

A Qualitative Exploration of Consumer Acceptance of Valorised Sesame Functional Noodles in Bangkok

Atittaya Tandhanskul¹, Donyawan Chantokul², Luoluo Li¹, Jing Guo², and Bing Zhu^{2*}

¹Theophane Venard School of Food Biotechnology and Innovation, Assumption University of Thailand

²Martin de Tours School of Management and Economics, Assumption University of Thailand

Abstract. This study aims to understand how consumers respond to valorised sesame functional noodles, enriched by a constellation of product cues. For this purpose, within the Stimuli-Organism-Response (SOR) framework, a semi-structured in-depth interview was conducted in Bangkok from December 2025 to January 2026 with 10 interviewees by using a purposive sampling technique. NVivo was applied to analyse qualitative interview data. The results reveal that packaging & information and economic framing serve as external stimuli. These stimuli were processed and interpreted through the internal organism (O), in which lifestyle compatibility played a dominating role in consumers' cognitive evaluation. Ultimately, at the response level, interviewees' acceptance became contextual and conditional, indicating a need to align the functional noodles consumption with their daily consumption practices. Interestingly, an integration of food valorisation and consumer study offers insights into business practitioners and academics as well as sustainable food consumption studies.

1 Introduction

The term “functional food” emerged in Japan during the 1980s, corresponding to the premature aging of the population and an increase in healthcare expenditures encountered by the local government [1]. Functional food is defined as a food product that “appears similar to a conventional food. It is part of a standard diet and is consumed on a regular basis, in normal quantities. It has proven health benefits that reduce the risk of specific chronic diseases or ill states in addition to its basic nutritional functions” [2].

In recent years, a trend has emerged among consumers paying closer attention to food and beverage products with rich nutrition, functional ingredients and sustainable attributes to enhance their health and wellness [3]. As a result, the market of functional food is growing. It is estimated that the market will grow to USD 983.17 billion by 2034, and the Asia-Pacific region, as a primary market, accounts for 39.67% of the global market share in 2025 [4]. At the same time, the food industry has encountered intense pressure to adapt circular economy

* Corresponding author: bingzhu@msme.au.edu

principles, transforming agricultural and processing by-products into value-added ingredients [5]. In this context, the valorisation of food waste, the process of converting food by-products into functional and marketable products, has become an essential sustainability strategy that aligns economic profitability with environmental responsibility [6].

Despite advances in technology and market expansion, the understanding of how consumers respond to functional food remains underdeveloped [1]. For some consumers, functional foods are limited to industrialised products, neglecting fresh and minimally processed alternatives [1]. In addition, a constellation of factors, including perceived health benefits, trust, and socio-demographics, that affect consumers' buying decisions for functional foods is contextual [7], while consumer acceptance of alternative forms, such as valorised products, is uncertain [8].

Consumers may hesitate to purchase functional foods derived from food waste or by-products due to concerns about safety, quality, and authenticity [9]. This highlights a critical research gap: while the technological and compositional aspects of sesame-based functional foods are increasingly studied, relatively few investigations address how consumers interpret, evaluate, and accept such innovations. For these reasons, understanding consumer behaviour across different market scenarios has become vital for the successful commercialisation of functional foods.

To address this gap, this study focuses on how consumers in emerging markets, such as Thailand, respond to valorised functional foods. As a by-product of sesame oil extraction [10], defatted sesame cake is rich in protein, dietary fibre, unsaturated fatty acids, and bioactive compounds, offering consumers positive effects, including antioxidant, anti-inflammatory, and cholesterol-lowering effects [11]. When added to staple foods like noodles, functional ingredients can not only enhance nutritional value but also promote food minimisation and resource efficiency [12]. Thus, developing sesame functional noodles from valorised defatted sesame cake embodies the “from waste to wellness” paradigm—transforming food-industry residues into health-promoting products [5]. For these reasons, this study investigates how consumers in Thailand respond to valorised sesame functional noodles by exploring the influence of product-related attributes on their perceptions and behavioural intentions.

