

What are Urban Consumers Looking for in Traditional Products? The Maize Tortilla in Mexico, a Society in Transition

O que os Consumidores Urbanos Procuram nos Produtos Tradicionais? A Tortilha de Milho no México, Uma Sociedade em Transição

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Abstract

Studying food consumption has been broadly addressed in different countries, which has helped to establish commercial strategies and position relevant topics into public policies. In Mexico, such studies have incipiently approached foods in specific regions; thereby there is need for a study with a broader geographical scope that addresses a culturally relevant product such as maize tortillas. The aim of this work was to identify the urban consumers' characteristics and their perceptions and motives to consume maize tortillas. A questionnaire based on the Food Choice Questionnaire was applied to 1156 urban consumers in seven cities of Mexico. Data were processed with factor analysis and hierarchical clustering. Nine factors and three groups of consumers were identified. Adaptation towards semi-industrialised tortillas was identified in 75% of consumers. In the other 25%, there was a predilection for artisanal hand-made tortillas, to resist industrialised products. These are aspects that influence the decision of where to buy and the sort of product demanded. The study provides knowledge to strengthen the maize-tortilla agri-food system.

Keywords: Traditional food, motives, maize tortilla, Food Choice Questionnaire, urban consumers.

JEL Codes: C80, D19, D79, Z19.

Resumo

O consumo alimentar tem sido amplamente discutido em diversos países, o que tem ajudado a estabelecer estratégias comerciais e formular questões relevantes para as políticas públicas. No México, estudos incipientes vem abordando o consumo de alimentos em regiões específicas; reconhecendo-se a necessidade de estudos com abrangência geográfica mais ampla, que abordem o consumo de produtos culturalmente relevantes, como as tortilhas de milho. O objetivo deste trabalho foi identificar as características dos consumidores urbanos e suas percepções e motivos para consumir tortilhas de milho. Um questionário baseado no Food Choice Questionnaire foi aplicado a 1.156 consumidores urbanos em sete cidades do México. Os dados foram processados com análise fatorial e agrupamento hierárquico. Nove fatores e três grupos de consumidores foram identificados. A adaptação às tortilhas semi-industrializadas foi identificada em 75% dos consumidores. Os outros 25%, manifestaram preferência por tortilhas artesanais, feitas à mão e disposição para resistir aos produtos industrializados. Verificou-se que esses aspectos influenciam a decisão de onde comprar e o tipo de produto demandado. O estudo fornece conhecimentos para fortalecer o sistema agroalimentar de tortilha de milho.

Palavras-chave: Comida tradicional, tortilha de milho, Questionário de Escolha de Alimentos, consumidores urbanos.

Códigos JEL: C80, D19, D79, Z19.

1. INTRODUCTION

The changes in food consumption are attributed mainly to the growing urbanization of societies, the industrialization of food, and publicity (Bauman, 2010; Featherstone, 2008). In recent decades the consumption of industrialised or easy to prepare foods was favoured to reduce the times of everyday food preparation (Toffler, 1999), called by Fischler (1995) as “gastronomic anomia” this is to say, lack of social regulations or contradictions, which makes it difficult to choose foods, given the diversity of options. In this context, a distancing from traditional foods occurred (Vanhonacker et al., 2013), as they are perceived as less convenient because of the time needed for their preparation, which made their consumption decrease (Chambers et al., 2007), modifying the local and traditional diets (Wang, Gellynck, and Verbeke, 2016). This phenomenon was named westernization of diets and tastes (Kramer, 2017) an aspect of postmodern societies, characterized by a faster pace pervaded by global information and the exaltation of the individual through fugacious consumption (Lipovetsky, 2007).

In such societies, food consumption is influenced by a large number of aspects and new motives as: psychological, ethical, cultural values and those regarding health, political, emotional and unmet needs, environmental concerns, supplies and ways of production; that are additional to the economic aspects (Burns, Cook, and Mavoa, 2013; Cunha et al., 2017; Espeitx et al., 2014; Markovina et al., 2015; Vignolles and Pichon, 2014; Orlando, 2018). Also, the increase of degenerative diseases (Popkin, Adair, and Ng, 2012) as well as life expectancy, among others; and most recently changes have taken place as a consequence of several food scandals linked to industrialised foods (Calle et al., 2012).

