

Meat Snacks Consumption: Aspects that the Consumer Looks for to Consider Them A Healthy Food [†]

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Abstract: In recent years, the consumption of snacks has increased substantially. Analysis of consumption trends of this kind of food through the use of surveys would allow matching the supply to the demand. The objective of the present work was to study snack and meat snacks consumption plus to analyse which consumers' preferences are considered as healthy in these products. An online survey was conducted with 234 consumers where they were asked about which type of snacks they consumed, frequency of consumption, the main characteristics that they look for in these types of foods, and what they consider a healthy snack should have. The results showed that the most important motivations for acquisition and consumption of snacks were those related to convenience, while for meat snacks were those related to acceptability above convenience and sociability. The most consumed snacks were, in descending order: fruits, dairy, nuts/seeds, coffee, cookies and meat snacks. More than 50% of the respondents consumed them from 1 time a day to 2–3 times a week. As for meat snacks, the most consumed were dehydrated meats for most of those occasionally surveyed. For consumers, a healthy meat snack should be rich in protein and low in salt.

Keywords: snack; meat snack; consumer survey

1. Introduction

In recent years, an increase in the consumption of snacks has been observed worldwide due to factors such as lack of time, the tendency to reduce caloric intake, and the consumption of foods with high protein, vitamin or mineral content [1,2]. In 2019, world-wide's segment of confectionery and snacks accounted for 17% of food revenue and 8% of volume sales. The sales of those products increased by 3% in comparison to 2018 and increases of 1.8% and 2.6% (compound annual growth rate/average growth rate per year from 2012 to 2025) between 2018 and 2025 will be expected in Europe and South America respectively [3]. There is no single definition of snacks, perhaps the most widespread definition is the one that considers snacks as "foods, not included in the main daily meals (breakfast, lunch or dinner) and that are consumed to satisfy hunger, providing a minimum amount of energy to the body, and can also be consumed for pleasure" [4]. Salty snacks ranked first in the

North American market in 2014, while they ranked third in the European and South America market. Among salty snacks, those made with meat are experiencing strong growth in recent years. Thus, a growth of 9% is expected from 2018 to 2023 but the underdevelopment of this market outside the US opens up a wide range of international growth opportunities [5,6]. The reasons why consumers choose and decide to consume a food product are complex but fundamental to the development of new products. This study can help food industry to broaden the offer of snacks that meet nutritional, palatability and appearance characteristics expected for the consumer. From this point of view, consumer surveys are an essential tool. For these reasons, the objective of this work was to study snack consumption and analyse which consumers' preferences are considered as healthy in snacks and meat snacks.

2. Material and Methods

2.1. Participants

The participants in the on-line survey were 234 from Ibero-America Region (63.8% women and 36.2% men). The most of participants are from Spain (9.87%), Colombia (42.49%), Ecuador (15.45%), Mexico (22.75%) and others (9.44%). The age range was between 18 and 74 years.

2.2. Survey

The survey consisted of two sections. The first was referring to the consumption of snacks in general, while second part was specifically about the consumption of meat snacks. The participants were contacted throughout several electronic channels, asking about to record their preferences in a google survey (free tool) for academic purposes.

2.2.1. Snacks Consumption

To determine what kind of snacks were most frequently consumed, a multiple-choice questionnaire was conducted with 18 types of products where the participants could select up to 5. To know the motivations for consumption, four dimensions were studied with their respective motivations (in parentheses): portion size (large, medium and small), weight control (high-protein, help to lose weight, satiate, low-calories), convenience (can be consumed anywhere, can be consumed at any time, no preparation required, to snack) and special needs (vegetarian, gluten-free, lactose-free).

