

Analysis of Salt Consumption Behavior in the Province of El Oro: Implications for the Market and Industry

Análisis del comportamiento de consumo de sal en la provincia de El Oro, Ecuador: implicaciones para el mercado y la industria

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Abstract

General objective: to analyze the behavior of salt consumers in the province of El Oro, in order to understand their preferences, needs and the factors that influenced their purchase decision. **Methodology:** A quantitative approach was used with a non-experimental, cross-sectional and descriptive design. For data collection, structured surveys were applied to a representative sample of 282 families living in the city of Machala. Simple random sampling was used and the data were analyzed using descriptive statistical techniques with SPSS software. **Results:** The findings indicated that 97% of the families purchased salt for daily consumption, with common table salt being the most used (81.9%). Most respondents purchased salt monthly (60.64%), prioritizing price (52.4%) and brand (34.0%) in their purchase decision. There was evidence of growing concern about the sodium content of salt, with 67.02% of the participants considering that its consumption affected family health. However, 57.45% of respondents stated that they were not completely satisfied with the salt options available on the market. **Conclusions:** Salt consumer behavior in the province of El Oro was mainly influenced by economic, health and brand factors. Although price and accessibility determined the choice of salt, there was a tendency to look for products with lower sodium content. These results suggest the need for market strategies focused on the promotion of healthier salts and awareness campaigns on the impact of excessive sodium consumption on health.

Key words: Salt consumption, consumer behavior, public health, eating habits, purchasing decision.

Resumen

El objetivo general de esta investigación fue analizar el comportamiento del consumidor de sal en la provincia de El Oro, Ecuador, con el propósito de comprender sus preferencias, necesidades y los factores que influyen en su decisión de compra. Metodología: Se adoptó un enfoque cuantitativo, con un diseño no experimental, de tipo transversal y descriptivo. Se aplicaron encuestas estructuradas a una muestra representativa de 282 familias residentes en la ciudad de Machala, utilizando muestreo aleatorio simple. Los datos fueron analizados mediante técnicas estadísticas descriptivas, a través del software SPSS. Resultados: El 97 % de las familias adquiría sal para su consumo diario, siendo la sal de mesa común la más utilizada (81,9 %). La mayoría de los encuestados realizaba la compra mensualmente (60,64 %), priorizando el precio (52,4 %) y la marca (34,0 %) en su elección. Asimismo, el 67,02 % manifestó preocupación por el contenido de sodio, al considerar que su consumo afecta la salud familiar. Sin embargo, el 57,45 % expresó no estar completamente satisfecho con las opciones de sal disponibles en el mercado. Conclusiones: El comportamiento del consumidor estuvo determinado principalmente por factores económicos, de salud y de percepción de marca. Aunque el precio y la accesibilidad fueron los elementos decisivos en la compra, se evidenció una tendencia hacia la búsqueda de productos con menor contenido de sodio. Se resalta la necesidad de implementar estrategias de mercado orientadas a la promoción de sales más saludables y campañas de sensibilización sobre los efectos del consumo excesivo de sal en la salud.

Palabras clave: Consumo de sal, comportamiento del consumidor, salud pública, hábitos alimenticios, decisión de compra.

INTRODUCTION

Salt is a widely used seasoning in food preparation and comes in several varieties, each designed to meet specific consumer's needs. This adaptability has allowed the product to evolve to meet varied demands. It is no secret that salt, known scientifically as sodium chloride, is a basic necessity for the human body, as it is essential for electrolyte balance and the proper functioning of muscles and nerves. In this context, consumers' choice of salt is based on their individual needs and the well-being they seek to obtain through its consumption.

For most, salt is an indispensable ingredient that enriches the flavor of food, providing a pleasurable experience that associates taste with satisfaction. For others, its use is a vital necessity, linked to blood pressure control and blood volume maintenance, which has prompted the creation of specialized products, such as low-sodium or mineral-enriched salts.

From a commercial perspective, salt occupies a central place in households due to its essential nature and constant high demand. As noted by the World Health Organization (2020), "From a commercial perspective, this biological need translates into a constant and sustained demand, making salt an essential product in households around the world." This relevance is reflected in data such as the STEP survey, which indicates that 12.4% of adults add salt to food when eating, while 76.3% use it when cooking or preparing food at home. On the other hand, the percentage of people who do not consume salt is extremely low, underscoring its universal acceptance.

In this context, consumers' choice of salt is based on their individual needs and the well-being they seek to obtain through its consumption. For most, salt is an indispensable ingredient that enriches the flavor of food, providing a pleasurable experience that associates taste with satisfaction. For others, its use is a vital necessity, linked to blood pressure control and blood volume maintenance, which has prompted the creation of specialized products, such as low-sodium or mineral-enriched salts (World Health Organization, 2013).

However, excessive salt consumption is closely related to several health problems. One of the main risks is the development of high blood

pressure, a condition that can lead to serious cardiovascular diseases, such as heart attacks and strokes (Jaques *et al.*, 2021). Hypertension is known as a "silent killer" because it often has no obvious symptoms until significant damage is done to the body.

In addition, excess sodium in the diet can contribute to fluid retention, which increases pressure on the heart and blood vessels. This not only affects cardiovascular health, but can also aggravate conditions such as kidney failure and osteoporosis. The World Health Organization (2023) recommends a daily sodium intake of less than 2 grams (approximately 5 grams of salt) to reduce these risks. However, many countries far exceed this recommendation, underscoring the need for public policies and awareness campaigns to reduce salt consumption in the general population.

Literature review

Salt consumption is a universal phenomenon that transcends borders and cultures, becoming an indispensable element in the daily diet of millions of people. However, salt consumption patterns are not limited to biological needs, but are profoundly influenced by economic, social and cultural factors. Meneton *et al.* (2005) point out that salt consumption levels are closely linked to variables such as income, educational level and cultural traditions, which impact both the amount ingested and the motivations underlying its use.