In those societies in which abundance prevails, certain consumer groups emerge demanding supplies and ways of production with positive effects on the environment and on individual health (Rodman et al., 2014); in this sense, local and natural traditional foods are perceived as healthful and safe to eat (Chung et al., 2016). In the western world, mainly Europe, the study of food consumers’ perceptions, purchasing criteria and habits has become a research topic for social sciences (Almli et al., 2011; Favalli, Skov, and Byrne, 2013; Feldmann and Hamm, 2015; Guerrero et al., 2010; Lee and Yun, 2015; Neuman et al., 2014). Nevertheless some authors say that, even in western societies, there is little knowledge about traditional products (Vignolles and Pichon, 2014) and how they are perceived by consumers and what they want of them (Vanhonacker et al., 2013). Therefore, it is important to study the perceptions that consumers have on traditional foods in

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emerging countries, understood as those countries in a transition phase between developing and developed countries.

As Verbeke et al. (2015) mentioned, the transformations of societies and the change in food culture should be addressed, particularly in the consumption of traditional foods. It is so that various works clearly state the need to study the perceptions and motives consumers have regarding foods (Meiselman, 2013), particularly the traditional foods of their own culture (Freedman, 2016). Thus, various studies on traditional foods have been carried out for example in Croatia (Renko and Bucar, 2014), on specific products such as Tumpeng in Indonesia (Jati, 2014); as well as works that analyse cultural differences between countries on perceptions of traditional foods (Pieniak et al., 2009; Wang et al., 2016). These works are mostly from the European and Asian context and are scarce in countries in transition (Sánchez-Vega et al., 2020), like those in Latin America.

Mexico is a good example of an emerging country where economic development and urbanization coexist with traditional foods (Méndez-Lemus, Vieyra, and Poncela, 2017), but where gradual changes from traditional foods to industrialized foods are observed and associated with different generations (Espinoza-Ortega, 2021).

In Mexico, studies that address the consumers' perception, attitudes and purchase of food motives are incipient; one of them offers an outline of the consumers' general perception of traditional foods in the centre of the country (Espinoza-Ortega et al., 2016); others are focused on specific zones and products (Escobar-López et al., 2017; López-Rosas and Espinoza-Ortega, 2018; Montesinos López et al., 2016; Nieto-Orozco et al., 2017; Rojas-Rivas et al., 2019; Sánchez-Vega et al., 2020), thus this pioneering works open a research line on the consumers' perception of traditional foods.

The population is mainly urban (77.8 %), and the maize tortilla (a flat bread made from maize grain traditionally cooked with lime to form the dough, termed *nixtamalization*) is still the most important cultural and staple food present in all meals in Mexico, it is a gastronomic element for cohesion between the different foods and ingredients, and provide national identity being loaded with meanings; with differences in consumption between the rural and urban population, where consumption was 56.7 kg per capita a year in urban zones and 79.5 kg in rural areas (Consejo Nacional de Evaluación de la Política de Desarrollo Social, 2010). At the same time, the transformation of maize tortilla has changed from a purely artisan preparation from maize grown in small campesino farms, to a semi-industrialised one, which is the most consumed, with an incipient industrialised production, where maize comes from large industrial monocultures in Mexico or imported mainly from the United States (Puyana, 2012).

Until now, the study on maize tortillas has focused mainly on nutritional aspects (Bello-Perez et al., 2016; García Méndez, 2004), physicochemical characteristics (Amador, 2005) and sensory (Feria-Morales and Pangborn, 1983; Herrera Corredor, 2007), anthropological (Vizcarra Bordi, 2006, 2000), public policy and economic analysis (López Arévalo et al., 2015), related to its elaboration processes (Serratos-Hernandez et al., 2016), concerning its acceptance and purchase intent (Herrera Corredor et al., 2010), and in an incipient way the perceptions about the maize tortilla (Jaramillo Villanueva, 2015; Sánchez-Vega et al., 2020; Sánchez-Vega et al., 2018).

Sánchez-Vega et al. (2020) established the coexistence of postmodern and traditional perceptions about tortillas according to the differences in three geographical zones of the country, according to their socio-cultural, historical and economic development. However, there are still no studies on how consumers relate and perceive the tortilla, and the characteristics of urban consumers. Therefore, the aim of this work was to identify the urban consumers' characteristics and their perceptions and motives of maize tortillas.

This document is structured in five sections. The first section is the introduction in which the subject under study is contextualized and the objective of the research is set out. The second section exposes the methodology used. In the third and fourth, the results found are indicated and discussed. Finally, the last section shows the main conclusions of the document, limitations, in addition to opening the research agenda.

