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Trust and distrust in relation to food risks in Spain: An approach to the socio-cultural representations of pregnant and breastfeeding women through the technique of free listing

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Trust and distrust in relation to food risks in Spain: An approach to the socio-cultural representations of pregnant and breastfeeding women through the technique of free listing

Abstract

In this paper, we explore the socio-cultural representations of trust and distrust in relation to food risks among pregnant and breastfeeding women. We have conducted a study based on an analysis of cultural domains in order to understand how mothers incorporate different social meanings and explore the most important categories they use when talking about trust/distrust in relation to food. We use the technique of free listings to analyse the main shared items or elements regarding trust and distrust in food among these mothers. Through an analysis of cultural domains that refers to concepts and themes related to trust and distrust of foods that are important to these women, and through the study of shared knowledge about these domains, we examine their socio-cultural representations related to health and diet of the 65 free listings on trust and the 64 on distrust collected from mothers. The pregnant and breastfeeding women who participated in the free listings cite foods they trust or distrust based on the specific properties they perceive them to have or other characteristics related to their origin, their handling, processing and distribution. Additionally, trust/distrust often depends on the qualities they attribute to the product. This paper shows aspects of the socio-cultural representations of food risks in periods in the life cycle of women -pregnancy and breastfeeding- characterized by a risk discourse where the precautionary principle is frequently used to manage uncertainty. These results might help the development of public health campaigns as well as adapting the messages of the health authorities to the general population.

Keywords

Food risk; pregnancy; breastfeeding; free listings; trust; distrust

Introduction

Food is a central health concern for women during pregnancy and breastfeeding (House & Coveney, 2013; Larrea-Killinger et al., 2018, 2019; Marangoni, et al., 2016). A significant proportion of women gain more than the recommended weight during pregnancy with increased risk of maternal and foetal/neonatal complications, so diet and physical activity-based interventions in pregnancy have the potential to alter maternal and child outcomes (Keely et al., 2017; Rogozińska et al., 2017). Dietary habits are particularly important during critical periods of human development, such as pregnancy, considering previous evidence of adverse birth outcomes in relation to unbalanced diets (e.g. low birth weight, preeclampsia or altered neurodevelopment (Martin et al., 2015; Brown et al., 2010). In this regard, diet is considered the most threatening source of exposure to several artificial chemical substances in the general population (including pregnant and breastfeeding women), which are suspected to produce harmful effects to the offspring at doses traditionally considered safe, although the results are frequently controversial (Mangalgiri et al. 2015; Mitro et al., 2015). In pregnant and breastfeeding

women, the exposure to these chemicals through food consumption shows various harmful effects on the health of the mother, the foetus and the baby (Fängström, et al., 2005; Muncke, 2011; Veyhe et al., 2015).

The increasing exposure to chemical substances used in agricultural and industrial production are changing social perceptions of risk and food (Biltekoff, 2010; Gaspar et al., 2018; Zafra et al., 2016). Transformations in the alimentary system oriented towards the growth of production that requires, among other factors, a chemical manipulation have increased the uncertainties and risks on human health (Gaspar et al., 2018; Fishler, 1990; Contreras, 2011). This has led to a detachment of individuals from the food chain and a concern for the handling and processing of food (Fischler, 1998). Because of the uncertainties regarding the potential health consequences of the alienation of the alimentary chain, the risks of the technification of food production and the development of the control methods aimed to reduce the risks -like effects of consumption of processed food products on children (Rauber et al., 2015)-, knowing the criterion of trust/distrust that guide individuals in the process of selection and consumption of food becomes a central matter (Poulain, 2002). Distrust in the productive chain, in the social agents involved, and in the regulatory processes and agencies, affects the perception that people have on food (Yeung and Morris, 2001).

However, industrialization of food processing and the distance between food production and consumers are not the only issues to take into account when talking about risk perception. It is also important to note that social perceptions about food risk are multifaceted (Zafra et al., 2016) and processes of attributing meaning to the risk and how individuals construct their perceptions are complex (Flynn, 2006; Jensen & Blok, 2008; Pumarega et al., 2017). Risk perception is shaped by intricate sociocultural constructions (Larrea-Killinger et al., 2017b; Lupton, 1999; Oaks & Harthon 2003) and its acceptance is based on social values, beliefs, and interactions (Douglas and Wildavsky, 1982). We can find an example in Spain, where, in the past decade, awareness of environmental contaminants and new toxicities has increased, and some research points out how, related to the food perception of the people, the separation between ‘organic’ and ‘chemical’ is associated to a relationship between ‘natural’ and ‘healthy’, and ‘processed’ and ‘dangerous’, respectively (Larrea-Killinger et al., 2017). Trust/distrust are attitudes related to risk that configure a way of perceiving uncertainty (Luhmann, 1993) and are connected to how people cope with risk (Berg, 2004). The way in which people manage unknowns related to food risk shape their trust/distrust (De Krom & Mol, 2010). For instance, the trust in institutional discourses and in regulations that many consumers showed contrasted with their distrust about agricultural production when crops are imported, because when the distances are greater, the degree of control being practiced becomes less evident (Larrea-Killinger et al., 2017). Thus, principles such as otherness, the known/unknown and physical and social distance participate in the social construction of confidence on food (Zafra et al., 2016).

. In a context also marked by the medicalisation process of contemporary alimentation (Gracia-Arnaiz, 2007), biomedical scientific discourse is one of the most significant creators of symbols of risk (O’Brien 2012), and the alimentation of pregnant and

breastfeeding women is a bigger source of worry (House & Coveney, 2013), both for the women themselves as for the health professionals that treat them. Firstly, it is important to highlight that the care attention towards pregnancy and puerperium is also strongly medicalised (Rothman, 2014) in Spain (Imaz, 2011). In this context, pregnant and breastfeeding women are also worried about ensuring adequate alimentation that can guarantee the growth and health of the foetus and baby (Larrea-Killinger et al., 2018). Culturally the abovementioned concern is highly influenced by the inner beliefs of each person -which might have or not scientific basis- (Cheyney and Moreno-Black, 2010), e.g., that pregnant women should eat for two(Killinger et al., 2019). Secondly, the systems of health attention develop sanitary regulations on alimentation for pregnant and breastfeeding women to promote healthy habits and, more importantly, to prevent the presence of sicknesses that are characteristic to the gestation period. For example, on an international level, the World Health Organization published in 2001 a manual of recommendation on healthy diets oriented towards pregnant and breastfeeding women. Since during pregnancy food and the decisions about it have become a main concern for women, it is central to explore the role of trust/distrust when choosing food (House & Coveney, 2013). Pregnant women usually develop certain strategies to cope with the uncertainty that may or may not be in agreement with real scientific evidence (Milfont et al., 2011), such an exacerbated distrust or even being "psychologically distant" – a cognitive distance between the self and other individuals, experiences or times (Baltatescu, 2014)-. Therefore, the identification of these attitudes is crucial for public health interventions.

In our study, we analyse the trust criterion used on food from a holistic and relational perspective. As Kjaernes et al. (2007) point out, (dis)trust is social and relational and it is important to keep in mind not only individual risk perception but also relationships between social actors, e.g., a person´s attitude might be influenced by his/her parents discourses, but also by friends and medical doctors, among others. Instead of concentrating on studying the trust/distrust that individuals have in institutions that are part of the alimentation system separately, we have opted to focus on analysing these criteria applied on the process of selection and consumption of food in its totality (Fonseca et al., 2011). We observe this criterion taking into account their social dimension through an analysis of the characteristics attributed to food, such as security, quality, properties or nutritional benefits of the alimentation system.