Consumers' tastes and preferences vary considerably according to their needs, social class and economic capacity. Not all people have the same priorities, tastes or economic possibilities when purchasing products such as salt. In addition, consumers' perceptions of health benefits play a significant role in their choices. According to Harvard Chan School (2021), "Preferences may be influenced by the perceived health benefits of different types of salt, such as sea salt or Himalayan salt, which are often promoted as healthier alternatives to traditional table salt." This trend reflects a growing interest in options that not only fulfill basic functions, but also provide specific benefits, such as physical well-being or sports performance.

Kapferer (2012) argues that the exclusivity of a product can increase its attractiveness to certain market segments. In this context, sea salt and Himalayan salt stand out as premium alternatives.

These varieties, which contain around 80 essential minerals, have low sodium levels and require less processing than conventional table salt. Their characteristics make them popular choices among consumers who value more natural and healthier products. In short, consumer preferences for salt are influenced by demographic, cultural and socioeconomic factors, as well as health and exclusivity trends. This diversified behavior drives the demand for differentiated products, adapted to the needs and expectations of an increasingly aware and demanding market.

Consumer behavior in the salt market is constantly changing, influenced by growing health awareness, product innovations and effective marketing strategies. In recent years, demand for healthier options, such as low-sodium salt and alternatives such as sea salt and Himalayan salt, has increased significantly. This shift is in response to an increased awareness of the risks of excessive sodium consumption (Jaques *et al.*, 2021).

Growing health concerns among consumers have driven a shift towards products that offer additional benefits. According to Slovic (2000), the perceived risk associated with excessive salt consumption is a key factor in the choice of healthy products. Informed consumers are opting for salts that not only serve a basic function, but also contribute to overall well-being. For example, demand for gourmet salts, such as Himalayan salt, has been driven by their mineral content and less processed production methods.

In this regard, Wansink (2016) emphasizes that clear nutrition labels can significantly influence purchasing decisions, helping consumers to identify and choose low-sodium products. These labels not only inform, but also build trust and strengthen the positive perception of the product.

Income and educational level are two key factors that influence salt consumer behavior. Previous studies have shown that consumers with higher income and educational levels tend to prefer differentiated products perceived as healthier, such as gourmet or low-sodium salts (Meneton *et al.*, 2005). These consumers tend to be more informed about the risks associated with excessive sodium consumption and, therefore, seek alternatives that allow them to maintain a balanced diet without sacrificing taste. On the other hand, consumers with lower incomes and

educational levels tend to prioritize price and accessibility, opting for more economical and traditional options, such as common table salt (Euromonitor International, 2019). This duality in consumer behavior reflects the importance of adapting marketing strategies and public policies to the specific needs of each segment of the population.

Cultural traditions and ancestral practices also play a significant role in salt consumer behavior. In many cultures, salt is not only a culinary ingredient, but also a symbol of preservation, purification and connection to the earth. For example, in some indigenous communities in Latin America, salt is used in rituals and ceremonies, which reinforces its symbolic and cultural value (Palomeque *et al.*, 2023). These ancestral practices influence the preferences of consumers, who may opt for types of salt that they perceive as more natural or authentic, such as sea salt or Himalayan salt. In addition, local culinary traditions also affect salt consumption, as certain dishes and preparations require specific amounts of salt to maintain their traditional flavor and texture (Sarmugam, 2014). Therefore, understanding these cultural influences is essential to develop marketing strategies that respect and leverage local traditions while promoting healthier consumption habits.

According to the American Heart Association (2019) "salt purchase motivations are influenced by a combination of rational and emotional factors. From a rational standpoint, consumers are seeking to satisfy a basic need in their daily diet." This statement highlights the duality in consumer behavior when purchasing products such as salt, which can respond to both practical and emotional reasons.

At the rational level, purchasing decisions focus on criteria such as price, need and other functional factors. In this context, consumers seek to satisfy an everyday need without paying too much attention to additional product details. According to Mintel (2021), "Emotional factors also play a crucial role. For example, marketing that highlights the benefits of gourmet salt or campaigns promoting low-sodium salt can influence purchasing decisions by appealing to consumers' desires for a healthier lifestyle." This shows how advertising campaigns not only report on product features, but also appeal to personal aspirations related to well-being.

On the other hand, when purchases are motivated by emotional factors, consumers tend to be more detailed and careful in their choice, seeking not only to satisfy a basic need, but also to find comfort and security in their decision. In this area, the persuasive power of marketing and the perception of quality play a fundamental role. Quality, although subjective, is evaluated by the consumer on the basis of their personal experience and the promoted attributes of the product. Gallart-Camahort et al. (2019) point out that sensory marketing increases the appeal of products such as gourmet salts, generating an emotional bond that reinforces the purchase decision.

In addition, educational initiatives such as the World Health Organization's "Reduced Salt Consumption" program (2012) have proven to be effective in changing consumption patterns, guiding consumers toward healthier choices. These campaigns tap into both the rationality and emotions of consumers, positioning products such as low-sodium salt as responsible and desirable choices.

Schiffman & Wisenblit (2019) suggest that Maslow's theory of needs can help to better understand the motivations behind salt consumption. At the basic level, salt satisfies an essential physiological need. However, at higher levels, interest in products that promote healthy living reflects emotional aspirations related to well-being and self-actualization. This approach helps to explain why consumers value both the functional and emotional properties of products such as salt, seeking a balance between need and personal satisfaction.

The salt market can be segmented using geographic, demographic and psychographic criteria, allowing companies to more effectively meet the expectations and needs of their consumers. According to Mothersbaugh & Hawkins (2016), dividing consumers into specific segments facilitates the development of focused and personalized strategies, resulting in more efficient marketing.