2. METHODOLOGY

A questionnaire divided into two sections was used. The first part was based on the Food Choice Questionnaire (FCQ). Interest in consumers has materialized as several studies that analysed their

purchase motives, attitudes, behaviours, beliefs and perceptions, within a specific culture or making transcultural studies (Cunha et al., 2017; Escobar-López et al., 2017; Feldmann and Hamm, 2015; Montesinos et al., 2016). The Food Choice Questionnaire (FCQ), designed by Steptoe et al. in 1995 is a commonly used tool developed to study the consumption and perception of various foods. According to Cunha et al. (2017), it is necessary to adapt this tool to the cultural contexts in which it is applied, then the FCQ was adapted to the Mexican context and food to study.

The variables analysed were (Table 1): sensory attraction, type of market, natural/industrial characteristics, price, health, environmental aspects, ethical concerns, convenience and traditionality (Espinoza-Ortega et al., 2016; Lee and Yun, 2015; Steptoe, Pollard, and Wardle, 1995). Each variable comprised three items that were assessed using a 5-point Likert scale (from 1: never to 5: always). In order to measure the scale reliability a Cronbach’s alpha test was made with a coefficient of 0.730 (Field, 2009). The second part dealt with sociodemographic information (age, sex, schooling level, current occupation, weight and height to calculate the body mass index, and monthly income), and daily tortilla consumption. According to Fotopoulos et al. (2009), these data help interpret the results as they allow discerning between consumer segments.

Table 1. Variables and items used in the questionnaire

Variable	No	Item
Sensory attraction	1	I choose them for their flavour
	2	I choose them for their smell
	3	I buy them for their colour
Sort of market	4	I buy them in supermarkets
	5	I buy them from traditional <i>tortilleras</i> (Women who make tortillas in the traditional artisanal way)
	6	I buy them in <i>tortillerias</i> (Establishments in which tortillas are made by means of a tortilla machine) of the neighbourhood with tortilla machines
Weight control	7	When I eat <i>tortilla</i> I think of my weight
	8	I reduce my consumption considering the calories
	9	Tortillas are fattening
Natural/industrial content	10	I prefer industrial [tortillas] packed in plastic
	11	I look for nixtamalized-maize hand-made tortillas
	12	I choose tortillas made with processed maize flour
Price	13	I buy them because there are inexpensive
	14	I am interested in the relation quality-price
	15	I pay more for hand-made tortillas
Health	16	I eat them because there are nutritious
	17	Eating them keeps me healthy
	18	I eat them for their calcium supply
Environmental aspects	19	I want tortillas made of landrace maize
	20	I am concerned about the use of genetically modified maize
	21	I am concerned about the use of agrochemicals in maize cultivation
Ethical aspects	22	I want that the maize of tortillas is grown in Mexico
	23	I am concerned about the welfare of maize producers
	24	When I buy them I think of the benefit of traditional <i>tortilleras</i>
Convenience	25	They are available all the time
	26	I buy them easily near my home or work
	27	They can easily go with any meal
Traditionality	28	I eat tortilla because of family tradition
	29	Eating tortilla is part of the Mexican culinary tradition
	30	Eating them is part of my identity

2.1 Data Collection and Sample

Data were collected in seven capital cities of the country (in the North, Centre and South regions) to consider the different socioeconomic contexts of the country's urban population. According to the formula for finite populations at a confidence level of 95%, 1156 consumers were surveyed. The respondents were 18 years old or more, considered capable of making decisions as for food choice (Fotopoulos et al., 2009).

The survey was carried out in traditional markets by means of line transect sampling (Reig and Coenders, 2002). Wongleedee (2015) found that there is a correlation between consumption attitudes, incomes, and marketing strategies; besides these spaces play an important role as they offer accessible and varied products, mainly to the population of the middle and lower-classes (Gonzalez and Dawson, 2015).

2.2 Data Analyses

Information from FCQ underwent factorial analysis (Steptoe et al., 1995), using principal component analysis (PCA) as extraction method with *Varimax* orthogonal rotation, obtaining a Kaiser-Mayer-Olkin (KMO) sampling adequacy of 0.712, meeting the PCA conditions of parsimony and interpretability (Field, 2009). Seven items (14, 15, 19, 22, 24, 27 and 30) were excluded from the analyses. With the factorial loads obtained, a hierarchical cluster analysis was set up using Ward's method as agglomeration algorithm and Euclidian distances (Fotopoulos et al., 2009). Nonparametric Kruskal-Wallis and Mann-Whitney U tests were performed in order to identify statistical differences ($p < 0.05$) between groups in relation to the factors identified in PCA. Finally, the consumers' sociodemographic characteristics were established for each group (Fotopoulos et al., 2009). Information regarding income was suppressed owing to lack of responses. Analyses were carried out on the Statgraphics Centurion XVII software.