In this paper, we analyse the socio-cultural representations of trust and distrust in relation to food risks among pregnant and breastfeeding women. In order to understand how mothers incorporate different social meanings and explore the most important categories they use when talking about trust/distrust in relation to food, we have conducted a study based on an analysis of cultural domains (Spradley, 1979) applied to a group of pregnant and breastfeeding women. We used the technique of free listings to analyse the main shared items or elements regarding trust and distrust in food among these mothers. This technique allows us to compile a list of items to establish a cultural domain, and it helps to specify those domains and concepts that are relevant in a culture (Weller and Romney, 1988).

The use of cultural domains (Spradley, 1979) is a method for analysing social meanings and shared knowledge, which, from the perspective of cognitive anthropology, examines how members of a society think about a set of items (observable or conceptual) in their culture that have a joint presence or are represented as of the same type (Ryan & Bernard, 2000). The set of terms or items that make up a cultural domain determines a system or network related by families of connections or semantic relationships (Borgatti, 1999). The domains thus have a structure, and the meanings and representations of the items derive in part from their position in this structure or system, reflecting a concrete socio-cultural form in which a conceptual sphere is organized (Weller & Romney, 1988).

In the field of reproductive health, pregnancy and maternal and child health, cultural domains have been used to explore issues such as intracultural differences in the messages received by mothers regarding feeding their children (Fox et al., 2017); the semantic structures used by pregnant adolescents (Herrera-Suárez et al., 2008); explanatory models of women's reproductive health (Ross et al., 2002); doctor-patient communication in prenatal care (Bennett et al., 2006); knowledge, attitudes and practices related to malaria during pregnancy (Andrew et al., 2015) and, the perceptions and feeding practices of the caregivers of children under 6 months of age (Matsumaya et al., 2013).

Regarding foods and diet, this technique can also be very useful (Hough & Ferraris, 2010) to: explore socio-cultural associations around eating alone (Takeda & Melby, 2017); study adolescents' perceptions about food in relation to healthfulness, modernity, and availability (Shaikh et al., 2017); examine food security and the factors and processes that affect access to foods (McCubbin et al., 2017); study visual and lexical knowledge about vegetables among children (Morizet et al., 2011); assess to what extent dietary realities reflect inadequate education related to nutrition (Melby & Takeda, 2014) and, explore how consumers understand well-being in the context of food consumption (Ares et al., 2014).

Material and methods

The results presented in this article are part of an interdisciplinary research project[1], which analysed discourses and practices on the dietary intake of pregnant and breastfeeding women in relation to the presence of chemical substances in foods (Table 1). A total of 111 semi-structured interviews were conducted with women (62 pregnant women and 49 breastfeeding women), 4 focused ethnographies, 2 focus groups, 71 food diaries and 71 free listings, as well as 12 interviews with health professionals; all were carried out during 2016 in different locations in the autonomous regions of Catalonia and Andalusia in Spain.

[1] This research project is entitled "Confianza y responsabilidad en el consumo alimentario de las mujeres embarazadas y lactantes en España: narrativas y etnografías sobre los riesgos de la contaminación interna" [Trust and responsibility in the food consumption of pregnant and breastfeeding women in Spain: narratives and ethnographies on the risks of internal pollution].

The process of sample selection was intentional or purposive, based on the specific parameters of the study, and aimed at finding the maximum variation, heterogeneity and significance, as well as obtaining a balanced sample with a similar representation by age groups, education levels, occupational sector and socioeconomic strata. Approval from the corresponding ethics committees was obtained, all the participants were informed of the objectives and methods of the research, and written informed consent was obtained from each participant.

This article reports the results of our analysis of the data obtained from the free listings carried out in this study. In these lists, the mothers were urged to think about what types of food they saw as trustworthy and untrustworthy and to make lists of both those types of foods. Thus, we first asked them to "write a list of all foods you trust" and next "write a list of all foods you distrust", inside a food diary that we gave to the mothers when they finished the interview and that after a few days we would pick up at their homes.

Table 1. Sociodemographic characteristics of the participating pregnant and breastfeeding women

	Pregnant women	Breastfeeding women
Age		
20-29 years old	3	2
30-39 years old	33	23
40 years old and over	4	6
Number of children		
1 child	18	15
2 children	18	12
3 or more children	4	4
Education level		
Primary education	3	0
Secondary education	11	8
Higher education	26	23
Place of residence		
Autonomous community of Catalonia	29	22
Autonomous community of Andalusia	11	9

After making these lists, the women were asked to explain in writing why each of the foods they mentioned in their lists generated trust or distrust. Thus, we first asked them to "for each of the foods, tell us why it generates trust" and next "for each of the foods, tell us why it generates distrust". In this way, in the analysis of the results, the data obtained from the free listings were complemented with information obtained from their written responses. This provided contextual information and writing narratives to analyse the meanings of the items from their lists and to understand the experiences of these women based on those terms. This qualitative data from explanations was analysed to identify themes, patterns, and topics, and to create codes and categories following the strategies of Grounded Theory (Glaser and Strauss 1967; Strauss and Corbin 1990). The information was exhaustively systematized with ATLAS-TI[2] -qualitative analysis

[2] ATLAS-TI version 7 (Visual Qualitative Data Analysis. 2012. Berlin: Scientific Software Development GmbH).

software-. Thus the items and text segments of these written responses were identified and coded, before grouping them in the thematic aspects that were the focus of the research, in order to identify, interpret and explain the data's core meaning from mothers' responses. Then, we built semantic networks to graphically represent the existing relationships between the different codes or categories.

The women also used the space of these writing narratives to point out other aspects related to their perception of (dis)trust in food, as how this perception had changed over time due to the fact of being pregnant or being a breastfeeding women, or, in the case of some women who left the free listings unanswered, the clarification of why they had not been completed. In this way, these written explanations served to complete some data that could be absent in the free listings and to help us to understand the analysed thematic.

Of the 71 free lists collected (from 40 pregnant and 31 breastfeeding women), 6 on trust and 7 on distrust were not used for the analysis because they did not show any items in their lists and the women who had completed them noted that they did not know what to answer or that they had never thought about it. Hence, in the end, 65 lists on trust and 64 on distrust were analysed (Table 2).

Table 2: Free listings on trust and distrust

Free listings	**Trust**	**Distrust**
Number of Lists	65	64
Average length of lists (number of items cited)	7	5
Number of different items cited among all free listings	72	74
Total number of times the items are cited	470	346

Through these lists, we obtained data consisting of words and short phrases written by the mothers in each of these domains, after which we standardized their responses trying to group redundant words or phrases that could be understood as synonyms, in order to avoid repetitions. According to Weller and Romney (1988), it is important to keep in mind that if you work with lists formed with phrases or statements, in addition to single words, you can often find that free listings include different phrases for the same concept. In this way, we tried to group all the redundant items but without modifying concepts or forcing categories that were not directly named by the participants themselves. As Weller and Romney (1988) point out, the aim is to elicit and organize verbatim participants' responses, not to infer concepts and categories.

The information resulting from these lists was organized and analysed with the software ANTHROPAC[3] -software for the quantitative analysis of qualitative data, specific to the

[3] Visual ANTHROPAC version 1.0.1.36 (Software for Cultural Domain Analysis. Borgatti, SP. 2003. Natick, MA: Analytic Technologies).

analysis of cultural domains (Borgatti, 1996)- and with FLAME[4] -macro for the analysis of free listings in Excel that is based and reproduces some of the functions of ANTHROPAC (Borgatti, 2014)-. Through of these, we carried out an analysis of frequencies, frequency percentages and salience indexes.

The free listings are presented in frequency tables, showing the number of times that each item (element or statement in the list) was mentioned by the mothers, ordered by frequency of response and representing an estimate of the importance of the items for the informants (Weller & Romney, 1988). The frequency of elicitation of each item was computed as the number of times it was mentioned by the mothers. The "average rank", which represents the average position of an item or term in the lists of all the informants who mentioned it (De Munck, 2009), was calculated analysing the place of the item in the lists and the number of times it appeared in participants' lists averaged for all the mothers. Only the items cited at least three times in the free listings were contemplated for further analysis and interpretation. Borgatti (1999) points out that, since cultural domains are shared, only those items that are mentioned by more than one participant should be considered.