2.2.2. Meat snacks Consumption

To determine the type of snacks most frequently consumed, a multiple-choice questionnaire was proposed with 5 types of products where 3 options could be chosen. The motivations for consuming these products were analysed considering seven dimensions with their respective motivations (in parentheses): acceptability (I have an appetite for it, it tastes good, I like it, I enjoy it), habits (I am used to eating it, I consume it normally, it is familiar to me), satiety/hunger (it gives me energy, it fills me up, it helps me to hold on until the next meal, it takes away my hunger, it satiates me), convenience (quick to get/buy, easy to store at work/home, can be purchased nearby my work), sociability (I can eat it with people/accompanied, to spend time with other people, it can be shared), mood (it helps me if I am sad or depressed, it makes me feel good if I'm frustrated, it helps me to fight stress) and indulgence/pleasure (I want to cheat myself, as a reward). The evaluations of the different motivations were made using a 7-point Likert scale (1: not important to 7: very important). Other added questions were: can a snack be healthy? Is this aspect decisive in the purchase and consumption of it? How frequently do you consume it? Finally, consumers were asked about what characteristics they would look for in a healthy snack (multiple choice questionnaire).

2.3. Statistical Analysis

Analysis of variance (ANOVA) and multiple comparison test with the least significant difference (LSD), with a confidence level of 95 % ($p < 0.05$), was applied to evaluate the differences among answers. To evaluate the coherence of motivations within the same dimension of the questionnaire, Cronbach's alpha reliability coefficient was calculated. In all cases, Statgraphics Centurion XVII Software, version 17.2.04 was used.

3. Results and Discussion

3.1. Snacks Consumption

The results showed that the most consumed snacks group by the survey respondents were fruits (67.9%), dairy (53.8%), nuts or seeds (53%), coffee (50.9%), cookies (31.2%) and meat snacks (28.6%). Snacks can be classified into healthy (nuts, fruits, vegetables, seeds, foods low in sugar and calories) and unhealthy (chips, chocolates, cakes, extruded products, and foods high in fat and sugar [7]. According to the results the mostly consumed snacks by the survey respondents would be included in the healthy group. The choice of healthy snacks depends on numerous factors, including the emotions that they generate, their availability, lack of time, health problems, eating habits and social activity [8]. To determine what characteristics the consumers, look for in a snack, the following dimensions were analysed: portion size, weight control, convenience and special needs. Table 1 shows the results of the analysis of dimensions and motivation related to the consumption of snacks.

Table 1. Results of the analysis of dimensions and motivations related to the consumption of snacks: internal consistency of the dimensions (Alpha-Cronbach) and ANOVAs (P value).

Dimension	Motivation	Motivation score ⁽¹⁾	Alfa-Cronbach	P-value
Portion size	Small	3.50 ± 0.14 ^a	0.68	<0.01
	Medium	3.39 ± 0.13 ^a		
	Large	2.83 ± 0.13 ^b		
weight control	High-protein	4.48 ± 0.14 ^a	0.86	<0.01
	It helps to lose weight	3.87 ± 0.14 ^c		
	It satiates me	4.35 ± 0.14 ^{ab}		
	Low-calories	4.03 ± 0.14 ^{bc}		
Convenience	It can be consumed anywhere	5.13 ± 0.13 ^a	0.89	<0.01
	It can be consumed at any time	5.22 ± 0.13 ^a		
	No preparation required	5.03 ± 0.13 ^a		
	To snack	4.35 ± 0.14 ^b		
Special needs	Vegetarian	2.55 ± 0.13 ^{ab}	0.85	<0.05
	Gluten-free	2.40 ± 0.13 ^b		
	Lactose-free	2.82 ± 0.14 ^a		

(1) Mean ± individual standard error. Different letter in the same dimension are significantly different as determined by LSD test ($p < 0.05$).

The results of the Alpha-Cronbach analysis indicated a value lower than 0.7 for the dimension “portion size”, but when attempting to perform the analysis removing some of the motivations, this did not improve, so it was considered to maintain the dimension with all their motivations [9]. For portion size the analysis of variance or results indicate that the most important motivations were “small” and “medium”. On the other hand, for “weight control” the most relevant motivations were “high-protein” and “it satiates me”. This should be highlighted, since products associated with a high protein content are meat and dairy products. In the analysis of “convenience” dimension, the motivations selected by consumers were that “it can be consumed anywhere”, “it can be consumed at any time” and “it does not require preparation”. Finally, in the case of the “special needs”