Geographic segmentation considers the differences in salt consumption among different regions of the world. These variations are influenced by factors such as climate and cultural practices. According to Gallart-Camahort *et al.* (2019), in regions where refrigeration is limited, salt consumption tends to be higher due to its use in food preservation. Likewise, in areas with

hot climates, consumption may increase due to the need to replenish electrolytes lost through sweating. These regional differences reflect the importance of adapting marketing strategies according to local characteristics.

Demographic segmentation analyzes how factors such as age, gender and income level influence consumer behavior. For example, Euromonitor International (2019) notes that older adults tend to reduce their salt consumption for health reasons, such as managing hypertension. In addition, income determines purchasing preferences: consumers with more economic resources tend to opt for premium salt varieties, such as sea salt or Himalayan salt, while those with more limited income prefer more economical options.

Psychographic segmentation offers a deeper insight by exploring consumers' attitudes, values and lifestyles. According to Kantar (2020), this approach is particularly useful for positioning and promoting niche products. For example, health-oriented consumers tend to prefer low-sodium or mineral-enriched salts, while those interested in culinary experiences seek artisanal or exotic options, such as smoked or Himalayan salts. This type of segmentation allows companies to connect emotionally with their customers, highlighting attributes that align with their personal aspirations and values.

In summary, salt market segmentation not only helps to better understand consumer behavior, but also identifies opportunities to diversify products and position them in specific niches. Each type of segmentation provides unique information that, taken together, is essential for developing effective and customized marketing strategies, maximizing the reach and relevance of salt products in a highly competitive market.

The salt industry has responded to new consumer demands with innovations ranging from the reduction of sodium content to the introduction of mineral-enriched or sustainably processed salts. These differentiating features not only address health concerns, but also add value to the product, making it attractive to a consumer segment that prioritizes quality and exclusivity. Solomon (2020) highlights that sustainability is an emerging criterion in this market, where consumers prefer products that respect the environment, strengthening the emotional connection with brands committed to sustainability.

Marketing campaigns have been decisive in shaping consumer behavior. Chaffey *et al.* (2009) point out that digital marketing has revolutionized the way brands reach their target audience. Through highly segmented online campaigns, brands are able to connect with specific consumers, communicating relevant and personalized messages.

In addition, educational campaigns have played a crucial role in transforming consumption habits. For example, programs that promote the reduction of salt consumption not only encourage healthier behaviors, but also stimulate demand for healthier and more sustainable alternatives. These strategies have made marketing not only a sales tool, but also a means to educate and raise awareness.

In conclusion, the salt market is undergoing dynamic change, driven by factors such as health awareness, product innovations and targeted marketing. This consumer behavior reflects an increased demand for products that offer not only functional benefits, but also attributes that promote health and wellness. Companies that are able to align their strategies with these trends will be better positioned to capture the attention and loyalty of consumers in an increasingly informed and demanding marketplace.

The general objective of this study was to analyze salt consumer behavior among the inhabitants of the province of El Oro. This analysis will focus on understanding the preferences, needs and factors that influence the salt purchase decision among the residents of this region. While the specific objectives were: Identify the preferences and needs of salt consumers in the province of El Oro; Determine the factors that influence the salt purchase decision among the inhabitants of the province of El Oro; Evaluate the level of consumer satisfaction with salt products available in the market. And to identify consumers' concerns about the sodium content of the salt they consume.

This study is of great relevance to the local salt industry, as it provides valuable information on consumer preferences, needs and behaviors in the province of El Oro. The findings of this research will enable local salt companies to better understand market demands, which will facilitate strategic decision-making in terms of product development, marketing and distribution. For example, by identifying that

the consumers primarily value price and brand, but also show concern about sodium content, companies can innovate in offering products with lower sodium content, while maintaining competitive prices and reinforcing brand image. In addition, this study can help companies to better segment their market, targeting their efforts towards those consumers looking for healthier or premium options, such as sea salt or Himalayan salt (Euromonitor International, 2019). In a context of increasing competition and health awareness, this information is crucial to remain competitive and maintain consumer loyalty.

The study also has significant public health policy relevance. Excessive salt consumption is a global health problem, associated with the development of cardiovascular disease, hypertension, and other chronic conditions (World Health Organization, 2023). The results of this research, which show a growing concern among consumers about the sodium content of salt, support the need to implement public policies that promote the reduction of salt consumption in the population. These policies could include awareness campaigns about the risks of excessive sodium consumption, the implementation of front labeling that clearly informs about the salt content of products, and the promotion of food reformulation to reduce their sodium content (Claro *et al.*, 2012). In addition, the findings of this study can be used by health authorities to design specific interventions aimed at population groups at higher risk, such as older adults or people with hypertension, thus promoting healthier eating habits and contributing to the prevention of sodium-related diseases.

METHODOLOGY

This research adopted a quantitative approach, with a non-experimental, cross-sectional and descriptive design. Structured surveys were used as the main instrument to collect data, which allowed us to analyze the preferences, needs and factors that influence the behavior of salt consumption in the city of Machala.

The population was composed of families residing in the city of Machala, totaling 95,722, according to data from the National Institute of Statistics and Census of Ecuador (INEC). This

estimate was obtained by dividing the total of 306,309 inhabitants reported in the last official census by 3.2, the average size of a family in the region. To determine the sample size, a statistical calculation was used based on a confidence level of 95% and a margin of error of 5%, resulting in a representative sample of 282 families. The participants were selected by simple random sampling, ensuring the inclusion of different socioeconomic and educational levels within the population studied.

In terms of age, the majority of respondents were between 21 and 30 years of age, representing 43.6% of the total. Other significant age groups were 41 to 50 years old (20.2%) and 31 to 40 years old (18.1%). Respondents aged 51 to 60 years accounted for 9.6%, those aged 61 to 70 years 7.4%, and only 1.1% were aged 71 to 80 years.