The combination of the measures of frequency and order of mention gives rise to a "cultural or cognitive salience". This salience indicates how important and useful an item or term is, and where the most important items for informant are those that tend to be mentioned more easily and quickly (De Munck, 2009). For instance, if she possibly uses the fruit term orange more frequently than she does the fruit term apricot; when she is requested to list fruit terms, she is more likely to cite orange before she names apricot. Thus, cultural or cognitive salience provides information about the knowledge of a domain and the existence (or not) of cultural differences (Thompson & Juan, 2006). The measurement of this salience used with ANTHROPAC ("salience index") is an adaptation of the one proposed by Smith (Borgatti, 1996), and is based on the number of items on the list (frequency) and the position of the items on the list (average rank) (Borgatti, 1996, 1999). Another salience index was calculated with FLAME, based not only on these two parameters (the frequency of a term and its average position in the lists) but a third one, which is the number of subjects in the study, called the Sutrop Index (Borgatti, 2014; Sutrop, 2001).

Results

When we examine socio-cultural representations to know the most important categories that pregnant and breastfeeding women use when talking about risk in relation to food, we observe that trust/distrust often depends on the qualities they attribute to the product. Thus, the pregnant and breastfeeding women who participated in the study talk about food and reliability based on the specific properties they perceive them about food, but also they point out other characteristics related to their origin, their handling, processing and

[4] FLAME version 1.1. (Free-List Analysis Under Microsoft Excel. Pennec, F., Wencelius, J., Garine, E., Raimond, C., Bohbot, H. 2012. Paris: CNRS).

distribution. In this section of results, we will follow the different types of foodstuff cited by mothers as well as the qualities and adjectives attributed to these products.

Trust and distrust in foods

Thus, as the free listings show, mothers trust some foods more than others. For example, fruits and vegetables are the most cited in the trust lists (Table 3 and Figure 1), followed by pulses, fish, meat and grains. By observing the distrust free listings (Table 4 and Figure 2), we can see how industrial baked goods, pre-cooked foods and processed foods top the list. Thus, trust/distrust often depends on the qualities they attribute to the product. Adjectives such as fresh, natural, organic, whole-grain, seasonal, local, from the garden, homemade, craft or washed are often associated with trust. They tend to distrust those qualified as: processed, industrial, pre-cooked, prepared, packaged, canned, fried or foreign. Other attributes, such as frozen, appear in both the trust and distrust lists; as will be seen, this depends on the type of food, where it has been frozen and the reasons for freezing.

Table 3: Frequency, Average Rank and cultural or cognitive salience of the free listings on trust in foods

Original Name	Frequency	Average rank	Smith Index	Sutrop Index
Fruits	53.85%	3.057	0.397	0.176
Vegetables	50.77%	2.545	0.397	0.199
Pulses	38.46%	5.000	0.207	0.077
Fish	33.85%	5.545	0.142	0.061
Meat	23.08%	5.267	0.097	0.044
Grains	23.08%	5.733	0.111	0.040
Milk	23.08%	4.267	0.148	0.054
Nuts/dried fruit	21.54%	5.929	0.098	0.036
Bread	21.54%	4.857	0.124	0.044
Pasta	21.54%	5.500	0.103	0.039
Dairy products	16.92%	5.636	0.081	0.030
Eggs	16.92%	5.727	0.085	0.030
Rice	16.92%	5.455	0.084	0.031
Chicken	15.38%	5.700	0.080	0.027
Yogurt	15.38%	4.400	0.097	0.035
Fresh fish	13.85%	3.333	0.103	0.042
Organic meat	12.31%	5.000	0.045	0.025
Organic products	12.31%	2.625	0.096	0.047
Fresh vegetables	10.77%	2.429	0.091	0.044
Water	9.23%	7.000	0.045	0.013
Oven baked bread/from a bakery	9.23%	5.000	0.048	0.018
Potatoes	9.23%	4.000	0.066	0.023
Vegetables from your own or family garden	9.23%	1.500	0.087	0.062
Whole grains	7.69%	6.800	0.034	0.011
Olive oil	7.69%	6.600	0.036	0.012
Organic vegetables	7.69%	1.400	0.072	0.055
Meat from the market or trusted butcher	7.69%	3.600	0.046	0.021
Fresh meat	7.69%	3.000	0.061	0.026
Locally grown fruits and vegetables	7.69%	3.400	0.048	0.023
Cheese	7.69%	5.000	0.047	0.015
Fresh juices	7.69%	8.200	0.024	0.009
Artisanal bread	7.69%	4.400	0.039	0.017
Organic fruit	6.15%	1.500	0.055	0.041
Fresh fruit	6.15%	2.750	0.051	0.022
Fresh pasta	6.15%	7.500	0.023	0.008
Sausages	6.15%	9.000	0.015	0.007
Homemade food	6.15%	3.750	0.047	0.016
Garden vegetables	6.15%	2.500	0.053	0.025
Non-farmed fish	6.15%	3.000	0.044	0.021
Free-range eggs	6.15%	6.000	0.028	0.010
Beef and veal	6.15%	6.750	0.028	0.009
Canned food	4.62%	6.333	0.013	0.007
White fish	4.62%	7.333	0.020	0.006
Oily fish	4.62%	7.667	0.012	0.006
Fish from market or trusted fish seller	4.62%	6.000	0.016	0.008
Seasonal fruit	4.62%	5.000	0.021	0.009
Dark chocolate	4.62%	9.333	0.014	0.005
Pulses in bulk	4.62%	7.667	0.014	0.006
Canned fish	4.62%	8.000	0.012	0.006
Vegetable drinks	4.62%	5.667	0.024	0.008
Turkey	4.62%	6.667	0.023	0.007
Fruit from own or family garden	4.62%	2.667	0.032	0.017
Oil	4.62%	6.333	0.019	0.007
Frozen products	4.62%	7.333	0.017	0.006
Honey	4.62%	7.000	0.016	0.007
Unsweetened yogurt	4.62%	8.667	0.012	0.005

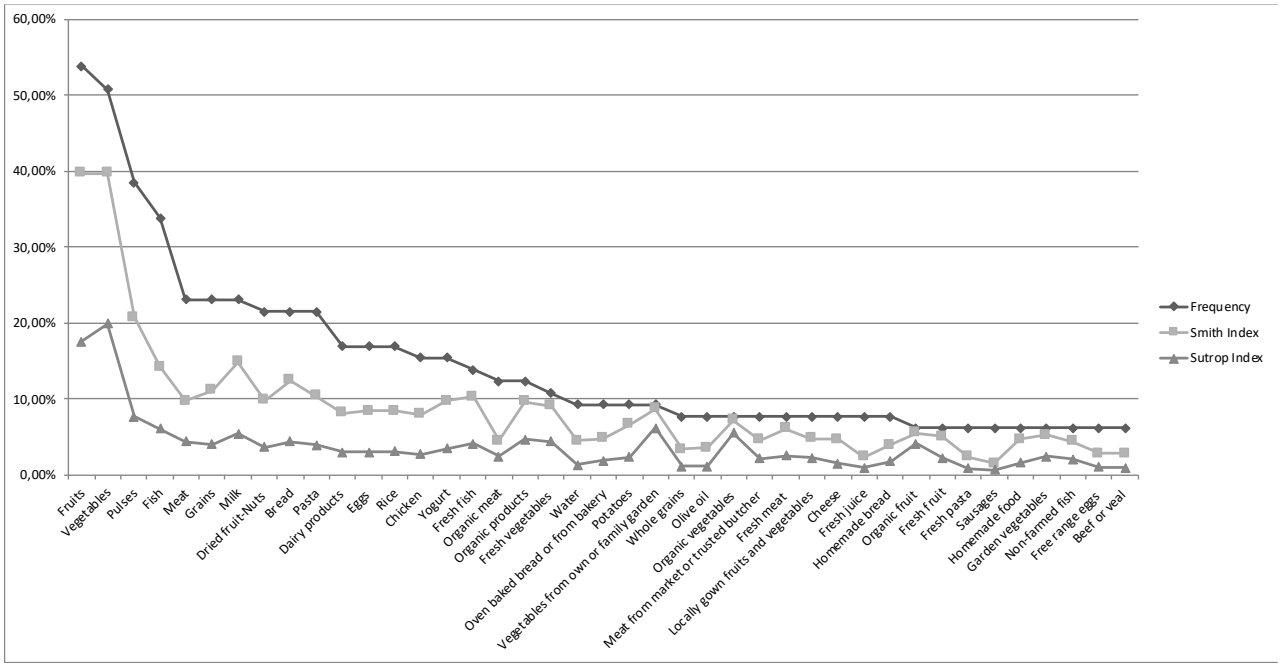
Note: Results from all the free lists (n=65). The names of the items mentioned at least 3 times are included.

