Benefit-based market segmentation for innovative products: the case of carrot-enriched cheese bread

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ABSTRACT

Market segmentation based on demographic factors alone often fails to capture the expectations of consumers. Therefore, this study aimed to establish what value and benefit attributes most influence the acceptance of an innovative food product. A traditional and popular Brazilian snack food – cheese bread – went through the process of new product development. This resulted in replacing 40% of the cheese content with carrots, which is in line with current trends in health and sustainability. A sample of 2,158 respondents was tested using the food neophobia scale. Both the exploratory factor analysis and cluster analysis were carried out to identify distinct consumer segments which represented the most valued attributes and benefits expected from an innovative product. Four segments were identified: hedonic (old women, middle income and seeking taste); convenience and health (young women concerned about time saving); innovation (older men and women, high level of education and low neophobia traits); and functional (young men who had higher levels of neophobia). Taste, convenience and health were the main determinants of intention that influenced the market segmentation for such an innovative food product. The perception for product benefits tend to reduce the rejection to this innovative product. The findings contribute to fill a gap in the literature, particularly regarding 'desired benefits' as a basis for segmentation applied to an innovative product from an emerging market perspective.

Index terms: market segmentation, food industry, eating behavior, innovation, neophobia.

Ideias centrais

- Recipe reformulation of traditional cheese bread resulted in healthier and more sustainable product.

- Taste, Convenience and Health were the main determinants of consumption intention for an innovative food product.

- Market segmentation based on values and benefits provides a better profiling for potential consumers.

- Four main segments were identified: hedonic, Convenience and Health, Innovation, and Functional.

- Food neophobia was deemed low in all segments but Functional.

Segmentação de mercado baseada em benefícios de produtos inovadores: o caso do pão de queijo enriquecido com cenoura

RESUMO

A segmentação do mercado, com base em fatores demográficos isolados, frequentemente falha em capturar as expectativas dos consumidores. Assim, o objetivo deste estudo foi estabelecer quais valores e benefícios mais influenciam a aceitação de um alimento inovador. O pão de queijo, um "snack" brasileiro tradicional e popular, foi experimentado um processo de desenvolvimento como novo produto. Isto resultou na substituição de 40% do conteúdo de queijo da receita por cenoura, conforme as tendências atuais em saúde e sustentabilidade. Uma amostragem com 2.158 respondentes foi testada, aplicando-se a escala de neofobia alimentar. Análises de fatores exploratórios e de agrupamento foram

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aplicadas para identificar segmentos distintos de consumidores que representariam os valores de atributos e benefícios melhor avaliados de um produto inovador. Identificaram-se quatro segmentos, conforme a seguir: hedônico (mulheres de meia idade, de renda média e que valorizam sabor); conveniência e saúde (mulheres jovens interessadas em soluções rápidas); inovação (homens e mulheres de meia idade, com alto nível de educação e baixa tendência à neofobia); e funcional (homens jovens com alto nível de neofobia). Sabor, conveniência e saúde foram os determinantes de intenção que mais influenciaram a segmentação de mercado quanto a este produto inovador. A percepção quanto aos benefícios do produto pode reduzir a rejeição a este alimento inovador. Os resultados contribuem para preencher uma lacuna na literatura quanto a 'benefícios desejáveis', particularmente como base para a segmentação a ser aplicada a um produto inovador inovador em um mercado emergente.

Termos para indexação: segmentação de mercado, indústria de alimentos, comportamento alimentar, inovação, neofobia alimentar.

INTRODUCTION

Food manufacturers use new product development (NPD) to gain and sustain competitive advantage. Yet, although innovation is a key-driving force for success in product differentiation (Florack et al., 2021), new product introductions ultimately depend on the consumer acceptance. The reason for this is complex, as it usually relates to the ability of consumers to perceive sensory and nonsensory attributes which influence the acceptance and, consequently, affect the product adoption. Therefore, a more consumer-led market segmentation approach to inform the NPD process and address the needs and wants of the consumers is particularly welcome (Goulart et al., 2021).

Many existing market segmentation models are built around sociodemographic and psychological variables (Müllensiefen et al., 2018). However, these tend not to provide great insights into how consumers actually behave, particularly towards innovative or differentiated food products (Jaeger et al., 2019). Moreover, although the seminal article on the segmentation of food-related lifestyle market has advanced the general understanding as regards to the consumer behavior, there are still some limitations in this field (Grunert et al., 2001). Therefore, a gap in the literature on segmentation is observed particularly concerning frameworks based on attributes/benefits demanded by consumers. Within this context, we will be specifically focusing on 'desired benefits' as a basis for segmentation (Onwezen, 2018; Grunert, 2019).