In terms of educational level, more than half of the respondents (52.1%) had a university education. 36.2% had high school education, while 4.3% had technical or technological education, and another 4.3% had a postgraduate degree. Only 3.2% of respondents had primary education.

Regarding monthly household income, the majority of respondents earned between \$300 and \$600 per month, accounting for 36.2%. 25.5% earned less than \$300, and 22.3% had incomes between \$601 and \$900. Higher incomes were less represented, with only 3.2% earning more than \$2400 per month.

Finally, in terms of the number of members in the household, the majority of respondents lived in households with 4 members (31.9%). Households with 5 or more members represented 29.8%, and households with 3 members 21.3%. 12.8% lived in households with 2 members, and only 4.3% lived alone.

The instrument used was a structured survey designed specifically for the study, which included closed questions and Likert scales to measure factors such as consumption preferences, frequency of purchase, health concerns and determinants of salt choice. Previously, a pilot test was conducted with a small group of participants to validate the clarity

and relevance of the questions. The surveys were applied in person and digitally, ensuring the representativeness of the data and facilitating the participation of families with limited access to technology.

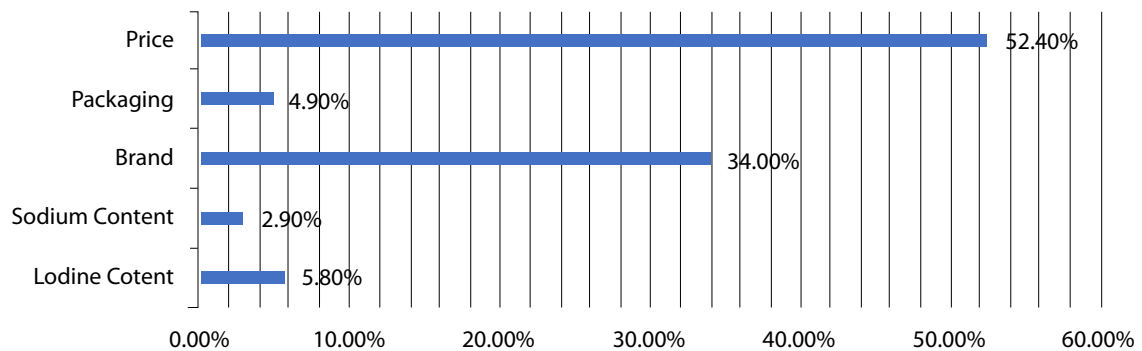
The data collected were processed and analyzed using specialized statistical software (SPSS version 25), using descriptive techniques to summarize the data in frequencies, percentages and averages. Cross-tabulations were also performed to identify significant relationships among factors such as socioeconomic level, purchase frequency and health concerns.

The confidentiality of the data and the anonymity of the participants were guaranteed at all stages of the study. This ethical treatment of the information made it possible to obtain reliable and replicable results, providing a solid basis for understanding the behavior of salt consumers in Machala.

RESULTS

From the data collected, it can be concluded that 97% of families in the province of El Oro purchased salt for their daily consumption, which confirmed its importance as a basic product in households.

Regarding the factors that families consider most relevant when purchasing salt, the results indicate that price and brand are the most valued aspects. The majority of respondents consider price to be the most important aspect, with 52.4% of the responses and 63.5% of the cases. Brand is also a significant factor, representing 34.0% of the responses and 41.2% of the cases. Other aspects such as iodine content (5.8% of responses, 7.1% of cases), sodium content (2.9% of responses, 3.5% of cases) and packaging presentation (4.9% of responses, 5.9% of cases) are less important to respondents. This pattern reflects that purchase decisions are influenced both by economic considerations and by the trust associated with certain brands.

Figure 1.*Most relevant aspects in salt consumption***Salt Consumption Patterns**

The analysis of the variables used to assess the behavior of salt consumers is discussed in more detail in the following table.

Table 1.*Descriptive Statistics*

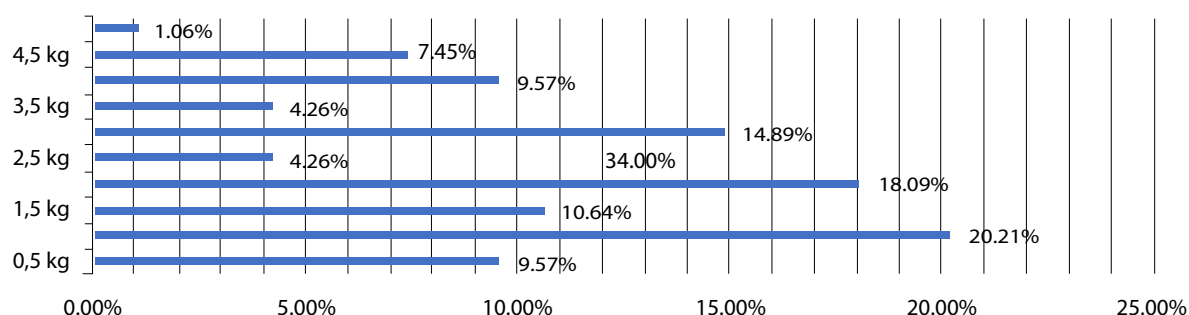
Variables (N=282)	N	%
Do you consider that salt consumption affects your family's health?		
Yes	189	67,02%
No	93	32,98%
Are you concerned about the sodium content of the salt you consume?		
Not at all	12	4,26%
A little	78	27,66%
Some	123	43,62%
A lot	69	24,47%
How often do you buy salt for your home?		
Every week	69	24,47%
Every two weeks	42	14,89%
Monthly	171	60,64%
What are your main motivations for buying a brand of salt?		
Physical and mental well-being	24	8,51%
Improve the taste of food	174	61,70%
Naturalness	63	22,34%
Reputation and recognition in the marketplace	21	7,45%
Do you usually look for information about salt before you buy it?		
Never	96	34,04%
Rarely	36	12,77%
Sometimes	84	29,79%
Often	39	13,83%
Always	27	9,57%