Table 4: Frequency, Average Rank and cultural or cognitive salience of the free listings on distrust in foods

Name	Frequency	Average rank	Smith Index	Sutrop Index
Industrial baked goods	46.88%	3.300	0.319	0.142
Pre-cooked foods	31.25%	4.050	0.185	0.077
Processed foods	18.75%	4.250	0.100	0.044
Sausages/Cold cuts	17.19%	4.000	0.107	0.043
Frozen products	15.63%	4.600	0.074	0.034
Potato chips	14.06%	6.556	0.052	0.021
Prepared sauces/dressings	14.06%	4.222	0.087	0.033
Hot dogs	12.50%	4.875	0.070	0.026
Fast food	12.50%	3.250	0.076	0.038
Packaged meat	10.94%	2.429	0.085	0.045
Packaged fruit juice	10.94%	4.143	0.064	0.026
Packaged food	10.94%	4.714	0.059	0.023
Candy/Sweets	10.94%	5.571	0.054	0.020
Processed meat	10.94%	4.714	0.061	0.023
Soft drinks	10.94%	2.714	0.084	0.040
Tuna	9.38%	3.000	0.068	0.031
Meat	9.38%	2.167	0.074	0.043
Fish	9.38%	3.333	0.056	0.028
Canned food	9.38%	3.500	0.040	0.027
Meat from supermarket	9.38%	2.333	0.069	0.040
Prepared food	9.38%	3.333	0.067	0.028
Foods with dyes and preservatives	7.81%	2.400	0.062	0.033
Chocolate	7.81%	5.000	0.041	0.016
Frozen breaded or in batter	7.81%	5.600	0.039	0.014
Large fish	7.81%	3.200	0.056	0.024
Fried food	7.81%	7.400	0.029	0.011
Vegetables	6.25%	2.250	0.043	0.028
Fruit	6.25%	2.750	0.041	0.023
Coca Cola	6.25%	5.000	0.036	0.013
Sugar	6.25%	3.000	0.038	0.021
Canned food	6.25%	3.250	0.046	0.019
Pates	6.25%	6.000	0.033	0.010
Raw fish	6.25%	2.750	0.042	0.023
Sweets	6.25%	4.250	0.030	0.015
Coffee	4.69%	4.000	0.034	0.012
Cheese	4.69%	4.667	0.024	0.010
Fats	4.69%	3.667	0.024	0.013
Fish from supermarket	4.69%	3.667	0.015	0.013
fruits and vegetables from outside the EU	4.69%	4.667	0.025	0.010
Hamburgers	4.69%	4.333	0.031	0.011
Frozen fish	4.69%	3.667	0.031	0.013
Cured sausage and meats	4.69%	4.000	0.029	0.012
Food in Chinese and Middle Eastern restaurants	4.69%	2.333	0.034	0.020
Sunflower oil	4.69%	6.000	0.018	0.008
Packaged industrial bread	4.69%	5.000	0.019	0.009
Dairy products	4.69%	6.333	0.025	0.007
Carbonated drinks	4.69%	4.000	0.032	0.012

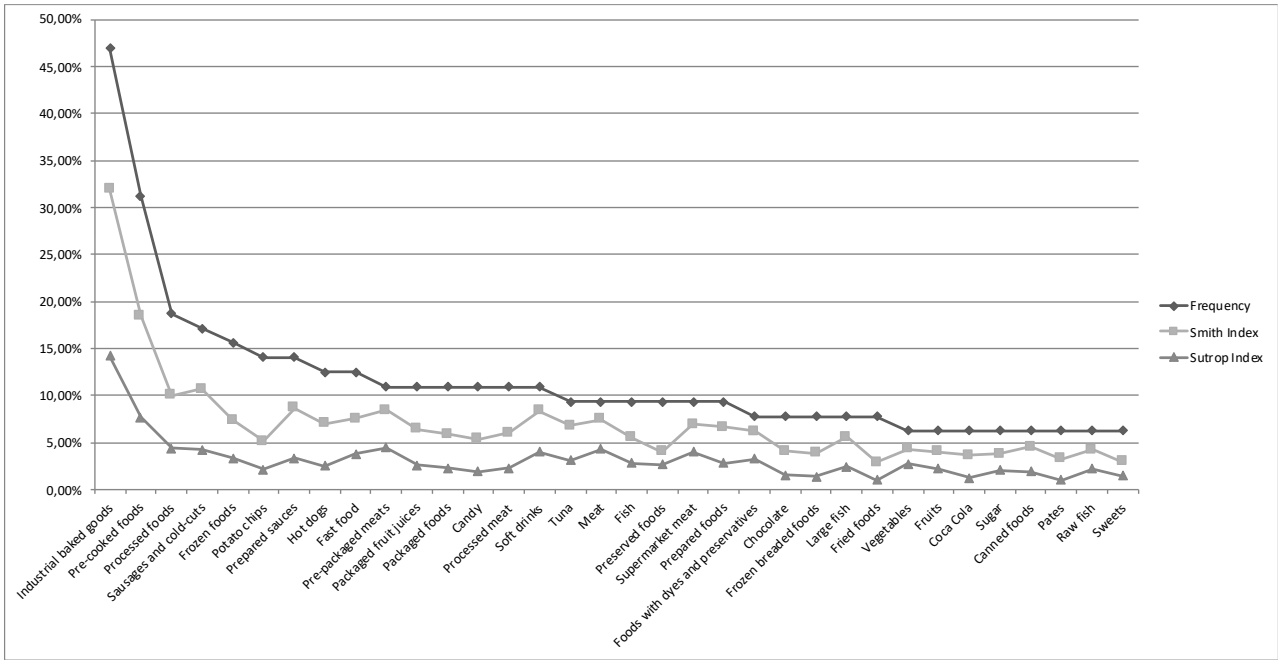
Note: Results from all the free lists (n=65). The names of the items mentioned at least 3 times are included.

Figure 1: Frequency and cultural or cognitive salience of the free listings on trust in foods



Note: Result of the total free lists (n=65). The names of the items mentioned at least 4 times are included.

Figure 2: Frequency and cultural or cognitive salience of the free listings on distrust in foods



Note: Result of the total free lists (n=65). The names of the items mentioned at least 4 times are included.