Therefore, a better understanding of how market segmentation could overcome barriers in the acceptance of a differentiated food product could also throw some light on the topic. For the purpose of testing this idea, it was suggested that the nutritional composition of a traditional food product in Brazil, cheese bread, be changed. Animal origin product (cheese) could also be replaced with a vegetable one (carrots). The replacement of cheese by carrots not only can lower the caloric content of a food product, but also potentially reduce the carbon footprint. In addition, it would also contribute to social and environmental achievements (Wongsaichia et al., 2022). Thus, considering the main aim of the present study, it was also intended to address the following issues:

a) Verify the main attributes valued by consumers that could be key in marketing segmentation.

b) Propose a segmentation of customers based on the most valued attributes and benefits the consumers expect from differentiated or innovative products.

c) Test the proposed segmentation using an innovative product (carrot-enriched cheese bread), to ascertain whether the emerging profiles were distinct enough.

The supporting objectives were needed due to a different approach to consider market segmentation, that is, from the viewpoint of perception of the product benefits. Consequently, by addressing the objectives, the results would bring more weight and support more efficient marketing strategies, when considering different perceptions and consumption intentions. Furthermore, food industry managers and public health policy makers would also benefit from a better understanding of how consumers think and choose food innovations brought to market. From this, they could make conclusions as to which benefits are more relevant to consumers.

THEORETICAL BACKGROUND

Product features and/or benefits do not always communicate the same meaning for all consumers at all times. This is because most attributes end up being ignored, thus, consumers perceive product benefits as those features that have value (Sarti et al., 2018; Konuk, 2019; Chousou & Mattas, 2021).

Burnier et al. (2021) proposed that both intrinsic (sensory-related) and extrinsic product characteristics needed to be considered when consumers made their purchase choices. These characteristics were deemed important in food marketing because they influence the consumption decisions such as the intention to buy, as well as the act of purchase. Hence, to satisfy their needs and desires, consumers look at a product as a bundle of product features and benefit attributes (Casas-Rosal et al., 2023). As posited by Aguiar et al. (2018), the consumers valued attributes such as food safety, health, and taste as positive benefits for palm-derived products, even though the overall perception for palm oil sustainability was deemed detrimental to the environment. Furthermore, in food marketing, the communication of aggregated benefits to consumers, resulting from food NPD process, has been a key in influencing product acceptance (Grunert, 2019; Branstad & Solem, 2020; Goulart et al., 2021). Therefore, consumers who perceived attributes in food that represented positive values (benefits) regarded these as determinants of acceptance of innovation (Stancu et al., 2022). This was also the case for new products which embodied functional and/or health attributes that caused the demand rise by the consumers (Seczyk et al., 2017; Giordano et al., 2018; Cattaneo et al., 2019).

Still, the place of consumption has also been perceived as influencing innovation acceptance. For instance, on home consumption occasions, consumers tended to prioritize healthy food that prevents diseases (Küster-Boluda & Vidal-Capilla, 2017; Symmank, 2019). Conversely, during out-of-home consumption, festivities and celebrations, consumers declared they were motivated to consume food that ensured satiety and pleasure. Heide & Olsen (2018), Onwezen (2018), and Grunert (2019) have used this knowledge to apply a typology of 'intentions to consume'. The typologies are based on perceived dietary benefits in different consumption situations, for instance, at home, at work, school, or other locations.

Following this, Onwezen (2018) proposed that market segmentation ought to consider the consumers' practical applications which could deliver one or more desired attributes. Consequently, the consumer segmentation should consider the main determinants of intention to ascertain how consumers base their main purchase motivation, in order to increase the product acceptance.

It is widely accepted that the consumer segmentation is an effective tool in marketing, and that the segments provide an indication of one or more common consumers' traits (Onwezen, 2018). Guiné et al. (2020) posited that when the traits were explored these could return a higher successful rate in matching the products to the right people. Among the segmentation methods, they share a common principle, which is to separate consumers into different groups, according to set characteristics which are, afterwards, analyzed to ascertain similarities and differences between the segments.