What source of information do you primarily use to decide what type of salt you consume?		
Information on packaging	129	45,74%
Advertising	75	26,60%
Recommendation from friends/family	72	25,53%
Social networks	6	2,13%
What uncertainty arises when choosing between different types of salt?		
Sodium content and other additives	48	17,02%
Origin and method of production	6	2,13%
Price compared to other brands	123	43,62%
Misleading advertising and promotions	3	1,06%
Brand reputation	12	4,26%
Taste and texture	90	31,91%

Figure 2 shows how the quantities are grouped into different weight categories. The “1 kg” category presented the highest number of observations, with 57, representing 20.21% of the total. This suggests that most of the data were concentrated in this category, indicating a trend toward 1 kg weights in the sample. The relative percentages provided an understanding of the proportion of each category in relation to the total. The “1 kg” and “2 kg” categories together accounted for more than 38% of the total, indicating that these weight ranges were the most common. This analysis is useful to identify the predominant categories and their

relative importance in the data set. Comparison among the different categories helped to identify patterns or trends. For example, the “2.5 kg” and “3.5 kg” categories had the same number of observations (12) and the same percentage (4.26%), which could indicate a similar distribution in these weight ranges. This type of comparison revealed similarities and significant differences between the categories. Finally, it was observed that the categories with the lowest amounts, such as “More than 5 kg” with only 3 observations (1.06%), indicated that weights greater than 5 kg were less common in the sample.

Figure 2.
Amount of salt normally purchased-P15



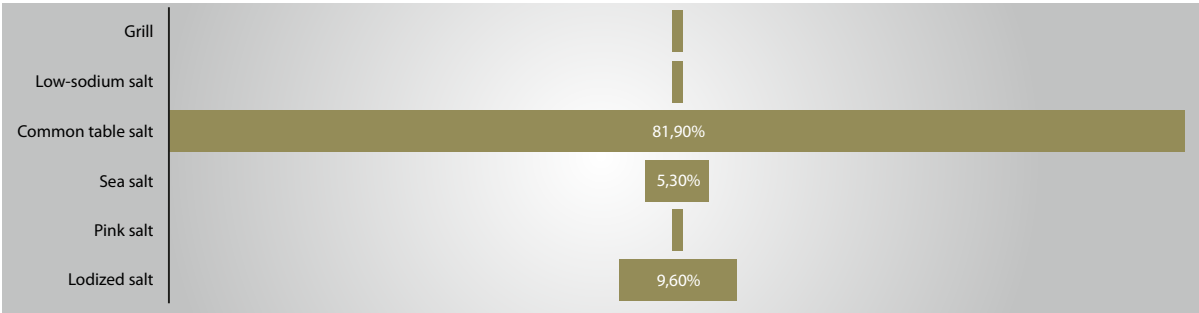
Regarding the frequency of household salt purchase, the results showed that the majority of the respondents purchase salt monthly, with 171 observations representing 60.64% of the total. 24.47% of the respondents buy salt every week,

while 14.89% buy salt every two weeks. These data indicate that salt purchasing is a regular and frequent activity for most households, with a clear preference for monthly purchases.

The preferences for the type of salt used in households were also analyzed. Common table salt was the most commonly used, with 231 observations representing 81.90% of the total. Iodized salt was the second most common, with 27 observations (9.60%). The other categories,

such as sea salt (5.30%), grill salt (1.10%), low sodium salt (1.10%) and pink salt (1.10%), were significantly underrepresented. These results suggest a clear preference for common table salt in the surveyed households.

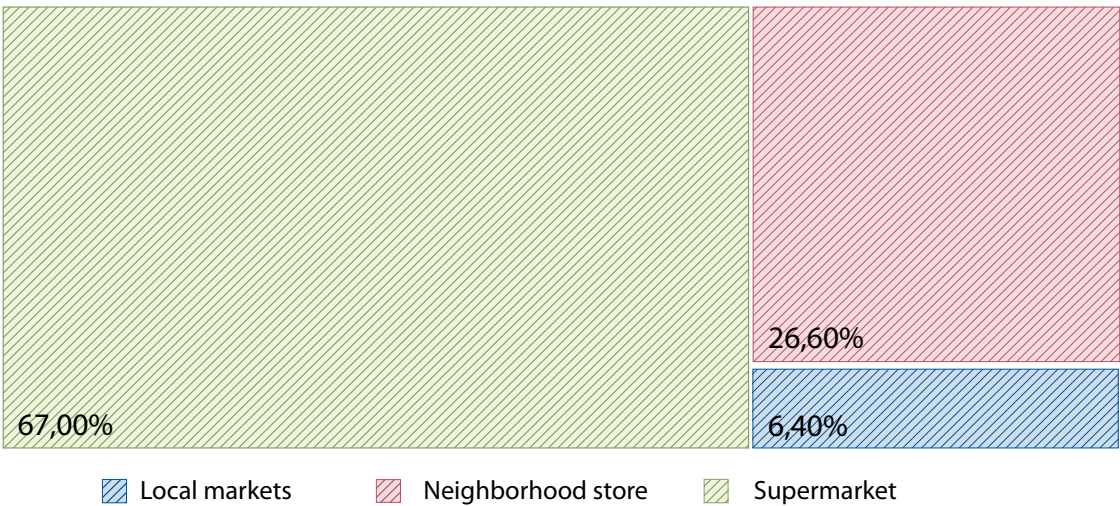
Figure 3.
Type of salt mainly consumed by your household-P16



Similarly, the places where salt is purchased were evaluated. The results indicated that most respondents purchase salt in supermarkets, with 189 observations representing 67.00% of the total. Neighborhood stores were the second most

common place, with 75 observations (26.60%), while local markets accounted for 6.40% with 18 observations. These data reflect a significant preference for supermarkets as the main place to purchase salt.