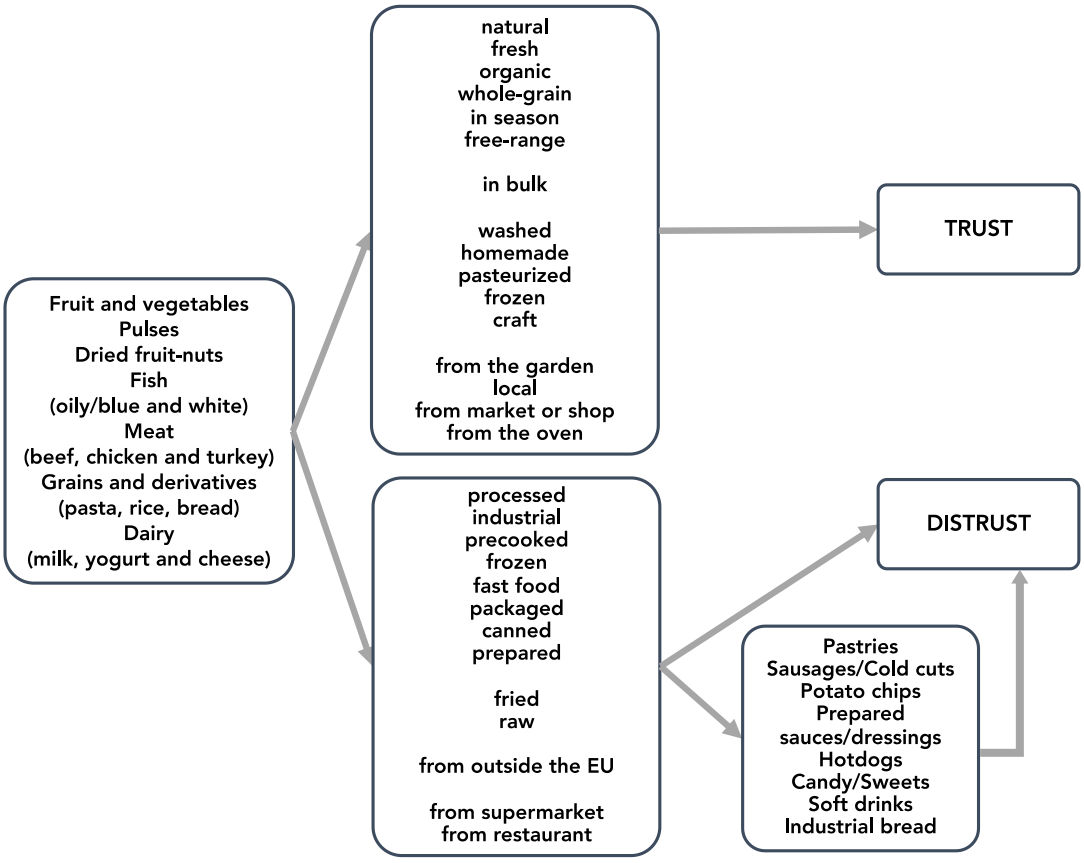
The following narrative of the writing explanations of pregnant and breastfeeding mothers about trust and distrust in the foods cited in the free listings illustrates the number

of elements taken into account by mothers when deciding whether a food is trustworthy or not, as well as the associations and/or differences between certain attributes.

> "I don't look at labels that much, but I don't buy the first thing I see. I try to buy fresh produce, but the truth is, if I start thinking about pesticides, what they feed animals, fish farms [...] I think we couldn't eat anything. I simply classify foods into "fresh" and "packaged/preserved." It's possible that frozen vegetables are more controlled than fresh ones, but since I don't have or haven't looked for information, I choose fresh vegetables because I think they provide more vitamins and nutrients. [...] I trust fresh products more (not 100% or even 90%), but not blindly, and it depends on where I shop, not on the product."[5] *(Pregnant woman, 43 years old).*

As the above quotation also shows, since foods have different characteristics and properties, women are faced with the dilemma of having to choose which elements or factors they can trust and which they cannot trust, and which have more importance when it comes to judging the specific safety and desirability of foods; for example, deciding if the nutritional benefits of fruits outweigh the risk that they may contain pesticides.

Figure 3: Semantic network from the writing explanations of pregnant and breastfeeding mothers in explanations about trust and distrust in the foods cited in the free listings



Source: By authors, 2018

[5] The narratives have been translated from their original Catalan or Spanish.

As a result, the same food can generate more or less trust or distrust depending on its characteristics and how it has been produced, handled, distributed, or where it has been purchased (Zafra et al., 2006). Likewise, the same food can have both positive and negative qualities (Connors et al., 2001), or it can have different meanings in the same context (Blake et al., 2007). This leads to complexity in the responses, as mothers are also immersed in everyday life, where information from doctors, the media, ideological choices about food consumption and traditional discourses all converge. Thus, as shown in the narrative and the semantic network (Figure 3), they try to consider all this information and manage the trust/distrust they have about the foods they are going to consume. In addition, the fact that they do not trust a certain food does not always mean they will not eat it.

1. Fruits, vegetables, pulses and dried fruits-nuts

As the free listings show, the foods that pregnant and breastfeeding women consider to be the most trustworthy are fruits and vegetables (Table 3 and Figure 1). They describe them as “natural,” as they believe that they are less manipulated, especially if they are “fresh”. They emphasize the high content of vitamins and natural sugars in fruits and minerals and trace elements in vegetables (such as folic acid or phosphorus), as well as the fact that both fruits and vegetables are high in fiber.

Many of the pregnant and breastfeeding women stress the importance of vegetables and fruits being washed thoroughly before they are consumed to eliminate the remains of pesticides they may contain, especially if they are eaten raw. Thus, regarding discourses about distrust in relation to fruits and vegetables, they commonly consist of references to chemical substances derived from agricultural production; the women mainly mention pesticides, herbicides, insecticides and fertilizers.

Some of the mothers say that today these chemical products are overused. They are not sure about the amount of chemical compounds fruits and vegetables carry, and they do not trust that washing them is enough to get rid of them. For this reason, they end up trusting "ecological" or "organic" products more, considering them more "natural", less handled, and without added chemical substances. According to these women, these would be: "Local products, which don’t contain pesticides, or any chemical products. They have a seal showing that they have passed organic controls and contain no harmful products" (*Pregnant woman, 35 years old*).

Likewise, the mothers emphasize that they usually trust "seasonal" products more because they believe that they are handled less and because fruits and vegetables that are not in season are almost always imported. In this way, distance, in relation to the origin of the product, is another factor influencing the possible trust/distrust these women may have about foods (Larrea-Killinger et al., 2017a).

In general, mothers have greater trust in the health controls carried out in the process of food production and handling in the EU, than in non-EU countries, such as Morocco or

China, where many agricultural products are imported from. They think that there is stricter legislation in terms of the use of pesticides, fertilizers and phytosanitary products in European countries than outside the EU, where they perceive regulations to be less strict. As one of the participants points out: "The problem is with fruits and vegetables of a suspicious origin (how they're treated), and I don't trust the substances added to them and the way they're distributed" *(Pregnant woman, 39 years old).* Thus, the women indicate that they prefer "local" fruits and vegetables to those that are imported because of the shorter logistical and handling chain and because it is possible to know more about the origin of the product.

Regarding where foods are purchased, the fruits and vegetables bought in neighbourhood markets or in trusted stores, those that are nearby or "lifelong", generate much more trust than those bought in supermarkets or so-called superstores, where the quality is more doubtful. The latter usually contain more pesticides and have been "mass" produced by large scale agro-business, or they often come from overseas, and the cultivation methods are unknown: "In general, I try to buy in local stores or where I know the seller and the source" *(Breastfeeding woman, 40 years old).*

Another class of foods that generates a lot of trust among pregnant and breastfeeding women are pulses. Following various discourses (both medical, traditional and in the media) about the benefits of this type of food for health (Spanish Nutrition Foundation, 2017), the women consider pulses to have many nutritional benefits, providing vegetable proteins, being low in fat and rich in fiber, vitamins and iron.