Market segmentation should be meaningful to companies. Thus, an effective and practical application of consumer benefits in segmentation should also be considered with a view to facilitating the product adoption and, consequently, the purchase.

Therefore, benefit-based segmentation was chosen in the present study as a criterion because it not only aids with the understanding of buying behavior, but it is also adapted to the different levels of abstraction of food-related products (Grunert, 2019). It is worth noting that for the purpose of innovative food products, even though the overall consumption behavior can be identified and represented by a typology, the reluctance to try new foods is intrinsically a human trait (Pliner & Hobden, 1992).

These authors defined food neophobia as a behaviour in which the individual was likely to avoid eating unfamiliar foods. Neophobia has a profound influence on individual food choices (Pliner & Hobden, 1992). People with intense food neophobia, or neophobes, may have a limited dietary

variety. Conversely, individuals with low neophobia, or neophiles, can increase their choices of foods, as they are open to eating foods they have never tried before. Consequently, since this empirical study intended to identify product benefits that could influence the acceptance of an innovative food product such as cheese bread with carrots, it was deemed necessary to include the effect of neophobia for the respondents.

MATERIALS AND METHODS

According to Onwezen et al. (2012), one of the greatest challenges in developing more successful marketing strategies in the food sector is to gain an understanding of the diversity of consumer needs. Therefore, a country like Brazil served well for testing such a premise, due to its considerable geographical area, population size, and diverse consumer base. Moreover, as an emerging economy, food manufacturers can test concepts and ideas in that specific market to benchmark them in other similar markets.

A traditional Brazilian snack product made with cassava flour and half-matured cottage cheese – cheese bread – was modified to test consumers for the purpose of segmenting the market. The product development concept involved 40% replacement of the cheese content with grated carrots. It was developed by a team from the food network kitchen of the Serviço Nacional de Aprendizagem (SENAI), the national service for industrial learning, in the state of Mato Grosso do Sul. Therefore, the Brazilian cheese bread with carrots was differentiated enough from the traditional one, and it could thus be characterized as an innovative food product in that market. In addition, the innovative product also had the potential to improve the carbon footprint credentials of such a traditional product, by altering its overall equivalent carbon emission. Nevertheless, this last feature was not explored within the remit of this article.

Moreover, the present study was informed by the findings of Barcellos et al. (2009), Previato & Behrens (2015), and Damsbo-Svendsen et al. (2017), which validated the Food Neophobia scale for the Brazilian case. Thus, attitudinal data was obtained by rating scales which are usually treated as interval data (Malhotra, 2019). A five-point Likert scale was used, ranging from (1) 'I completely disagree', to (5) 'I fully agree'. This procedure allowed to evaluate the consumption intentions and the perception of benefits associated with the innovative food product. Therefore, the mean and variance were calculated, and the reliability of the variables in the questionnaire was assessed using Cronbach's Alpha (α) higher than 0.60, due to the exploratory nature of the present study (Hair et al., 2014).

For the purpose of calculating the size of the sample and in order for it to be representative of the consumer behaviors of the 26 states and the Federal District in the country, an infinite population was considered. According to Bussab & Morettin (2011), at 94% confidence interval and 5% standard error, the size of a random sample indicated a minimum of 354 respondents. As a result, a convenience sampling technique was used, thus including seven of the states in addition to the Federal District. This also allowed of the covering of four of the geographical regions in Brazil. The states and the respective capital cities were chosen ,for the purpose of collecting data because of the presence of SENAI branches in each of them. This institution co-financed the agreed-upon study and carried out the distribution of the questionnaires. The respondents had to be resident in the respective cities, as well as be twenty years of age or over, be able to read, interpret, and answer the questionnaire individually. In total, 2,158 valid questionnaires, from eight main cities, were collected just before the Covid-19 pandemic period. The sample studied was also deemed illustrative of the population dispersion, according to the database of the Brazilian Institute of Geography and Statistics (SIDRA/IBGE) (IBGE, 2022).

The structured questionnaire had two parts. Part One consisted of sociodemographic and economic profiling. Part Two reflected the questions raised from the literature review to ascertain the respondents' intention to consume a new food; their acceptance or rejection of new foods; the factors

that influenced this observed acceptance or rejection; and the perception of benefits of this studied product (Collis, 2007; Malhotra, 2019; Wei, 2019). These questions were used as a basis to identify a consumer segmentation.