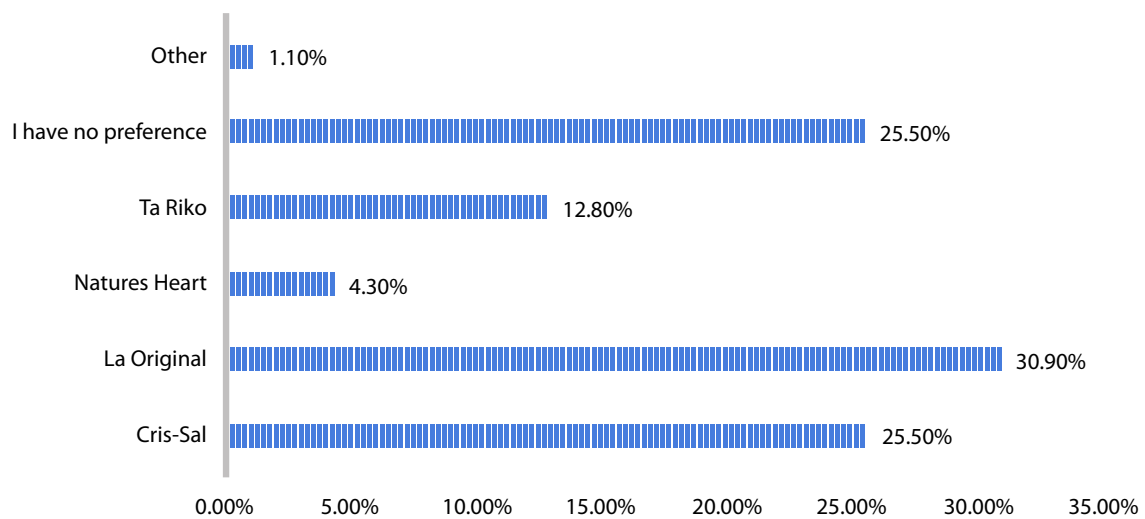
Figure 4.
Place where you usually buy salt for your home-P17



As for preferred salt brands, the results showed that “La Original” was the most popular brand, with 87 observations, representing 30.90% of the total. “Cris-Sal” and “No preference” had the same number of observations, with 72 each, representing 25.50% of the total

each. “Ta Riko” was preferred by 12.80% of respondents, while “Natures Heart” and “Other” had a lower representation, with 4.30% and 1.10% respectively. These results indicate a diversity in brand preferences, although “La Original” stands out as the most preferred.

Figure 5.
Preferred salt brand - P18

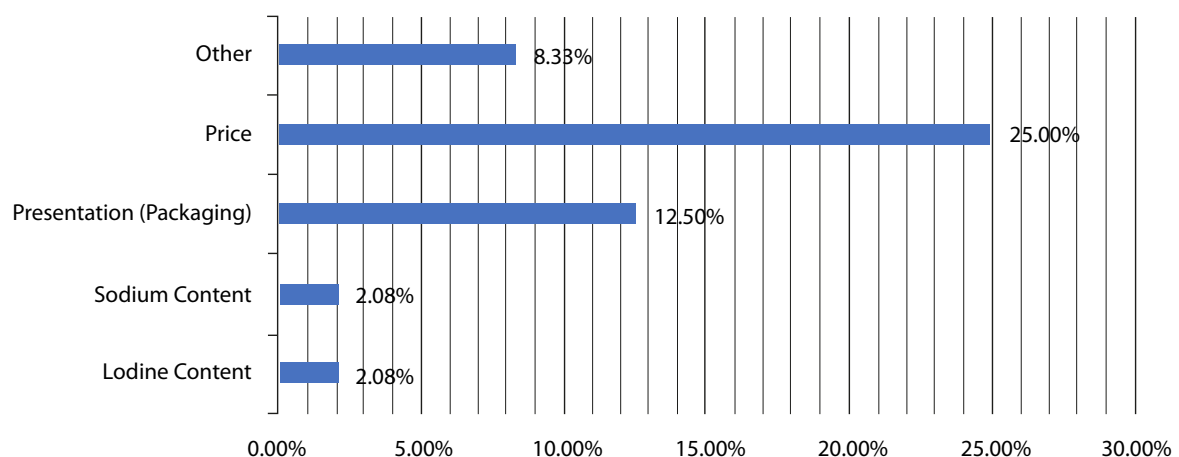


Nevertheless, Table 1 shows that consumers are concerned about the sodium content of the salt they consume, indicating a growing awareness of the relationship between this mineral and health. On the other hand, regarding concern about the sodium content in the salt they consume, 4.3% of respondents are not concerned at all, 27.7% are slightly concerned, 43.6% are somewhat concerned, and 24.5% are very concerned.

It is important to know whether respondents have changed their salt brand in the last year in order to determine possible patterns of seasonal

changes in terms of the factors influencing their purchase decision. In terms of loyalty, 74.50% of consumers have not changed brands in the last year, while the remaining 25.50% have opted to try other brands, mainly motivated by price (50%), product presentation (25%) and third-party recommendations (16.67%). In addition, the main motivations of respondents when buying a salt brand are: to improve the taste of food (61.7%), the naturalness of the product (22.3%), physical and mental well-being (8.5%), and reputation and recognition in the market (7.4%).

Figure 6.
Reason for brand change - P20



Satisfaction levels

Satisfaction with available salt products

Consumer satisfaction with salt products available on the market shows an interesting trend. According to the data collected, 42.55% of respondents are satisfied with the salt they consume, while 57.45% are not. This disparity suggests that there is significant room for improvement in the quality or characteristics

of salt products to better meet consumer expectations. In addition, the high satisfaction when encountering offers or discounts (92.55%) indicates that promotions and discounts are an effective strategy to increase customer satisfaction and possibly brand loyalty. These findings highlight the importance of not only maintaining product quality, but also implementing marketing strategies that attract and retain consumers.