dimension, the most relevant motivation was “lactose-free”. The importance given by the survey respondents to the dimensions analysed was in decreasing order: convenience, weight control, portion size and special needs. Regarding the set of motivations, the most important are included in the convenience dimension “it does not require preparation”, “it can be consumed anywhere” and “it can be consumed at any time” without significant ($p < 0.05$) differences between them. The answer to the question of whether a snack can be a healthy product, 89.4% of consumers answered yes, 5.1% no and 5.5% do not know/do not answer. The healthy nature of a snack was the key in the purchase and consumption choice for 60.7% of those surveyed, while it was not so for 32% and 7.3% do not know/do not respond. The characteristics that consumers mentioned to consider a healthy snack were: ingredients that improve health (functional) (30.3%), low in sugar (27.7%), low in fat (13%), high in vitamins and minerals (7.8%), high in protein (7.4%), high in fibre (6.5%), low in salt (3.5%), high in omega-3 fatty acids (2.6%), high content in proteins of plant origin (0.4%), low content of nutrients with high risk to health (0.4%) and high content of nutrients in general (0.4%). Regarding to the frequency of consumption, 29.2% of survey respondents consume snacks between two and three times a week, 25.8% occasionally, 21.9% once a day and 18% two or three times a day. According to Hartmann et al. (2013), it was observed that the frequency of snack consumption is higher in women (6 times a week) than in men (5–2 times a week). In the same way, the most consumed snacks by women are generally fruits and vegetables, while men tend to consume highly sugary drinks and fast food.

3.2. Meat Snacks

The meat snacks most consumed by those surveyed were type of dehydrated meat (ham, loin, jerky, etc.) (53.8%), cooked sausages (39.7%), products such as fuet, chorizo, salami, etc. (31.2%), nuggets (25.2%) and meat sticks (14.5%). Regarding the frequency of consumption of these products, it was occasional for 25.8% of respondents, 2 to 3 times a week for 29.2%, once a day for 21.9%, 2–3 times a day for 18%, once a week for 3%, more than 3 times a day for 1.7% and never for 0.4%.

The obtained results from studied dimensions and their respective motivations are shown in table 2. These showed that for several of the dimensions studied there were no motivations that prevail over the others, since not significant ($p < 0.05$) differences were observed. This is the case of acceptability (mean score 4.52), habit (mean score 3.69), convenience (mean score 4.21), sociability (mean score 4.16) and mood (mean score 2.42). On the other hand, for the dimensions satiety/hunger and pleasure/indulgence significant ($p < 0.05$) differences were detected. Thus, within the pleasure/indulgence dimension, respondents consume meat snacks “to treat myself” and within the hunger/satiety dimension, the predominant motivations, all with the same importance, were: “remove hunger”, “satisfy”, “filling enough” and “helps me to hold on until the next meal”. The most important dimensions for the respondents were: acceptability in the first place and convenience and sociability in the second one, with no significant ($p < 0.05$) differences between both. As for the motivations, those that prevail were “I like it” and “it has good taste”, followed by “I have an appetite for it” and “I want to treat myself”. When asked if a meat snack can be a healthy product, 39.1% answered yes, 23% no, and 37.9% do not know/do not answer. Regarding the frequency of consumption, 50.9% of survey respondents consume meat snacks occasionally, 23.9% once a week, 13.2% two or three times a week and 11.1% never.

Finally, we wanted to ask what consumers are looking for in a healthy meat snack. The results (figure 1) showed that the most valued premises are related to high protein content and low salt content.

Table 2. Results of the analysis of dimensions and motivations related to the consumption of meat snacks: internal consistency of the dimensions (Alpha-Cronbach) and ANOVAs (*p* value).