Many of the mothers commented that in recent years they had increased their consumption of pulses considerably (most frequently mentioning chickpeas, lentils and white beans), after having previously left aside their consumption for some time. This change may be related to informational campaigns in favour of the Mediterranean diet and the promotion of super foods.

Nuts are also among the foods that mothers consider more trustworthy; they emphasize that they are a very "natural" food that provides a lot of energy and are rich in vitamins and healthy fats. As one of the women participants cites: "Nuts are important for their oil and fat content and for their great nutritional value" (*Pregnant woman, 33 years old*). They emphasize that they are a trustworthy product; as in the case of pulses, they are a dry food, which can be very well preserved and therefore, not overly handled and processed after harvesting.

2. Fish

Women express ambivalence about eating fish when it comes to trust/distrust. On the one hand, it is one of the most cited items in the free listings on foods that are trusted (Table 3 and Figure 1), but on the other, it is also often included in the lists of foods they do not trust (Table 4 and Figure 2).

When mothers indicate trust in relation to fish, they refer mainly to it being a food that comes from the sea and that therefore is not a very processed product when eaten fresh: "Fish, because it is supposed to be caught directly from the sea, and it doesn't come from a factory" (*Breastfeeding woman, 32 years old*). They also mention that it is a source of protein, minerals (phosphorus and iron) and omega3s (the latter in the case of oily blue fish).

When talking about specific types of fish they trust, white fish such as monk fish, hake, sole, sea bream or sea bass are mentioned, and in the case of oily fish, anchovies, mackerel and more limitedly, tuna. In contrast, panga (catfish) is a type of fish they distrust. They see it as a fish that is not traditional and that was recently unknown to them; its texture seems "artificial" to them, and its origin generates distrust because it comes from far away: "It's not that I eat all kinds of fish, but I trust the ones I usually consume. For years now I haven't eaten panga, and I've reduced my consumption of tuna" (*Pregnant woman, 39 years old).*

Tuna is a controversial food among the mothers. On the one hand, it is a food that confers trust because of its contribution of omega3s and other trace elements, but it is also a source of suspicion and distrust because it can contain high levels of mercury and other heavy metals as a result of ocean pollution. This distrust in tuna is also linked to its size, since it is a "large" fish. Thus, there appears to be greater trust in "small" fish than "large" fish, as the latter are understood to have consumed more heavy metals, such as mercury. As this pregnant woman comments: "Blue shark, tuna, [...] the super-predators accumulate high amounts of mercury, particularly harmful during pregnancy" *(Pregnant woman, 31 years old).*

Discourses on the dangers of large oily fish (such as tuna and swordfish), due to the possible health effects caused by their heavy metal content, are widespread in the media (Begueria et al., 2014). This discourse is also very common in the medical advice given by professionals, especially in the case of pregnant women, who are warned of the possible risks of consuming this type of fish (Agencia Española de Seguridad Alimentaria y Nutrición, 2010): "Except for fish, now being pregnant, I've been advised not to eat fish with a high level of mercury, as is the case with large fish or those that live on the bottom of the sea" *(Pregnant woman, 32 years old)*.

The origin of fish also affects the trust or distrust women have in it. Thus, the women in our study tend to trust "beach fish" (fish caught just offshore) more and to show less trust toward "migratory" fish. As one of the mothers explains, "I trust small and non-migratory fish from the sea. They don't eat artificial food, and as they are small and non-migratory, they accumulate fewer harmful chemical substances in their fat" (*Breastfeeding woman, 43 years old*). It is "farmed" fish that generate more distrust among mothers due to the type of "artificial" and "chemically treated" food they are given to make them grow.

Regarding how fish is preserved, there are also differences of opinion among mothers about "frozen" fish. Some pregnant women express fear about fish being frozen, due to a possible breakdown in the cold chain before they reach the consumer, as well as the

doubts they have about whether or not they maintain the same properties as fresh fish: "I don't trust frozen fish because I'm afraid that the cold chain could have been broken" (*Pregnant woman, 34 years old*). Other mothers point out that frozen fish gives them the assurance that it has been kept in good condition and is preserved: "Frozen fish, if I know it has been frozen quickly, because of bacteria" (*Pregnant woman, 34 years old*). This perspective is also reinforced by medical discourses in which health professionals advise pregnant mothers not to consume raw fish (as in the case of sushi or sashimi) and regulations that fish be frozen for at least 48 hours if it is going to be eaten raw, due to the risk of anisakis.

In terms of frozen fish, mothers tend to have greater trust for those fish that they buy fresh and then freeze themselves. As one of the pregnant women points out: "I trust the fish that I freeze and then cook well" (*Pregnant woman, 33 years old*). They tend to show more distrust of fish that is bought frozen, where they do not know how it has been handled and the amount of time that has passed between being caught and eaten: "I don't trust the fish they sell and that has already been thawed, which, depending on the origin and type of fish has an impact on its quality" (*Pregnant woman, 38 years old).*

Regarding canned fish, especially tuna, this is a source of distrust. On the one hand, this is related to the packaging itself, the can, which many mothers describe as "unsafe," or of "doubtful healthiness" or even as "toxic" because cans are treated with chemicals, or as some of the women more accurately point out, they contain BPA and are therefore, possible endocrine disruptors (Ankey et al., 2009).

3. Meat and eggs

Meat, like fish, is repeatedly found listed as both a trusted and distrusted food. Although these mothers point out that meat is a source of protein and rich in iron, in general, they distrust the production and handling process. They point out that hormones and other medicines are typically used in breeding to accelerate growth, in addition to chemical substances used in feed: "I do not trust the treatments animals receive when being raised" (*Breastfeeding woman, 35 years old*).

Among the different types of meat, the mothers usually differentiate between red and white meat. Some of the participants indicated that white meat, such as chicken or turkey, usually contains less fat, and that is why they are better to eat than red meat, although many also trust veal, provided they know its origin. On the other hand, they do not trust pork as much, especially processed pork such as sausage.

Mothers draw a line of trust/distrust between those meats that are more "natural" and those that are "processed." Meat from animals that graze in fields, “free-range,” that have not been fed with "artificial" feed containing "chemical substances" and that have not been injected with hormones or other medicines are considered “natural.” As one of the mothers says, "I trust meat from farms where animals are free and not given feed with

antibiotics. The animals that graze in pastures and are not given medicines in the feed, their meat is better, and even the colour is not the same" (*Breastfeeding woman, 29 years old*).

Similarly, some of the pregnant and breastfeeding women comment that they trust "ecological" or "organic" meats more, as these products give them the assurance that the animals are bred and fed in a more "natural" way. In addition they know that this meat has to pass stricter controls (trusting its certification in particular), which guarantee that no hormones or other chemicals have been used in the animals' breeding or in their subsequent handling.

Mothers often distrust meats that have been "processed" or "treated" in the production process. On the one hand, this distrust is due to the presence of various additives (preservatives, stabilizers, dyes [...]) in the food, which leads mothers to view this product as "artificial:" "Processed meat like hamburgers and hot dogs contain many additives, besides being made from meat that is not very nutritious" (*Pregnant woman, 31 years old*).

Although many of the participating mothers believe that most of these products have gone through established health controls, they do not believe that the substances used in their production are harmless to health (even when their use is allowed and regulated). On the other hand, another reason for distrust in these kinds of products comes from ignorance about the type, origin and quality of the meat that has been used to prepare them.

Thus, in the free listings of foods that are distrusted, "processed" meat is usually among the first on the list. Products such as sausages, hamburgers or hot dogs are named by the majority of the pregnant and breastfeeding mothers as foods they really distrust. The fact that the meat used in this type of food is presented as "chopped" or "ground" makes them suspicious of the type of raw material used in its preparation and the way the meat has been treated: "I do not trust packaged ground meat. I don't know what pieces are used; I haven't seen them" (*Pregnant woman, 34 years old*).