Table 2.

Satisfaction with salt consumption and satisfaction when finding offers or discounts P8 and P12

Questions	Satisfied		Not satisfied	
	Very satisfied Satisfied (+)		Not satisfied Slightly satisfied (-)	
	n	%	n	%
Are you satisfied with the salt you consume?	120	42,55%	162	57,45%
How satisfied do you feel when you find offers or discounts?	261	92,55%	21	7,45%

The importance of the brand and packaging in the salt purchase decision is also notable. A total of 85.11% of the respondents consider it important that the salt they buy is of a recognized brand, while 14.89% do not give importance to this aspect. Likewise, 81.91% of those surveyed value

that the salt they buy has adequate packaging, in contrast to 18.09% who do not consider this relevant. These data highlight the relevance of the brand and packaging in the perception of quality and in the consumers' purchasing decision.

Table 3.

Importance of brand and packaging in the purchase of salt P11 and P13

Questions	Important		Not important	
	Important		Not important	
	n	%	n	%
How important is it to you that the salt you buy is from a brand?	240	85,11%	42	14,89%
How important is it to you that the salt you buy has a container?	231	81,91%	51	18,09%

Consumers' perception of paying for additional benefits and satisfaction with the salt options available in the market reveals that a significant majority is not willing to pay more for a salt that promises additional benefits. Only 1.06% of respondents strongly agree with paying more, while 38.30% agree and 60.64% disagree. In terms of satisfaction with the salt options available

in the market, 1.06% of respondents are totally satisfied, 46.81% feel neutral and 52.13% are dissatisfied. These results indicate that, although there is some willingness to consider additional benefits, most consumers are not willing to pay more for them and are not completely satisfied with the current options on the market.

Table 4.

Perception of fringe benefit payments and satisfaction with salt options in the market P22 and P23

Questions / Dimensions	Agree		Neutral		Disagree	
	Totally agree Agree (+)		Neither agree nor disagree (0)		Totally disagree Disagree (-)	
	n	%	n	%	n	%
I am willing to pay more for a salt that promises salt benefits.	3	1,06%	108	38,30%	171	60,64%
I am satisfied with the salt options available on the market.	3	1,06%	132	46,81%	147	52,13%

In terms of seeking information about salt before purchasing it, the data show that 34.0% of respondents never seek information, 12.8% rarely do so, 29.8% sometimes do so, 13.8% often do so, and 9.6% always seek information. This indicates that a considerable portion of consumers do not do much research before buying salt, although there is a segment that does care to obtain information before making a purchase decision.

Likewise, regarding the sources of information used to decide which type of salt to consume, 45.7% of respondents rely on information on the packaging, 26.6% on advertising, 25.5% on recommendations from friends or family, and 2.1% on social networks. This suggests that information provided directly on the product and personal recommendations are the most influential sources in the salt purchase decision.

When choosing from different types of salt, consumers are faced with several doubts. 17.0% of respondents are concerned about sodium content and other additives, 2.1% about origin and production method, 43.6% about price compared to other brands, 1.1% about misleading advertising and promotions, 4.3% about brand reputation, and 31.9% about taste and texture.

These data indicate that price and taste/texture are the main sources of uncertainty for consumers when choosing a salt.

The interpretation of the results of this research highlights that the consumers in Machala prioritize price, brand and familiarity when choosing salt, although they show a growing concern for the health effects of sodium, which reflects a global trend towards food awareness. When comparing these findings with previous studies, such as those of Claro *et al.* (2012) and Villar *et al.* (2023), it is confirmed that concern about sodium and preference for accessible products are common patterns in different contexts.

DISCUSSION

Consumer behavior in relation to salt is conditioned by marketing strategies and the growing interest in health and well-being. According to Wansink (2016), the food purchase decision is not always conscious, but is influenced by environmental factors, such as the design of the shopping environment and the promotion of

products with healthy attributes. In this sense, the growing diversification of the salt market, with alternatives such as low-sodium and mineral-enriched salts, responds to the need to serve consumers concerned about improving their eating habits and preventing health problems such as hypertension and cardiovascular disease. This trend is aligned with the findings of Claro *et al.* (2012) and Villar *et al.* (2023), who highlight that the consumers are increasingly concerned about the health effects of sodium, which is driving the demand for healthier options.

On the other hand, the Pan American Health Organization (PAHO, 2020) stresses the need to reduce salt consumption worldwide to reduce the risk of non-transmissible diseases. Awareness campaigns have contributed to consumers' perception of salt as an element that should be used in moderation, driving the demand for alternative and healthier options. This coincides with the results of our research, where 68.09% of respondents expressed concern about the sodium content of the salt they consume, and 67.02% consider that salt consumption affects their family's health. These data suggest that, despite the preference for common table salt (81.91%), consumers are developing a greater awareness of the need to reduce sodium consumption.

Likewise, Harvard Chan School (2021) highlights that the specialized salts, such as sea salt and Himalayan salt, have gained popularity not only because of their perceived natural properties, but also because of the promotion of their mineral benefits. This market dynamic reinforces Meneton *et al.* (2005), who argue that economic and educational factors directly influence the selection and use of food products, including salt. Consumers with higher educational levels tend to opt for differentiated products that they perceive as healthier, as opposed to more economical and traditional options. In our research, this is reflected in the preference for recognized brands such as "La Original" (30.85%) and the importance of attractive packaging (68.09%), suggesting that consumers value both perceived quality and product presentation.