The first data analysis stage focused on measuring how neophobic behaviors determined the intentions of consumers. To this end, Pliner & Robden (1992) suggested that the mean score ($\bar{x}$) of the 'neophobia' variable [α=0.60] allowed of the categorization of individuals as to their neophobic (profile ≤ 3 $\bar{x}$ ≥ 3 or non-neophobic ($\bar{x}$ < 3) behavior. Subsequently, we observed the influence of 'practicality and convenience' benefits [α=0.73]; 'nutrition' [α=0.70]; 'weight control' [α=0.72], and 'packaging' [α=0.67] on the intention to consume the new food product (Heide & Olsen, 2018; Grunert, 2019).

The exploratory factor analysis (EFA) with principal components (PCF) was used to validate these scales for the Brazilian context. The VARIMAX rotation method (Hair et al., 2014) was employed, considering the assumption of orthogonality of factors. Scree test criterion was used to determine the number of factors to be considered, aiming to explain at least 60% of the variability of responses. In addition, a minimum value of 0.70 for the Kaiser-Meyer-Olkin [KMO] value, to test the EFA adequacy, was borne in mind. Finally, a minimum level of 50% explanation of each variable for the common criteria testing to assess the assertiveness of the factor solution was assumed (Hair et al., 2014). Following on from these validations, a characterization of consumption intentions, using the cluster analysis was carried out to also measure the strength of all determinants that affect the consumption intentions. The Euclidean distance measure was adopted as a starting point for the cluster analysis, and combined with the hierarchical partition procedure – the connection method *ward* – to define the number of clusters and the non-hierarchical k-means clustering algorithm for clustering objects through a measure of distinction (Bussab & Morettin, 2011; Hair et al., 2014). The chi square-test (χ^2) to assess the independence of sociodemographic and economic variables and the variance analysis (ANOVA) were also used to measure the independence of means of behavioral variables, to select the explanatory variables that allowed of the naming of the clusters. For the treatment of the results, the French software Coheris Analytics SPAD was used.

RESULTS AND DISCUSSION

The highest rates of food neophobia were found predominantly among two distinct groups of men: young and old respondents. As evidenced from other studies (Tuorila et al., 2001; Dovey et al., 2008), neophobia had a direct relationship with age. This is of great value because food neophobia is one of the main elements that affect the consumption of innovative foods. As for the women, neophobia increased practically constantly with age (Figure 1), as also verified by Barcellos et al. (2009).
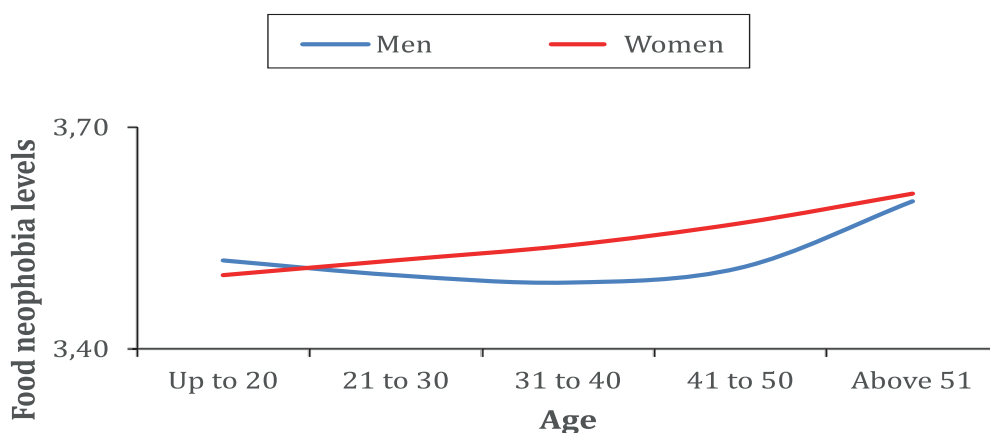
Figure 1. Food neophobia by age and gender.

This positive relationship between the socioeconomic variables and neophobia in the data collected, as observed in the literature, indicates, therefore, that there are advantages in using these variables for consumer segmentation (Jaeger et al., 2019). To verify this result, an exploratory factor analysis (EFA) was carried out for the 32 items of the scale of observed variables, aiming at evaluating the likely benefits associated with the innovative food product. After removing the items with commonality below 0.50, the EFA analysis was performed again with 14 highly correlated variables, to allow of the clarification and a better interpretation of the factors, as presented in the matrix of factor loadings (Table 1).