Sausages are another product that is often eaten but which pregnant and breastfeeding women tend to show some distrust toward. As in the case of hamburgers and hot dogs, their distrust is related to additives and preservatives, as well as the high level of salt and saturated fats: "Sausages have a lot of fat" (*Pregnant woman, 35 years old*). Some of the mothers differentiate sausages depending on the animal they are made of and the cut of meat used for their production, indicating that those made from chicken or turkey usually contain less fat than those made of pork.

Participating mothers had greater distrust for sausage during pregnancy, as doctors and other health professionals advise pregnant women not to eat these types of food because of the risk of toxoplasmosis: "Sausages, now I don't eat them because of toxoplasmosis" (*Pregnant woman, 31 years old*). This discourse from pregnant mothers about avoiding the risks of toxoplasmosis is an example of how the medicalization of foods has

intensified (Gracia-Arnaiz, 2007, 2010), and particularly during pregnancy (Larrea-Killinger et al., 2018).

Regarding the production and preservation of meat, another reason for distrust is that meat is often "packaged." When it is, mothers are suspicious about whether or not it is "fresh" (the expiration dates), and they distrust substances like preservatives that may have been added to break the natural cycle of deterioration of meat to make it last longer. They also point out that when presented previously packaged and cut, the origin of the meat is not clear and it is difficult to identify which part of the animal it comes from: "Seeing the meat in a package is not the same as going to a butcher or delicatessen and seeing how he cuts it and asking if it's fresh" (*Pregnant woman, 39 years old*).

"Packaged" meat is usually associated with products purchased in supermarkets and super stores. Many of the mothers say that they distrust the meat from these types of stores more: "The products bought in super stores, you have to check the origin and the amount of time they've been there" (*Pregnant woman 39 years old*). They stress that many times these products are not "fresh" and the quality is lower than that of the meat bought in the market stalls, neighbourhood stores or local butchers where they usually know and trust the seller.

Eggs are another type of food that some of the mothers say they try not to buy in super stores, but rather in small shops or in the market. The women in our study trust this food; they emphasize that it is a "basic" food that is not very manipulated, and that it is a good source of protein. Many of the women say that they have greater trust of eggs coming from "free-range" chickens, due to the type of food that these chickens eat: "Eggs from free-range chickens, since their food is varied; they don't only eat prepared feed, and they're not stressed" (*Breastfeeding woman, 29 years old*).

4. Grains

Another food that the pregnant and breastfeeding women participants trust are grains, emphasizing that they are a "basic" product that tends to last without spoiling, a "balanced" source of carbohydrates – and therefore of energy – and rich in fiber: "they provide carbohydrates and this gives strength" (*Pregnant woman, 34 years old*). Some of the mothers say that they prefer "whole" grains because they think they are more beneficial for the body: "Grains are rich in fiber, minerals, but better if they are whole grains" (*Pregnant woman, 32 years old*).

Among grains, they mainly mention rice, pasta, bread and breakfast cereals, placing them in an order of trust based on which ones they think are less processed. Rice is considered to be more "natural" because it is a product that is not very "processed," and it does not contain added substances: "With rice, you can see what it is, just as with vegetables. The quality may be better or worse, but it doesn't need much processing" (*Breastfeeding woman, 35 years old*). Although pasta is more processed than rice, the ingredients used to make it are basic (wheat and eggs), and it contains few additives.

Regarding bread, the mothers point out that it is a "basic" food, with few ingredients, and it is "traditional," as it has always been eaten. The trust that these women have depends mainly on where it is bought and on how much it has been processed.

In this regard, the mothers feel more confident about products that come from bakeries, where they say the bread is more a “craft bread" made with "natural" ingredients, and usually made daily in the bakery's oven without preservatives or other additives. It is not a very "processed" product compared to the bread that can be purchased in supermarkets and super stores, where the quality is questionable because it is highly processed, made in factories and frozen for storage to be distributed and subsequently baked. As one of the women points out: "The breads in supermarkets and some other stores are inedible. For me, it’s not bread, and it contains a lot of chemical additives" *(Pregnant woman, 26 years old).*

Due to the processing, the kind of bread bought in supermarkets is usually considered by the mothers to be an "industrial" product, an attribute that they associate with low quality and which they distrust. They point out that these products often contain many additives and chemicals (preservatives, dyes and sweeteners) to ensure that they look good and have a good taste and smell: "Just by reading the label we can see the quantity of non-natural products, salts, fats and sugars used. Reducing the base product to the minimum, and all so the expiration date can be extended" (*Pregnant woman, 43 years old*).

Ranking highest on the participants’ lists of foods they distrust are "industrial" baked goods (Table 4 and Figure 2). Among the factors mentioned as generating the most distrust in these products are their high content in saturated fats and sugars, as well as the presence of added chemicals such as sweeteners, acidifiers, dyes, flavourings and preservatives. Thus, the mothers point out both their nutritional imbalance and that they contain chemicals compounds as reasons for distrust. As one of the breastfeeding women says: "Endless ingredients with a thousand 'E's"[6] (*Breastfeeding woman, 35 years old*). Thus, mothers often characterize "industrial" pastries as "artificial" because of the long list of additives they contain – and that they do not know. They consider them harmful to health, associating them with diseases and health risks such as diabetes and high cholesterol. They point out, as in this case, that "Industrial pastries contain dyes, preservatives, aromas and a thousand more kinds of garbage. I don’t normally eat them" (*Pregnant woman, 39 years old*), or "A lot of sweeteners, gluten and refined flours, in addition to saturated fats [...] a lot of saturated fats" *(Pregnant woman, 40 years old).*

5. Dairy products

As we can see in the free listings, dairy products are also found among the foods that the women participating in this study trust (Table 3 and Figure 1). Many of them emphasize that they trust them because of their contribution in calcium, their pasteurization and the

[6] European Union uses an E number to identify food additives.

quality controls these products go through in production process: "I trust milk because it has serious external control measures" (*Nursing woman, 42 years old*).

Among dairy products, mothers mention mainly milk, yogurt and cheese, showing confidence especially in the first two and mainly in yogurt, because of its benefits for the digestive system, being a pro-biotic and good for the intestinal flora. In the words of one of the pregnant women: "Unsweetened yogurt for the intestinal flora and because it can be digested very well" (*Pregnant woman, 38 years old*). The women also point out that they trust "natural" yogurts more than yogurt with flavours or pieces, because of the chemical additives they may contain, such as sweeteners, dyes or flavouring, which generate some distrust. Likewise, they also distrust the milk that is advertised as containing "extra calcium and vitamins," as they think that this type of milk may contain added chemical products and therefore, be "artificial." We found, therefore, that some of the mothers distrust enriched dairy products and consider them to be highly processed foods (Verneau et al., 2014). You can see an example of this distrust in the following narrative: "Milk of animal origin containing extra calcium and added vitamins [...] This milk I don't know, if it contains more, can we eliminate it from the body? That is, if they're powders, would they remain in the form of waste in the body? I don't know" *(Pregnant woman, 39 years old).*

Regarding cheese, and following the advice and recommendations of medical professional, the participating women indicate that during pregnancy they distrust all those cheeses that do not assure that they have been previously "pasteurized," due to the risk of contracting listeriosis and brucellosis: "With cheese, I have to be sure that they're made with pasteurized milk" (*Pregnant woman, 33 years old*). Here we find another example of the medicalization of the pregnant mother's diet, which occurs within the framework of the doctor-patient relationship (Larrea-Killinger et al., 2018).