3. RESULTS

The analysis identified nine factors with an accumulated variance of 62.6% (Table 2).

Factor 1: *Search for traditional processes*: with a variance percentage of 14.33, it comprised the items dealing with buying from traditional *tortilleras*, hand-made tortillas made with nixtamal (traditional maize cooking adding lime to water), or in traditional neighbourhood *tortillerias* (semi-industrialised *tortilla* shops).

Factor 2: *Ethical concerns of maize production*: it was the second factor with the highest variance percentage (9.39) and was composed of the items related to rejecting the use of genetically modified maize varieties and agrochemicals, and wellbeing of maize farmers.

Factor 3: *Overweight concern*: with a variance of 7.31%, it included the variables referring to overweight, calories and the idea that tortillas are fattening.

Factor 4: *Nutrition*: aspects regarding to nutrition, keeping a good health and calcium supply (7.07%).

Table 2. Name of the factors obtained and their corresponding variance

Factor	Name	Total of the explained variance		
		Eigenvalues of PCA	% of variance	% accumulated
1	<i>Search for traditional processes</i>	3.29	14.33	14.33
2	<i>Ethical concerns of maize production</i>	2.16	9.39	23.73
3	<i>Overweight concern</i>	1.68	7.31	31.04
4	<i>Nutrition</i>	1.62	7.07	38.12
5	<i>Sensorial aspects</i>	1.30	5.65	43.77
6	<i>Economy and practicality</i>	1.18	5.15	48.93
7	<i>Industrial consumption</i>	1.11	4.85	53.78
8	<i>Traditional consumption</i>	1.03	4.51	58.29
9	<i>Accessibility</i>	1.00	4.36	62.66

The rest of the factors accumulated 24.56% of the variance and were: *Sensorial aspects*: comprised flavour, smell and colour. *Economy and practicality*: economic accessibility and availability. *Industrial consumption*: variables connected to purchase in supermarkets, industrialised tortillas in plastic packages and made with processed maize flour; *Traditional consumption*: related to traditional family consumption and Mexican culinary culture; and *Accessibility*: variables related to purchases made in places near home and/or work.

Cluster analysis identified three consumer groups. Table 3 shows the results of the statistical analysis, with highly significant statistical differences ($p < 0.5$) for most factors. There were differences among the three groups in *Sensorial aspects*, *Industrial consumption* and *Economy and practicality* ($p < 0.05$). The only factor where all groups were similar was *Traditional consumption* ($p > 0.05$).

Table 3. Comparative analysis of groups according to the obtained factors

Factors	Group 1		Group 2		Group 3		P*
	Median	IQR	Median	IQR	Median	IQR	P
<i>Search for traditional processes</i>	2.6 ^a	1.0	2.6 ^a	1.3	3.6 ^b	0.6	0.000
<i>Ethical concerns of maize production</i>	3.3 ^a	1.9	3.6 ^b	1.6	3.3 ^a	1.3	0.005
<i>Overweight concern</i>	2.3 ^a	2.0	3.0 ^b	1.9	2.3 ^a	1.75	0.001
<i>Nutrition</i>	3.3 ^a	1.6	3.3 ^a	1.9	3.0 ^b	1.6	0.018
<i>Sensorial aspects</i>	2.6 ^a	1.6	3.3 ^b	1.6	2.3 ^c	2.0	0.000
<i>Economy and practicality</i>	3.0 ^a	1.5	3.0 ^{ab}	1.5	2.5 ^b	1.5	0.000
<i>Industrial consumption</i>	2.0 ^a	1.0	1.3 ^b	1.3	1.0 ^c	0.6	0.000
<i>Traditional consumption</i>	4.5 ^a	2.0	4.5 ^a	2.0	5.0 ^a	2.0	0.481
<i>Accessibility</i>	3.0 ^a	2.0	4.0 ^a	3.0	3.0 ^b	2.0	0.019

NB: IQR, Interquartile Range; p², Kruskal-Wallis test value ($p < 0.05$); ^{a,b,c} Mann-Whitney U test by row ($p < 0.05$)

It is worth noting the very high values for *Traditional consumption* in all groups with contrasting lower values for *Industrial consumption*. Also, the recognition for the *Sensory aspects* and *Nutritional* contributions of the tortilla are higher than the *Overweight concerns*.