Consequently, the Stimulus–Organism–Response (S–O–R) framework [13] is applied to reveal how product-related cues shape consumer perceptions and behavioural intentions toward valorised sesame functional noodles. Within this framework, stimuli (S) represent external product attributes that trigger consumers' internal evaluation (O) of valorised sesame functional noodles, thereby affecting their response (R) to these products.

2 Research methods

A semi-structured in-depth interview was conducted in Bangkok from December 2025 to January 2026, and 10 interviewees were recruited through purposive sampling, meaning those who regularly cook at home were invited. By doing so, their cooking experience and experiential knowledge are ensured to align with the study's objectives.

A deductive thematic analysis approach was applied to analyse the data within the S-O-R framework systematically. A structured coding process was conducted. Firstly, interview transcripts were reviewed and categorised into meaningful groups. Secondly, the initial codes were assigned to predetermined categories within the S-O-R framework, which included product-related attributes that stimulate consumers' attention (Stimulus), cognitive and affective evaluations (Organism), and behavioural intentions (Response). As for new sub-themes derived from data analysis, they were refined to capture subtle consumer perceptions.

More importantly, to gain profound interpretive results, a comparison between two diverging cases: B-05 (exhibiting the richest coding density) and Y-05 (presenting the lowest

coding density). This approach allows researchers to reveal differences in how interviewees evaluate functional noodles and identify the corresponding cognitive paths within the S-O-R model.

Additionally, a word frequency analysis was conducted using NVivo to identify linguistic variations between high- and low-coding-density cases, revealing the most frequent and salient words used by the interviewees when discussing valorised sesame functional noodles. As a result, this analysis reinforces the credibility of the findings through triangulation.

In general, to improve the quality of data analysis, ensure consistency, and reduce subjective bias, the coding process was carefully examined, and the themes were refined accordingly.

3 Results and discussion

The hierarchy chart shown in Figure 1 was derived from the relative weight of themes generated from the coding reference. The distribution of thematic prominence shows that the decision-making process of the participants was mainly guided by internal cognitive and behavioural alignment processes rather than by external product features.

Firstly, it reveals that “lifestyle compatibility” is the largest theme, focusing on “trial-only usage”, “traditional cuisine orientation”, “mood-driven consumption”, “conditional health trigger cues”, “daily home cooking”, etc. This indicates that the interviewees tend to evaluate the food product based on the behavioural feasibility and how well it can be integrated into their daily lives. The interviewees did not perceive functional noodles as a standalone product with innovative features; rather, they emphasised their practicality, underscoring that the acceptance of valorised functional sesame noodles largely depends on their alignment with consumers’ daily consumption and cooking patterns.

Next, “sensory–physical evaluation” is the second-largest theme, emphasising “visual-first evaluation”, “curiosity”, “unfamiliarity reaction”, etc., indicating that interviewees respond to the functional noodles through sensory perception functions, which can trigger their internal interests and shape their initial impressions of the product before making a more profound cognitive analysis.

The third-largest theme is “packaging & information,” relevant to “visibility-based trust,” “portion level packaging,” “sealing and visibility as safety,” etc., underscoring that the package is viewed as an external environmental cue that forms initial expectations and affects interviewees’ evaluation at the initial stage. Given this theme’s smaller relative size, it is clear that product packaging serves as an initial trigger that facilitates interviewees’ engagement rather than making a final decision.

The fourth theme is “health meaning construction”, which inclines toward “claim recognition”, “prior functional food expertise”, “health-oriented traditional cooking”, etc. This indicates that interviewees are not only recipients of information; they actively engage with it and reinterpret its meaning based on their experiences. This addresses how interviewees develop their own understanding of health through cognitive analysis and interpretation.

The fifth theme is “trust formation”, which is small but reflects cognitive mechanisms focused on “process transparency concern”, “ingredient-based trust”, “digital channel reliance”, etc. This highlights the importance of trust-building through transparency, and trust is the outcome of interviewees’ internal evaluation, especially after their cognitive interpretation of health claims and the credibility of ingredients.

The least salient theme is “economic framing”, in which price and promotion play minor roles. This indicates that health and behavioural consistency are the priorities for interviewees when choosing valorised functional sesame noodles rather than economic gain.