Table 1. Factor loading matrix.

Question	Items of the scale of observed variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Commo-nality	KMO
13	I'm always in a hurry and I eat only ready-to-eat food! Good food is the one I just need to heat or bake! I don't care about recipes or tradition; the important thing is convenience and no dirty dishes.	0.7856						66.0%	75.0%
10	In general, I don't have much time to cook, and I end up eating supermarket ready-to-eat foods, like frozen food, or I buy a takeout lunch.	0.7322						58.8%	80.6%
23	The important thing is to stay away from the kitchen. Frozen or ready-to-eat food must be seen as a solution. You have to try many types to find out each one you like the most. I need something convenient, easy to make, not messy, and at least a little 'yummy'.	0.7218						58.0%	81.5%
11	Whenever new food products appear on the market (in the frozen or ready-made department) or when I see new food ads, I want to try them.	0.6460						54.6%	86.2%
38	I never bake a full pack of frozen cheese bread. It would be interesting if frozen carrot cheese bread were sold in individual packaging sizes to please different consumers.		0.7524					60.5%	79.9%
36	Thinking about the packaging of carrot cheese bread, it should be transparent so I can see what is inside. As for the size of the cheese bread I want to know the difference between the size of the traditional version of the cheese bread and the new product.		0.7484					60.2%	80.0%
37	If frozen carrot cheese bread was sold in a package that could be stored in the freezer and used to be baked, it would be a big hit.		0.7462					62.7%	80.2%
28	Carrot cheese bread would be an industry strategy to sell a more natural version of traditional cheese bread.			0.8440				77.7%	80.8%
27	I agree that carrot cheese bread would be healthier than the traditional frozen cheese bread because it has carrots in it and, therefore, more vitamins.			0.7793				73.4%	81.6%

Continuation of table 1.

Question	Items of the scale of observed variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Com-monality	KMO
30	It would be a great option for dieters, because with more carrots and less cheese, it would be low calorie.				0.8440			77.5%	81.7%
33	Frozen carrot cheese bread is a good example of health food. The kind of food that dieticians recommend eating at some time during the day.				0.7786			71.4%	80.9%
16	I always read stories or watch programmes about scientific findings about food. I buy foods that are said to be good for my health.					0.8240		72.8%	75.4%
15	Generally, when I choose a food product, I think about what is good for my health. If I find any new food promising health benefits, I want to try it.					0.8179		72.9%	73.6%
25	When I think of frozen cheese bread, I think of the smell of cheese, the colour of the product after baking, the pleasure of eating with a beverage that I think goes well with it. It is pure indulgence. I learned that way. The carrot would change the image I have in my head about cheese bread, I don't like the idea. I think cheese bread should be made with cheese. A lot of cheese. I would not be interested in any other version of this product.						0.9712	95.1%	67.2%
	Variability explained by factor (%)	15.5%	12.9%	11.2%	11.1%	10.5%	7.5%	68.7%	79.8%
	% accrued	15.5%	28.4%	39.6%	50.6%	61.2%	68.7%		

The six main factors below represented 68.7% of the total data variability. Factors 1 to 4 were validated from the scale used, as follows:

Factor 1 = Convenience (15.5%)

Factor 2 = Packaging (12.9%)

Factor 3 = Nutrition (11.2%)

Factor 4 = Weight Control (11.1%)

Factors 5 and 6 emerged from the data from the previous scale, as follows:

Factor 5 = Health (10.5%)

Factor 6 = Flavour (7.5%)

Following that, a cluster analysis was conducted where the respondents were classified according to the aforementioned factor values, which allowed of the identification of four distinct groups. Hence, the level of food neophobia and benefit variables were measured for intention to consume Brazilian cheese bread with added carrot. The socioeconomic and demographic variables were used to aid in the interpretation of clusters.

The following clusters were identified: cluster 1 (hedonistic); cluster 2 (convenience and health); cluster 3 (innovation); and cluster 4 (functional).

