soak them again until all that stuff has been removed ... That ... is good. And with bananas and pears and everything, because you pick them and –whether you like it or not– they carry chemicals and treatment products from the field. And the best way to get rid of the stuff is to give it a cleaning treatment ... Yes, we have been doing that for a long time, both my wife and I have been doing it. I take care of that' (Jeferson, 71, RMP, AND).

The following narrative shows that organoleptic properties warn of danger and, naturally, also deception:

'[Smell is] very important. Wherever I do my shopping, I have to like the looks of the piece I buy, and if I can't afford two hundred grams, then I'll take only one hundred. ... Now, I don't want to be tricked either, no way! Because they may be able to trick me once, but then you go home and that piece they've given me, that is virtually all fat ... so when I go back I tell them about it, and I don't shy away from it just because other people are there ... No, no, because they need to learn –you can't sell that to anyone; they don't like to be told: don't do that to me. And I'm very [honest] ... I don't blush at all! No, no, there are people who say that I act as if I were a millionaire, but no! They say, that's what the very rich say, or whatever. I say, "We should all tell them", as long as you tell the truth and what they've done to you' (Hortensia, 70, BCN, CAT).

The elderly are also wary of the fruit-ripening process being sped up, which leads to an alteration in taste, as this man, a resident of Barcelona,

complains about:

'Think of fruit, they pick it when it's still green, put it in a cooler and ripen it, and that didn't exist before. You used to take the fruit from the tree and you ate it and it had its flavour, but now it has no taste at all ... You buy peaches ... for example, you used to pick it from the orchard, you picked a peach from an orchard and it was delicious, now I buy peaches and they don't have any taste. They have no flavour.'

[I]: 'And do you think it only affects its flavour or does it also affect its quality?'

'I think it also affects the ... the body.'

[I]: 'The body, so it can also affect the person?'

'Of course, because I'm telling you, frozen bread, fruit from ... who knows where? And so many things that come from ... that you don't know even where they come from, well, what can I say' (Braulio, 81, BCN, CAT).

While the way food is produced may generate suspicion, the fact that it is sold in stores can also generate trust.

There are people who are more concerned about price when purchasing their food. They tend to go for the best price because they are more concerned with ensuring access to food. These people tend to disregard the connection between trust/distrust and possible health risks. For them, the main factor is to get the most affordable items and, therefore, their choice of stores will be based on this factor. In the following excerpt, a man is highly concerned about rising prices:

'I don't have a set place for shopping either, I buy my stuff wherever it looks tidier, I look at it ... and go, yes, here.'

[I]: 'Do you see the quality of food as being the same or different from before?'

'No, we buy quality.'

[I]: 'But is it different now as compared to times past?'

'No, now it's much more expensive than it used to be. ... And you see, in [name of supermarket], three months ago ... or less, I don't know, a dozen eggs cost 1.45, now they cost 1.75. And it's a big store, where a lot of people go, and they raise prices without any consideration for anyone' (Braulio, 81, BCN, CAT).

4. Discussion and conclusions

A growing concern about the consequences of eating certain foods in risk societies such as ours makes building of trust a key issue for all actors involved in the food chain (Callejo, 2009). Although people prefer to consume familiar foods, the trend to diversify their diet and introduce new foods and dishes leads to uncertainty, new questions and distrust. Older people, as we have seen in this study, tend to trust what is familiar, and avoid processed and pre-cooked food, because they do not know how it is produced or who has been involved in the process.

Older people participating in this study rely on familiar food routines and environments when buying products and choosing stores and brands. They develop a sense of loyalty and connection to familiar places and people involved in the food system, extending this emotional trust to product quality. This trust increases with cleanliness and orderliness in establishments, conveying a sense of quality and care in selecting and presenting food. Trust is reinforced when the production process is considered natural, avoiding the use of chemicals and intensive industrial methods. Natural products and self-produced food, such as fruits and vegetables grown in familiar gardens, along with homemade meals, generate trust and reinforce their perception of quality based on sensory aspects.

Despite having more secured and varied access to food today, older

people in our study still rely on the familiar. Even when, in some cases, they can recall a childhood marked by greater food insecurity in the post-war period (Spanish Civil War, 1936–39) and ensuing poverty, certain foods bring back memories of flavour-filled family meals and culinary skills they learned from their mothers. In Spain, the dictatorship period between 1950 and 1975 saw an increase in both domestic and foreign migration, mostly from rural areas to large cities. Within the Spanish state, people from depressed regions migrated to more economically developed areas such as Catalonia, Madrid and the Basque Country (Alcaide Guindo, Alcaide Guindo & Fernández, 2007). Hence many of the recalled memories are related to a childhood in a homeland that they had to leave, adding an extra layer of nostalgia to these memories.