A higher proportion of women and people under 45 years of age are observed in the three groups, and a higher proportion with higher education in Groups 2 and 3 (Table 3).

Table 4. Sociodemographic characteristics by group (%)

		Group 1	Group 2	Group 3
		n=875	n=63	n=218
Gender	Man	39	32	40
	Woman	61	68	60
Age	18 - 25	29	26	32
	26 - 45	47	38	51
	46 - 65	19	25	14
	Over 66	5	11	3
Schooling level	None	3	3	1
	Basic	33	38	25
	Middle	32	18	32
	Superior	32	41	42

Results show a substantial proportion of people with overweight, mostly in Groups 1 and 2, but apparently it was not related to tortillas consumption, where the differences are related to gender, being the men who consume more tortillas per day (Table 5).

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Table 5. Tortilla consumptions and body mass index (BMI)

		Group 1	Group 2	Group 3
BMI (%)	Underweight	3	3	2
	Normal	42	41	51
	Overweight	55	56	47
Tortillas consumed per day (average)	General	6.9	6.2	6.5
	Man	8.6	8.5	7.1
	Woman	5.9	5.2	5.8

Groups were named after the scores of the factors in each group as follows: “Pragmatic traditional”, “Conscious traditional” and “Traditional who looks for traditional processes” (Figure 1).

For the three Groups, traditional consumption is an essential aspect, and it is perceived similarly; the differences are related to the other aspects.

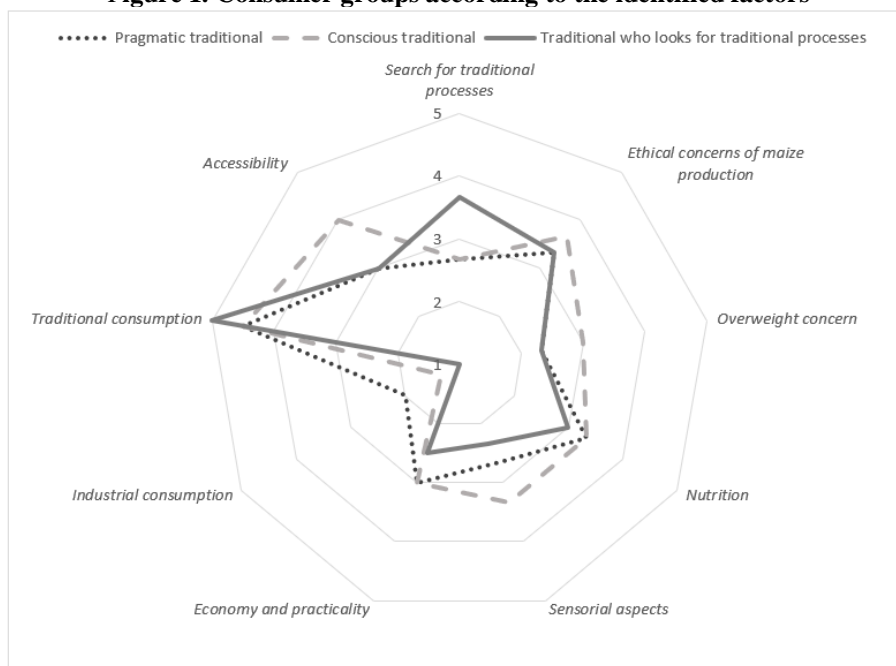
Group 1. “Pragmatic traditional”: This group is the largest, accounting for 75% of the respondents. Like the other groups, this group has a *Traditional consumption* of tortillas, the difference is that they recognize the *Nutrition* value of tortillas, but where *Sensorial aspects* are not relevant, therefore they have no problem with *Industrial consumption*, which explains the importance they give to *Economy and practicality*, and *Accessibility*.

Group 2. “Conscious traditional”: This tiny group accounts for only 5.45% of the respondents. For this group, *Traditional consumption* of the tortilla is significant too, but it is in this group where *Ethical concerns of maize production*, *Sensorial aspects* and *Overweight concern* are more important than the other groups. Although it is also considered relevant the *Search for traditional processes*; the *Accessibility* is not a problem, which would explain the higher values for *Ethical concerns of maize production*.

Group 3. “Traditional who looks for traditional processes”: This group account for 19.55 % of the respondents. This group takes its name owing to the higher score in the *Search for traditional processes* factor and least interested in *Industrial consumption*, and *Economy and practicality aspects*, nevertheless they consider *Accessibility* as less important compared to Group 2.