Whilst cluster 4 represented 29% of the men, cluster 2 represented 30% of the women [$X^2 =$ 14.480p - value = 0.002]. Young individuals were grouped between cluster 4 (31% of respondents aged up to 20 years) and cluster 2 (33% of "under 30s"). Respondents who were over 50 years of age (29%) were grouped in cluster 3, as follows: [$X^2 = 33,489$p – value = 0.001]. As for education, cluster 3 also comprised 29% of the individuals who attended high school, while 30% of respondents with a postgraduate degree belonged to cluster 2, as follows: [$X^2 = 20,823$p – value = 0.002].

As indicated in the literature, Ronteltap et al. (2007) and Jaeger et al. (2019) propose that, although the results confirm that sociodemographic variables could aid in the creation of segmentation, these are not sufficient to explain the distinct consumption intentions of each consumer group. It would thus be necessary to consider other variables to group the consumers. The effects of neophobia and perceived benefits for the differentiated carrot cheese bread are described as follows (Table 2).

Table 2. Determinant variables of the intention to consume the innovative product by cluster.

Behavioral variables	Measure	Cluster 1 (n=465)	Cluster 2 (n=621)	Cluster 3 (n=532)	Cluster 4 (n=540)	p-value
Food neophobia	average	2.4	2.5	2.1	2.7	0.000
	standard deviation	0.7	0.7	0.7	0.7	
Convenience	average	2.5	3.8	2.7	3.6	0.000
	standard deviation	0.7	0.6	1.0	0.8	
Packaging	average	1.8	1.8	1.8	2.6	0.000
	standard deviation	0.6	0.6	0.6	0.9	
Healtiness	average	1.9	2.3	2.0	3.2	0.000
	standard deviation	0.6	0.8	0.7	0.8	
Weight Control	average	2.0	2.9	2.2	3.5	0.000
	standard deviation	0.7	0.9	0.8	0.8	
Health	average	2.1	2.5	2.0	3.4	0.000
	standard deviation	0.8	0.9	0.8	0.9	
Taste	average	3.9	4.2	1.6	2.6	0.000
	standard deviation	0.7	0.6	0.5	1.0	

In view of what is observed in Table 2, this study proposes market segments with these observed variables. Factor quadrants were analyzed in relation to their opposition, considering the variables that best represent each of the clusters (Figure 2).
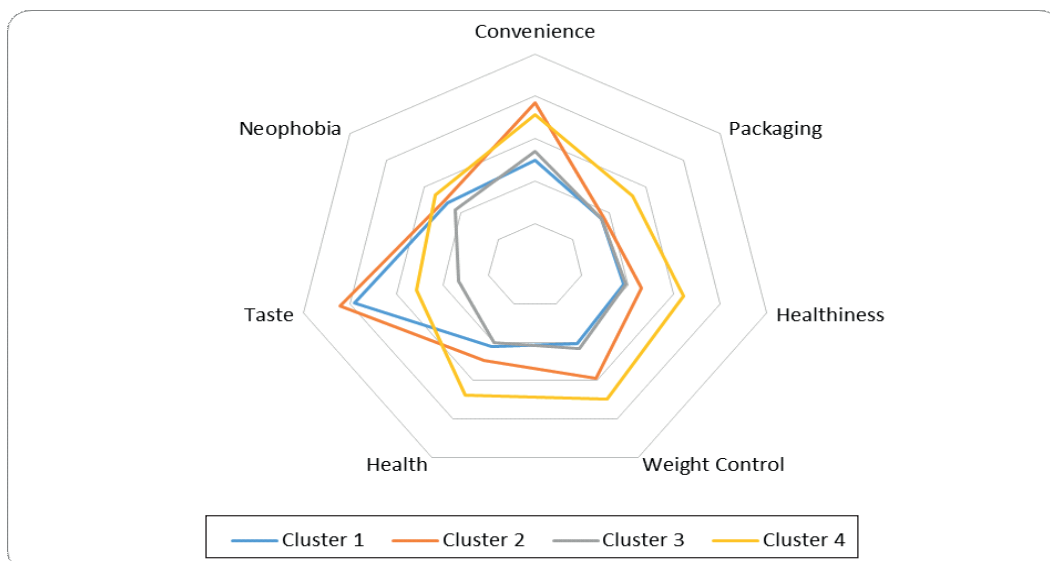
Figure 2. Hierarchy of quality features by cluster.