We also observed distrust in certain aspects of food. Some respondents expressed concern about the use of pesticides and additives in food, as well as the speed of production and the loss of authentic flavours due to industrial practices. Distrust may stem from perceptions about food handling, lack of transparency in production processes and marketing of ultra-processed products. However, other respondents do not show explicit distrust and buy products without a perceptible preference for geographical closeness or trust in any particular brand. For them, price and quality are the most important factors when buying food, regardless of its origin or reputation.

When comparing the results of this study with a previous study conducted by the same research team, in which both techniques –free listings (Muñoz et al., 2019) and pile sorts (Muñoz et al., 2023) – were used, we found some similarities and differences in the criteria of trust/distrust in food. While in both studies both techniques were used separately, both in Andalusia and in Catalonia, and while both study groups were different –pregnant women and infants in the first study–, these similarities and differences respond to different life experiences. Similarly, both pregnant/breast-feeding women and the elderly trust local vegetables and fruits, as well as familiar food stores where they purchase products based on brand, quality and price. Both groups also distrust the use of chemicals in food production and handling. In general, studies have found older adults' food safety knowledge and practices to be better than those of younger people. Older adults are less likely to eat risky foods such as rare or raw beef, fish, shellfish and eggs; they are more likely to wash their hands while preparing food; and more likely to wash cutting boards with soap after cutting raw meat or chicken. A meta-analysis of studies on consumer's food safety knowledge and behaviour found better food-safety practices and greater food-safety knowledge among adults over 55 years of age as compared to 30–54 years of age (Anderson et al., 2011).

However, the main difference between the two groups is that young women place more trust in organic food, while older people do not list it among their preferences. The latter put more emphasis on the treatment received from salespersons and on a trusting relationship with them, as well as on the hygienic conditions of the establishment. Since older women have better cooking skills, as this activity is highly feminized (García Arnaiz, 2009), and even more so in this age group, they place more trust in food they have cooked themselves –hence the distrust in pre-cooked, processed and ultra-processed food, as they do not know who has been involved in the process and how the food was made. Feeling reaffirmed in their routines, they consider sensory aspects to be the key basis for choosing and trusting or not trusting food, which are less relevant in pregnant and breast-feeding women. Similarly, family meals become a symbolic referent for the “homemade meal”, which brings up feelings of nostalgia and loneliness in many of the elderly people living alone. The fact that they are wary of red meat, cold meats and sugars, and rather choose to rely on white meat, points to the influence of experts in reducing the consumption of certain products that are not suitable for their age and health (ASPC, 2019).

As a limitation in our study, we noted that due to the rural-urban migratory experience of this age group, it would be necessary to apply both techniques in order to differentiate between those groups that had

a migratory experience and those who did not, since the former are more concerned with the origin and mode of agricultural production. In addition, the fact that trust/distrust is based on routines, cooking skills and family meals, it would be possible to look further into the mechanisms of trust/distrust in food among people who live with relatives and regularly enjoy family meals, as opposed to those who live alone and do not keep close family ties or enjoy regular family meals. Looking deeper into these studies on risk perception based on criteria of trust/distrust contribute to a better understanding of the social and cultural mechanisms that explain food preferences and rejections in a world that is experiencing an increasingly accelerated process of social alienation and disconnection from social ties within the food system.

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Institutional review board statement

This study was conducted according to the guidelines of the Declaration of Helsinki and was approved by the following ethics committees: Ethic Committee of University of Barcelona and Ethic Committee of University Rovira i Virgili.

Informed consent statement

Informed consent was obtained from all subjects involved in the study.

Ethical statement

The research project I + D + I 2019: Eating Matters: Precarization and (In) secure Food Itineraries in Later Life (IP: M.G-A), Coordination: Universitat Rovira i Virgili. Code 10.13039/5011000011033, Ministry of Science and Innovation, Spain; Research Project R + D + I 2019: Eating Matters: Environmental Risks and Dietary Uncertainties in Later Life. (IP: C.L-K). Coordination: University of Barcelona, Code 10.13039/5011000011033, Ministry of Science and Innovation, Spain, had conducted ethically.

CRedit authorship contribution statement

Cristina Larrea-Killinger: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Resources, Project administration, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Araceli Muñoz:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Ruth Echeverría:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Methodology, Formal analysis, Data curation. **Oriol Larrea:** Writing – review & editing, Writing – original draft, Visualization, Software, Methodology, Investigation, Formal analysis, Data curation. **Mabel Gracia-Arnaiz:** Writing – review & editing, Writing – original draft, Visualization, Resources, Project administration, Investigation, Funding acquisition, Formal analysis, Conceptualization.

Declaration of competing interest

All authors certify that they have no affiliations with or involvement

in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

Data availability

The data that has been used is confidential.

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