Moreover, as noted by the World Health Organization (2012), the advertising that highlights the unique properties of products such as gourmet salts contributes to market segmentation, targeting an audience that prioritizes both well-being and perceived quality in their food choices. This phenomenon also

reflects a change in purchase motivations: beyond product functionality, consumers are seeking to satisfy emotional and social needs, such as the desire to adopt healthy and sustainable lifestyles. In this sense, salt becomes not only a basic ingredient, but also a symbol of well-being and sophistication when it is associated with attributes such as purity, natural origin and additional benefits that differentiate it from common salt.

The growing interest in healthier alternatives is also driven by an increased awareness of the relationship between excessive salt consumption and its impact on public health. According to the American Heart Association (2019), excess sodium in the diet is a major risk factor for the development of high blood pressure, cardiovascular disease, and stroke. This scenario has led governments and health organizations to implement policies that promote the reduction of salt consumption, such as the reformulation of food products to reduce their sodium content and the inclusion of front labeling that alerts consumers to high levels of this component. These policies not only encourage the adoption of healthier habits, but also force the food industry to innovate and adapt to new market demands.

In line with the above, recent studies highlight how marketing strategies have focused on enhancing the differentiating qualities of products such as gourmet salts. According to a report by Mintel (2021), modern consumers, especially those belonging to younger and higher-income segments, show a growing interest in products that offer a sensory and perceived premium experience. This phenomenon also reflects a change in purchase motivations: beyond product functionality, consumers are seeking to satisfy emotional and social needs, such as the desire to adopt healthy and sustainable lifestyles. In this sense, salt becomes not only a basic ingredient, but also a symbol of well-being and sophistication when it is associated with attributes such as purity, natural origin and additional benefits that differentiate it from common salt.

CONCLUSIONS

Most families buy salt on a monthly basis (60.64%), and the type of salt most consumed is common table salt (81.91%). This shows a generalized preference for table salt, reflecting its accessibility and familiarity. Likewise, the most important factors for consumers are price (43.62%) and brand (23.40%). This suggests that consumers primarily value for money, although brand also plays a significant role in their decisions.

A high percentage of respondents feel satisfied (55.32%) or very satisfied (14.89%) with the salt they consume, indicating a positive general acceptance of the product in the market. The majority of consumers (67.02%) consider that salt consumption affects their family's health, and 68.09% are concerned about the sodium content of the salt they consume (24.47% very much, 43.62% some). This shows a high awareness of the effects of sodium on health.

The most preferred salt brand was "La Original" (30.85%), followed by "Cris-Sal" and those with no specific preference (25.53% each). The importance of the well-known brand is reflected in that 72.34% consider it important and 12.77% very important that the salt be of a well-known brand. In addition, attractive packaging is also relevant (68.09%).

Taken together, the results of our research and findings from the scientific literature indicate that consumers in Machala value the taste, price, and brand of salt, but are also concerned about the health effects of sodium. This suggests that, while there is general satisfaction with the products available, there is latent demand for healthier options that balance taste with lower sodium content. For companies, this represents an opportunity to innovate products, improve labeling and strengthen consumer confidence through recognizable brands and attractive packaging.

The data obtained in our research results in the fulfillment of the objectives, providing a comprehensive understanding of salt consumer behavior in Machala. Consumers value price and brand, are satisfied with the quality of the product available, and show significant concern about sodium content and its impact on health. For companies, it would be beneficial to offer reduced sodium op-

tions, maintain competitive prices, ensure good brand visibility, attractive packaging, and consider promotions and discounts.

The main findings of this research reveal that consumers in Machala prefer common table salt (81.91%) due to its accessibility and familiarity, valuing mainly price (43.62%) and brand (23.40%) in their purchasing decisions. Although most are satisfied with the products available (55.32% satisfied, 14.89% very satisfied), there is significant concern about sodium content (68.09%) and its impact on health (67.02%). These preferences and concerns have practical implications for both the salt industry and public health policies. For the industry, it is recommended to innovate in products with lower sodium content, maintain competitive prices, strengthen the visibility of recognized brands and improve the attractiveness of packaging to meet market demands. Regarding public health policies, it is suggested to implement awareness campaigns on the risks of excessive sodium consumption, promote the use of front labeling that clearly informs about sodium content, and encourage the reformulation of food products to reduce their salt content in order to improve eating habits and prevent sodium-related diseases in the population.

Academic contribution to the study of the consumer

This study contributes to the academic field of consumer behavior by providing detailed insight into the factors that influence salt choice and consumption in the province of El Oro, Ecuador. Through quantitative analysis, consumer preferences, needs, and concerns are identified, allowing for a deeper understanding of how socioeconomic, cultural, and health variables affect purchasing decisions. In addition, this work provides empirical evidence on the importance of price, brand and quality perception in a highly competitive market, such as the salt market. The findings of this research can serve as a basis for future studies exploring consumer behavior in other geographical contexts or in relation to other basic products. Furthermore, this study contributes to the existing literature by highlighting the growing consumer concern about the health effects of sodium, reflecting a global trend toward food awareness and preference for healthier products (Claro *et al.*, 2012; Villar *et al.*, 2023).

Limitations and future lines of research

However, this study has limitations, such as the focus on a single city and the use of a limited sample, which may affect the generalization of the results. In addition, there could be methodological biases, such as self-reporting by respondents, which could influence the accuracy of the data. For future research, we recommend expanding the sample to other regions of the country, incorporating mixed methods (quantitative and qualitative) to delve deeper into consumer motivations, and exploring the impact of educational campaigns and public policies on the reduction of salt consumption. These improvements would allow us to obtain a more complete and representative view of salt consumer behavior in Ecuador.

Authors' contributions:

Jorge Guido Sotomayor-Pereira: Conceptualization, Data Curation, Formal Analysis, Research, Methodology, Resources, Supervision, Validation, Visualization, Writing - Original Draft, Writing - Proofreading and Editing.

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Conflicts of Interest

The authors declare that there are no conflicts of interest.

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