The hierarchy of benefit features, identified by the cluster analysis, provides interpretations for segmentation actions. The opposing pairs "cluster 1 and cluster 4" and "cluster 2 and cluster 3" reaffirm their differences in the relevance attached to each feature (Figure 2). Furthermore, other findings may be mentioned:

a) "Taste" - is a priority for consumers in clusters 1 and 2.

b)"Weight control" and "convenience" - showed to be more significant to individuals in cluster 2 than to those in cluster 1.

c) Cluster 3 represented the least demanding of almost all features, except for "convenience". This finding could be explained by this cluster's respondents expressing the lowest index of food neophobia. This means that they are not afraid of consuming new food products, nor are they likely to reject anything new merely due to unfamiliarity. Therefore, convenience drives their interest in the product itself rather than the features understood as benefits. This might also be because since less neophobic individuals understand that the new product itself is a benefit, it does not take much to evaluate the possibility of trying an innovation that is considered interesting.

d) Cluster 4 - despite the higher index of food neophobia, that group recognized the most advantages in the new product, such as nutrition, weight control and convenience.

The results show that the new food product was associated with key benefits that may influence the consumer segmentation. When introducing a new product, it is important to highlight its convenience, that is, how easy it is to prepare it, and how much time it saves in people's daily lives. This benefit is understood as Brazilian cheese bread with carrot being a less processed food, with functional ingredients that aid in weight control and, above all, as a food providing an indulgent experience (Giordano et al., 2018; Cattaneo et al., 2019).

Some details of these four clusters are described below (Figure 3).

Cluster 1 – Hedonistic: Those who sought convenient foods which provided indulgent moments were typically women. They expressed significant concern over likely taste changes introduced, and they were also more sceptical about the nutritional benefit as proposed by the NPD team. This group was willing to try the new food product but valued the original taste of the traditional cheese bread.

Cluster 2 – Convenience and health: This was represented by young women who wanted to save time and showed concern over whether the new food product would mean a major change in taste in relation to the traditional one. However, they acknowledged that the new food product had benefits that communicated values such as nutrition and weight control. Yet, a different "taste" was the best representation of the cluster's perception regarding product innovation. All these findings confirm the results of other studies that proved that a different taste directly affected the consumer's intention, reducing willingness to try new foods (Barcellos et al., 2009; Barrena & Sánchez, 2013; Onwezen, 2018).

Cluster 3 – Innovation: 39% of the respondents were older than 50 years of age and represented the lowest index of food neophobia [$\bar{x}$ = 2.14; S = 0.7]. These respondents were understood as early adopters with regard to their intention to consume the new food product. Not only they showed no anxiety for a change in the taste of the new food, but also they showed a greater willingness to consume it.