It is considered the most interested Group in buying hand-made tortillas from traditional artisan *tortilleras* and looks for the flavour that differentiates artisanal tortillas made by hand and sold by women outside the markets in small amounts at a higher price, but paradoxically are the least interested on *Sensorial aspects*.

Figure 1. Consumer groups according to the identified factors



4. DISCUSSION

The highest values for *Search for traditional processes* and *Ethical concerns of maize production* factors explained the cultural transcendence of the product and the material base, the maize grain. Sánchez-Vega et al. (2020) established that maize represents an element of coincidence and union between the three socioeconomic and cultural contrasting regions of México, giving a sense of identity and symbolism.

The factor *Search for traditional processes* coincides with results reported by Espinoza-Ortega et al. (2016) and Serrano-Cruz et al. (2018) undertaken in central Mexico that analysed motivations for food purchases in general and the traditional concept of food, respectively. They coincide in that how the food is prepared is a determinant aspect of traditional foods' consumption motives. Some consumers value the use of inputs and the specific ways in which food is prepared, where the issue of artisanal preparations prevail.

However, the perception of the importance of the origin of maize used for tortillas, in practice, there is no way to know it, it means there is not a traceability strategy. Also, this issue is an important opportunity for rural development linking urban and rural areas, since there is an interest in paying the value-added in a hand-made product, as well as the fact that traditional foods are perceived as less risky for health and the environment (Cerjak et al., 2014).

Studies in European countries associated ethical production methods, environmental friendliness and support for the local economy on food consumption (Pieniak et al., 2009), similar to our study for *Ethical concerns of maize production*. In that sense, Mexico has a national debate against genetically modified maize (González-Ortega et al., 2017); it is perceived as unfavourable for human health and for local maize production (Montesinos et al., 2016). The aspects of political approval, source, origin and environment have been mentioned as necessary in food choices (Markovina et al., 2015).

The *Overweight concern* and *Nutrition* factors have almost the same values, and it is interesting because both aspects are related. This may be understood as a reflection of the ongoing campaign in Mexico to fight overweight and obesity problems in the adult population (75.2%), with alarming figures for children (35.5%) and adolescents (38.4%), and which have generated a diabetes problem (ENSANUT, 2020). This campaign makes recommendations on food aimed at the female family heads, who are in charge of buying and cooking foods at home (Arredondo et al., 2006). In the Mexican context, women take the responsibility of cooking for the family almost always.

Sensorial aspects are a factor in which several works concur regarding the motives of the consumers of traditional foods (Guerrero et al., 2010; Pieniak et al., 2009), evincing flavour as a distinctive element of these foods. It is indubitably an element that relates to longing, that according to Vignolles and Pichon (2014), the positive experiences of food with the senses stirs nostalgia. In that sense, Espinoza-Ortega (2021) mentioned that food nostalgia associations in México were different among generations, with changes from traditional foods in older generations, to industrialised foods in younger generations, a clear reflection of postmodern societies. Therefore, it would have to be considered to analyse specific traditional food products in future research.

Concerning the identified groups there are specific characteristics that define the consumption of tortillas and are related to the *Traditional consumption*. Tortillas are the staple for Mexicans, that represents a symbolic element of daily life (Sánchez-Vega et al., 2020); since tortillas are eaten every day in most households, as Table 4 shows, the number of tortillas consumed per day is more than six in the three groups, being higher for men; so their consumption would be called 'Functionalist'.

According to Poulain (2019), food is a structured and organized social activity, then, food is seen as an institution (understood as laws, customs and styles that regulate people) that play a fundamental role or function in the socialization and transmission of the norms. Then it is clear why *Traditional consumption* is the most important factor with no differences between groups. However, the different weights of the other factors implied some differences and changes in consumers' perceptions. New consumption values emerge, such as the interest in the traditional and ethical production process, the health and body perception, and sensorial aspects.

Even though that the distancing of consumers from traditional foods due to time and effort in their preparation has been reported in other studies (Chambers et al., 2007; Vanhonacker et al., 2013), in this study the *Search for traditional processes* factor evinces the contrary, as there were

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high scores for this factor in all groups. Some consumers are keen to pay more for traditional products, transferring the responsibility of its preparation to others.