Dimension	Motivation	Motivation Score ⁽¹⁾	Alfa-Cronbach	<i>p</i> -Value
Acceptability	I have an appetite for it	4.32 ± 0.14 ^a	0.96	0.07
	It tastes good	4.76 ± 0.14 ^a		
	I like it,	4.66 ± 0.15 ^a		
	I enjoy it	4.36 ± 0.14 ^a		
Habits	I am used to eating it	3.71 ± 0.15 ^a	0.94	0.14
	I consume it normally	3.48 ± 0.14 ^a		
	It is familiar to me	3.88 ± 0.14 ^a		
Satiety/hunger	It gives me energy	3.44 ± 0.13 ^b	0.95	< 0.05
	It fills me up	3.92 ± 0.14 ^a		
	It helps me to hold on until the next meal	4.03 ± 0.14 ^a		
	It takes away my hunger	4.12 ± 0.14 ^a		
Convenience	It satiates me	3.91 ± 0.14 ^a	0.95	0.86
	Quick to get/buy	4.27 ± 0.14 ^a		
	Easy to store at work/home	4.18 ± 0.15 ^a		
	Can be purchased nearby my work	4.17 ± 0.15 ^a		
Sociability	I can eat it with people/accompanied	4.24 ± 0.15 ^a	0.95	0.73
	To spend time with other people	4.08 ± 0.15 ^a		
	It can be shared	4.16 ± 0.14 ^a		
Mood	It helps me if I am sad or depressed	2.43 ± 0.12 ^a	0.97	0.93
	It makes me feel good if I'm frustrated	2.38 ± 0.12 ^a		
	It helps me to fight stress	2.42 ± 0.12 ^a		
Indulgence/pleasure	I want to cheat myself	4.00 ± 0.15 ^a	0.87	< 0.01
	As a reward	3.30 ± 0.15 ^b		

(1) Mean ± individual standard error. Different letter in the same dimension are significantly different as determined by LSD test (*p* < 0.05).

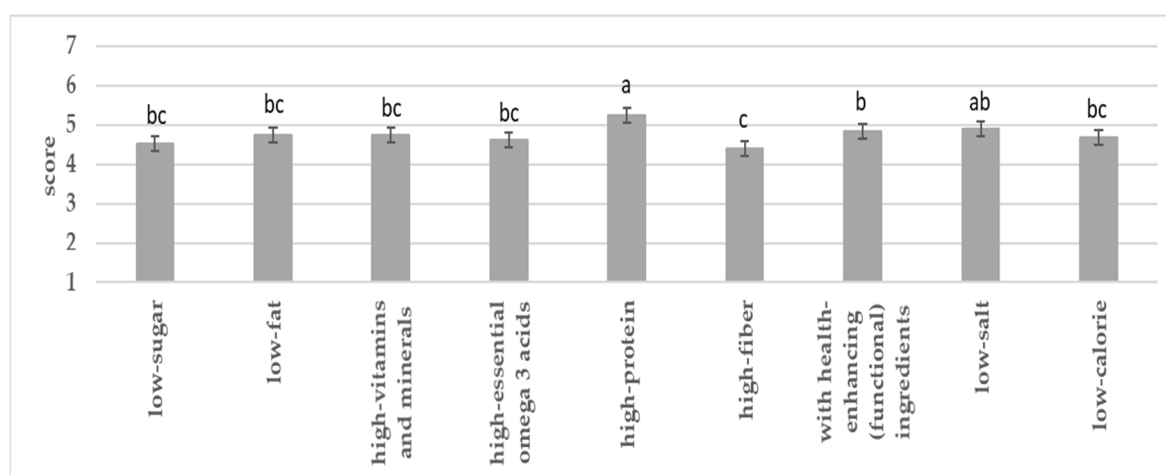


Figure 1. Aspects that the consumer looks for in healthy meat snacks. Different letters are significantly different as determined by LSD test (*p* < 0.05).

4. Conclusions

The most important motivations for the acquisition and consumption of snacks were those related to convenience. On the other hand, specifically for meat snacks the participants exposed the acceptability's motivations as the most crucial (it tastes good, I like, I enjoy and I have an appetite for it), above convenience and sociability dimensions. The most popular snacks were fruits, dairy,

nuts/seeds and meat snacks. More than 50% of those surveyed consumed them from once a day to two or three times a week. As for meat snacks, the most consumed were dehydrated meats (ham, loin, jerky, etc.), but for the majority of respondents only occasionally. Moreover, what consumers look for in a healthy meat snack was a product high in protein and low in salt.

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