Cluster 4 – Functional: This group had the highest index of food neophobia [$\bar{x}$ = 2.70; S = 0.7]. These consumers did not believe that taste mattered. They judged that carrot improved the cheese bread and was healthier than the traditional one. Furthermore, they believed it could aid in weight control and boost health. They also considered that the new food product offered the benefit of convenience. Thus, this shows that the benefits had an overarching influence on the intention to consume the new product, particularly among those who tended to express neophobic behavior (Verain et al., 2017; Onwezen, 2018; Grunert, 2019).
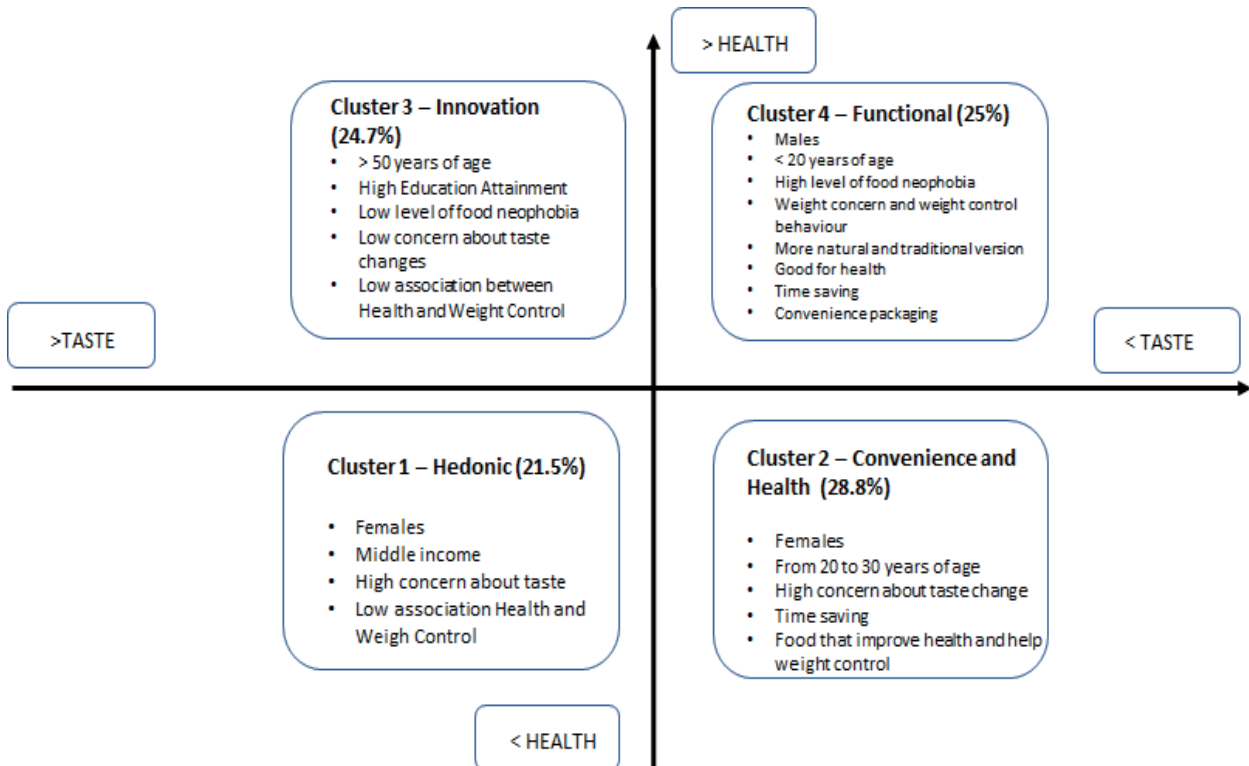
Figure 3. Proposed behaviors regarding perceived benefits.

The respondents chose "taste", "convenience" and "practicality" as key benefits influencing their purchase decision. It is clear that these benefits help to reduce shopping time, thus making their everyday lives easier. Furthermore, the respondents supported the innovation carried out which added health benefits that aided in weight loss management, whilst maintaining the original natural product properties. This is in line with the works of Stancu et al. (2022), Wongsaichia et al. (2022) and Lucas et al. (2022).

Overall, it is clear that the distinct four consumer segments evaluated the benefits differently. This is a deemed key in highlighting to those in the food sector that when considering marketing campaigns, the communication of each and every benefit to consumers would minimize food neophobia. In addition, the communication of key benefits would also raise interest in purchasing and consuming innovative food products. This is because the manner how consumers perceive foods in general directly affects their intention to consume. Should the communication of the benefits be confused, this can then cause the rejection of a product innovation.

CONCLUSIONS

This study set out the main determinants of intention that influence the market segmentation, particularly regarding an innovative differentiated food product. It was deemed important to understand product benefits, such as quality features associated with a product that can satisfy the needs and desires of consumers. Furthermore, benefits that most influence the acceptance of food innovation would allow of the lowering of the barriers of acceptance. Therefore, a better understanding of market segmentation informed by food product innovation has addressed a gap in the literature. The perception of a change in taste, due to the addition of carrots to a traditional Brazilian cheese bread recipe caused the respondents some anxiety. Therefore, despite the changing of the overall taste, which could act as a potential barrier to consumption, the intention to consume the new food product prevailed. That was likely to be because of the eliciting of the product's new benefit through the communication of attributes such as nutrition and convenience.

When introducing new food products into the market, the food industry ought to consider segmenting it so as to deliver the features desired by the targeted audience of each segment. This could mean, for instance, eliciting benefits of nutrition and/or an indulgent experience for groups of consumers who specifically desire those. Furthermore, the results of this study would hopefully inform food manufacturers by bringing to light behavior trends and new product development opportunities for specific consumer segments. It would also aid those in the public sector, particularly those responsible for food-related and catering policies for specific population groups.

Nevertheless, as for limitations of this research and recommendation for further studies, regarding constraints of the methods used, other statistical analyses could be employed. Furthermore, research on the willingness to buy and consume such a differentiated product could also be considered, bearing in mind the benefits it offers as well as consumers' food neophobia traits. It would be thus expected that future investigations would complement the market segmentation and add to the characterization of the consumers' buying behavior.

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