It is important to mention that there are three types of tortilla production; the semi-industrialized process combines nixtamalized maize with industrialized maize meal, made every day in small family businesses being the most widespread commercialization channel for its mass consumption (Bello-Perez et al., 2016); the traditional tortillas, prepared everyday by women who use local or regional *nixtamalized* maize, sold by the dozen in local markets; and the incipient industrial process that incorporates preservatives (Rodríguez and Noyola, 2016). Even, the classification in production can be observed in the identified groups, and it is the representation of a country in transition where modernisation and the change from artisanal to industrial production brought modifications in the consumption of traditional foods (Vargas, 2017). As example, the “Pragmatic traditional” group is more linked to the semi-industrialized tortillas, widely available and accessible, where the *tortilleria* is part of the neighbourhood.

Tortilla as staple in the food of Mexicans can be referred with the term of ‘utilitarian foods’ coined by Maehle et al. (2015:3057-3058) defined as “those that perform a function and becoming aware of them has been accomplished by means of learnings and experiences”; they are associated with low prices, at once related to the efficient use of money, since they provide high caloric and nutritional content, in this sense acquiring them becomes price dependent.

The price is an aspect to be highlighted. Change depending on the colour of the maize (those of blue maize are more expensive, which are found mainly in the artisanal process) and above all the production process; it goes from 19 pesos per kilogram in the semi-industrialized establishments (national average price for 2022); the artisanal ones are found from 22-50 pesos per kilo (although many artisan tortillas are sold by the dozen); and the industrialized 33 pesos per kilogram in (average different brands). It is surprising that Industrialized tortillas are expensive even when they have the poorest quality.

This aspect was seen in the “Pragmatic traditional” group, where *Industrial consumption* factor has the highest value, and it is the opposite in *Search for traditional processes*. This is understandable, since semi-industrialised tortillas are the most inexpensive and accessible as shown in the *Accessibility* factor. Considering the country’s economic situation where 44% of the population is poor, and 32.6% is vulnerable (INEGI, 2020), it is logical that the most representative group is the “Pragmatic traditional”.

Grunert (2007) mentioned that the value given to a traditional product is assigned after lifestyles are considered, i.e., for some people the main meal in their day-to-day life. In this way, their attitude toward such foods is in function of their convenience, that is, the satisfaction of hunger, taste and available money, recognised by participants in the work reported by Burns et al. (2013) as “value for money”.

Several authors established that in postmodern societies, the increase in the standard of living and the middle class generated changes in consumption in general, moving from a society of basic consumption to consumption of leisure, taste and where the consumption of signs and symbols appears (Bauman, 2010; Featherstone, 2008; Poulain, 2019). Changes in primary product consumption are observed, where the bulk of consumers opt for the massive and affordable product, but another group of consumers that, although small, looks for what is attached to the traditional and ethical aspects but with a higher price.

Here the question arises about the high price of a kilogram of industrialized tortillas despite its poor quality, and as was mentioned, these are sold mainly in supermarkets. Who and why buy these products? Escobar-López et al. (2021) said that in México, consumers who preferred supermarkets were interested in buying processed foods, accessibility, practicality and modernity, those who tended to buy in these stores are the younger people. Another line of work for future research is opened.

Accessibility is also related to the *Economy and practicality* factor that in two groups indicated that it is a characteristic sought for in traditional products, many of which are sold ready to eat or require little extra effort to prepare them as is the case of tortillas. Likewise, this factor, among others, is related to purchases near the household, which in urban areas are usually *tortillerias* (semi-industrialised tortillas).

According to Vanhonacker et al. (2013), innovations used in the production of traditional foods have an impact on consumption, linked to the knowledge consumers have regarding the product.

However, they pointed out there is a group of consumers who are indifferent to innovations in traditional products. Hence, two things are explained: the dissociation between producer and consumer, and that the conceptualisation of a traditional food is being modified by some consumers. Aguirre (2004) attributed this, among other aspects, to the industrialisation of foods, as is the case of the “Pragmatic traditional” group.

Otero (2018) said that current food is based on processes and not on the products, but in our work, the type of inputs is relevant, as are the processes. That entails some characteristics of the demanded products; this is to say, traditional is understood as “regular consumption”, similar to Serrano-Cruz et al. (2018); thereby, such concepts change. In this case, tortillas made in *tortillerias*, despite some innovations, are assumed traditional as they are produced without additives and sold in bulk according to the amount required by consumers.

Nieto-Orozco et al. (2017) mentioned a lack of knowledge on the degree of processing in foods. This leads to a higher concern for availability, price and convenience, which have an impact on purchase decisions (Feldmann and Hamm, 2015). In this sense, the sort of establishment where a traditional food is bought is important too, since slight variations in the raw materials determine the quality and price of tortillas, which relates to the type of technology employed. Traditional hand-made tortillas are also related to a small-scale production. Even *tortillerias* that sell tortillas from homemade *nixtamal* have their scale limited by the availability of maize grain. The characteristic of these tortillas contrasts with industrialised tortillas, which are packaged in plastic bags and have additives to prolong their shelf-life.