6. Sweets, soft drinks and potato chips

Three other products that appear along with "industrial" baked goods among the first items in the lists of foods that are not trusted by pregnant and breastfeeding women are sweets, soft drinks and potato chips. These are considered "artificial" and "processed" products, which are said to have no "natural" components. As one of the mothers points out regarding sweets, highlighting their artificiality, they are: "Sugar and plastic" *(Nursing woman, 32 years old).*

Sweets, candies and other "treats" are often cause for great distrust among mothers because of their high sugar content and their composition, based mainly on chemical substances (sweeteners, dyes and flavourings), which are unknown to them: "Sweets have strange colours, textures and flavours [...] they're unnatural." (*Nursing woman, 35 years old).*

Sugary soft drinks are another product that mothers distrust, due to the sugars and chemical substances they contain, leading to doubts about what these drinks are made of: "Soft drinks have a thousand strange things in their ingredients [...] a lot of sugar"

(*breastfeeding woman, 35 years old*). They are considered to be all "chemical" or "artificial" and therefore, harmful to health. Among the most mentioned as those they most distrust are Coca-Cola and above all, the "energy" drinks, with greater distrust for those soft drinks that come in cans, as they include the added risks from the liquid in contact with the metal. Most of our participants say that they limit their consumption during pregnancy, although many of them comment that they did not drink them before pregnancy either.

The mothers are also very suspicious of potato chips or "chips," as well as other industrial fried foods, such as pork skins or "ganchitos" [cheese flavoured snacks]. They emphasize their high content in saturated fats and salt, in addition to their composition based on chemical substances, where glutamate is one of the most cited. They also stress their artificiality: "Potato chips and other fried snacks are too artificial and have too much flavor. It's not normal" (*Nursing woman, 37 years old*).

7. Prepared and pre-cooked foods

"Prepared" or "precooked" foods are another type of food these mothers mention that they distrust and that we can see in the top of the distrust free listings (Table 4 and Figure 2). They emphasize not knowing all the ingredients they contain, how they have been produced and prepared, and how they are preserved. This last aspect generates distrust because of the amount of chemical substances they can contain – preservatives, stabilizers and other additives to guarantee the appearance, taste and smell – and also the way they are packaged – plastics and aluminium in contact with food: "I don't trust precooked food; it's not the same as making it at home and knowing where you bought it and what's in it" (*Pregnant woman, 39 years old*). The mothers contrast this type of product with "homemade" food, where you always know how it has been cooked and what it contains: "I make my own sponge cake, and I know it doesn't contain any additives or anything" (*Breastfeeding woman, 31 years old*). Thus, "prepared" or "precooked" foods for these mothers are foods "with a thousand preservatives" or with "too many ingredients to preserve them" that they do not understand: "Prepared dishes contain colorants and preservatives and are high in salt." (*Breastfeeding woman, 29 years old*).

The pregnant and breastfeeding women in our study mention "dehydrated" or "freeze-dried" foods among the products that generate the most distrust, with soups and bouillon cubes being mentioned the most. They describe them as products that contain many chemicals with ingredients they do not know, so they think they are too "artificial" and not trustworthy: "It takes a lot of chemicals to dehydrate food so it holds up" (*Breastfeeding woman, 37 years old*).

Discussion

Through free listings, we have been able to explore the socio-cultural representations of trust and distrust regarding food risks among pregnant and breastfeeding women. Trust and distrust are attitudes that are related to risk, guiding ways of perceiving uncertainty

and complexity in the world in which we live (Luhmann, 2005, Douglas, 1992). Perceptions of insecurity are not always consistent with real dangers. The divergence between possible risks and real risks depends on how people interpret these risks based on their values, beliefs and social interactions (Douglas & Wildavsky, 1982).

In contemporary alimentation, a constant exercise of evaluation of the risks present in the selection and consumption of food (Gaspar et al., 2018) is encouraged. Firstly, the risks that derive from habits and lifestyles related to alimentation are highlighted (Lupton, 1993). Secondly, other transformations in the alimentary system oriented towards the growth of production that requires, among other factors, a chemical manipulation that increase the uncertainties and risks on health (Gaspar et al., 2018; Fishler, 1990; Contreras, 2011) also exist. Because of this increase of the risks and uncertainties and the development of the control methods aimed to reduce the risks, knowing the criterion of trust/distrust that guide individuals in the process of selection and consumption of food becomes a central matter. Following Luhman's systemic theory (1993), trust reduces the uncertainty and the risk in face of the complexities of the contemporary world. The complexity of the contemporary alimentation opens different possibilities of social action, where trust implies the reduction, on an individual and social basis, of the negative effects of the actions with said risks.

Pregnancy and breastfeeding are periods in the life cycle of women characterized by a risk discourse where the precautionary principle is frequently used to manage uncertainty (Larrea-Killinger et al., 2018). This results in increased care for their bodies in order to protect the baby (Lupton, 2012); thus food and diet become a central theme linked to their health. The patterns of dietary change during pregnancy reported in the study of Forbes et al. (2007) indicate that women understand and report reducing intake of foods that could harm their pregnancy, but do not increase their intake of foods that provide important nutrients required for pregnancy. Mothers try to consider all the information about food and manage the trust/distrust they have about the foods they are going to consume, but it also has to be taken into account the fact that not trusting a certain food does not always mean they will not eat it.

In a context where knowledge about the health risks of chemical substances in food is still limited (Larrea-Killinger et al., 2017b), mothers usually show distrust for those foods that contain chemical compounds, which may be linked to their origin (heavy metals in fish), or how they are grown (pesticides in fruits and vegetables), produced (additives such as sweeteners, acidulants, dyes, flavourings) and preserved (preservatives, stabilizers or elements in containers such as bisphenol A).

As a result, mothers often distrust "processed" or "industrial" foods, which they tend to associate with low quality and large amounts of additives and chemical substances, and which they qualify as artificial, pointing to the risks of consuming this type of food. In the same way, they distrust "prepared" or "precooked" products, both because of the amount of chemical substances they may contain and because they do not know the ingredients they contain and how they have been produced and cooked.

These women also distrust the chemical compounds fruits and vegetables contain (especially because of pesticides). Some of them say that these substances are overused today, and they are suspicious about the effects they may have on health. For this reason, many of the mothers end up trusting "ecological" or "organic" products more, considering them to be more "natural." This also ensures that these foods have gone through strict controls and that they have not been treated with any chemicals during its production.

When deciding whether to trust a food or not, proximity and distance are also important (Mascaró, 2013). In relation to food production, mothers feel more confident about the health controls carried out in EU countries. In contrast, they believe there are less controls in countries outside the EU, and this generates distrust. Likewise, many of the women prefer to buy "local" fruits and vegetables because of the shorter logistical chain and handling process, which makes it possible to know more about the origin of the product. There are even women who emphasize the trust generated by consuming products from their own or a family member's garden. Regarding where to buy food, they feel a lot more trust in the food sold in neighbourhood markets or trusted local shops with well-known vendors than that sold in supermarkets or super stores.

A limitation of the present study is related to the sampling method, which resulted in a population with an age range of 30-39 years old. Although their attitudes and beliefs might not be entirely representative of other age stages -such as younger women-, these ages coincide with the range in which Spanish women have children (INE, 2018). In addition, our population comprised both pregnant and breastfeeding women, which might differ in their perceptions and attitudes towards the risk of the exposure. Therefore, further research should focus on specific population groups.

This paper shows relevant aspects of the socio-cultural representations of trust and distrust in relation to food risks among pregnant and breastfeeding women. These results might help the development of public health campaigns as well as adapt the messages of the health authorities to the general population. In light of our results, we would also like to stress the need for studies that allow for a better characterization of population groups in periods of increased susceptibility to food risk, in order to design public health campaigns for the population and disseminate scientific knowledge in an appropriate manner.

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