The “*Traditional who look for traditional processes*” gave higher importance to traditional foods in their daily life, and less in relation to nutrition. Although several authors refer to this aspect (Guerrero et al., 2010; Jati, 2014; Pieniak et al., 2009), it is nevertheless important to note that the three groups show nutritional knowledge linked to the culture of traditional foods. Sandoval and Camarena (2011) point out that women tend to eat traditional food owing to their greater sensitivity regarding nutritional aspects; observed in this work due to the higher number of women respondents.

At the same time, the link between traditional foods and sensorial aspects was ratified. Taste as a central element in eating is strongly linked to culture (Sajdakowska et al., 2018). Therefore, sensorial aspects are present in most studies that address purchasing motives for traditional foods within a culture (Renko and Bucar, 2014).

At present in cities, the artisan maize tortillas are highly valued from being hand-made and from natural maize grain *nixtamal* (as opposed to industrial maize flour), both perceive as in risk of disappearing. These tortillas are also presented within a social background of an artisanal process and to the traditional *milpa* maize fields, very present in the Mexican imaginary of consumers (Cárdenas-Marcelo, Espinoza-Ortega, and Vizcarra-Bordi, 2022; Sánchez-Vega et al., 2020).

In this sense, there are non-government organizations as “*Sin maíz no hay país*” (Without maize there is no country), “*Alianza por nuestra tortilla*” (Alliance for our tortilla), or “*Fundación tortilla de maíz mexicano*” (Mexican maize tortilla foundation) which have influenced current policies to promote the consumption of native maize tortillas (Ortega et al., 2019; Sin maiz no hay país, 2021; Tortilla de Maíz Mexicano, 2022) but that in reality, it has not been achieved.

Under these considerations, the success possibilities of social programmes that stimulate the link between consumers and producers of artisan maize tortillas in cities are not easy, since our work showed that only 19.55 % of consumers are in *Search for traditional processes*; and 5.45 % are in *Ethical concerns of maize production*.

Results showed that the consumer groups identified that in the Mexican urban population tortillas are still widely consumed. This is contrary to what Vanhonacker et al. (2013) reported for urban populations that tend to distance themselves from traditional foods.

The motives to consume tortillas vary in a two-way situation; on the one side, there are consumers for whom price it is crucial and are easily adapted to changes toward a less artisanal product if it is less expensive, and on the other, a small group that have a preference for the artisanal and ethical processes. For Renko and Bucar (2014) it is an example of resistance against industrialised products, as is reported in other studies (Vizcarra, 2000; Jati, 2014).

Cebreros (1997) stated that the move towards the semi-industrial production of tortillas was decisive in the continued consumption in urban societies. However, the group of consumers interested in hand-made artisan tortillas could be the trigger for some sectors linking the production of native maize, hand-made tortillas, and the valorisation of these artisan food products, as was

pretended by the incorporation of the Mexican cuisine as Intangible Heritage of Humanity of the UNESCO (Iturriaga, 2010), and that can contribute to rural development.

However, it is not without controversies, such as the recently observed in Mexico City, where a restaurant sold tortillas made by hand and native maize for 120 pesos per kilo (El Financiero, 2022).

5. CONCLUSIONS

This work showed that the prevailing purchase motives of urban consumers of tortillas in Mexico relate to the process of production and the perceptions of ethical concerns as the most important factors. The majority were pragmatic consumers (75%). Around a fifth of consumers are interested in traditional hand-made tortillas, and 5% are conscious in terms of health issues and ethical aspects of consumption.

There were three different kinds of urban consumers identified. In all groups, traditional consumption was most important, but with variation in other aspects as sensorial, nutrition and overweight issues. The aspects above influence the decision of where to buy and the kind of tortillas demanded.

In that sense, this work provides an understanding of how modern urban consumers perceive traditional foods, particularly tortillas which are the staple food of Mexico and a distinctive element of Mexican gastronomy. This analysis may contribute to establish marketing strategies for traditional tortillas in specific consumer sectors, strengthening production chains of emblematic foods as maize and tortillas, particularly important after the inclusion of Mexican cuisine as intangible heritage declared by UNESCO.

This research did not address feelings such as nostalgia for the maize tortilla, nor generational differences, which would have to be considered in future research.

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