Based on the thematic analysis, the SOR model in this study is developed. Stimuli (S) consist of “packaging & information” and “economic framing”, serving as environmental cues that trigger interviewees’ interest in valorised functional sesame noodles. Organism (O) includes “sensory-physical evaluation”, “health meaning construction” and “lifestyle compatibility”. Response (R) emerges as an outcome of lifestyle compatibility and “health meaning construction.”

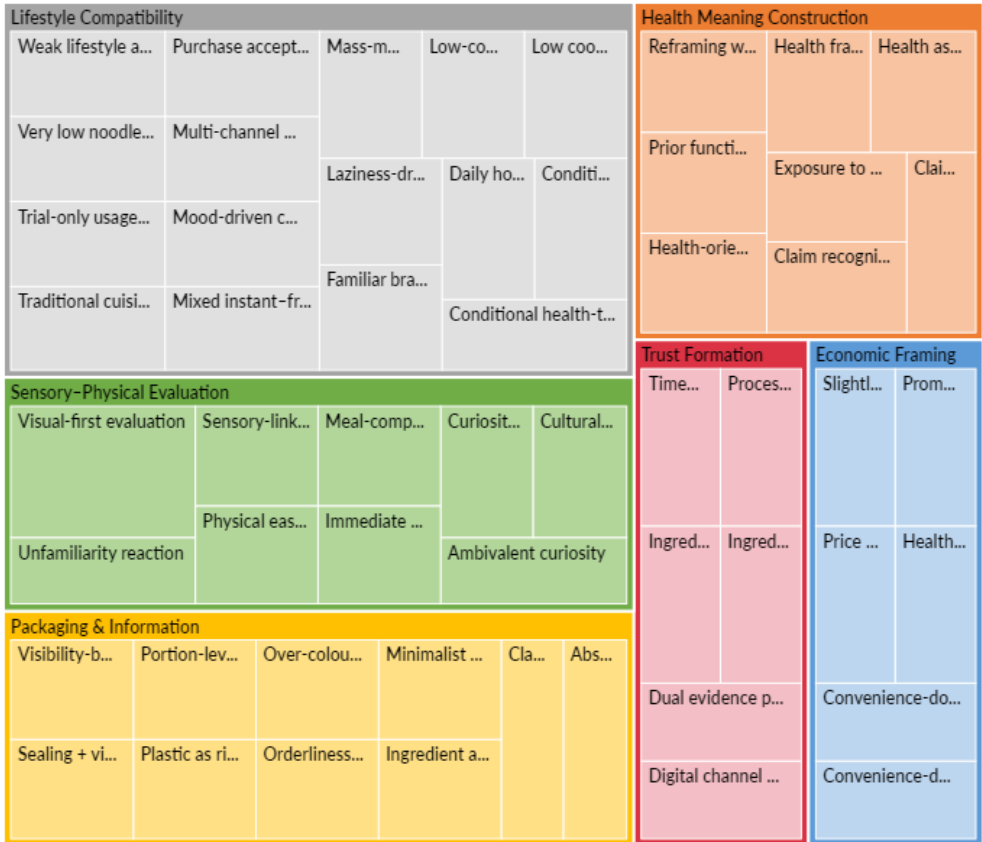


Fig. 1. Hierarchical structure of themes derived from deductive thematic analysis based on the S–O–R framework

Figure 2 exhibited the results of word frequency analysis. The large words signify the most frequently mentioned word by the interviewees. This word cloud is deemed a useful technique for validating concepts generated from thematic coding.

In particular, “functional,” “noodles,” and “sesame” are located in the centre, indicating that they are mentioned most often, and interviewees framed sesame noodles in a functional context. Surrounding them, the vocabularies are presented at different frequency levels, which correspond to the S-O-R logic. For instance, “packaging” and “price” are the external cues (S) that trigger interviewees’ attention. The concept of organism is manifested by “healthy”, “claims”, “believable”, “curious” and “concern”, which unpack the importance of cognitive and affective processing of information relevant to health issues when interviewees are exposed to the product information. Besides, vocabularies like “convenience,” “family,” and “taste” are linked to lifestyle, suggesting that interviewees' acceptance of valorised

functional sesame noodles is expected to align with their lifestyles and daily consumption patterns.

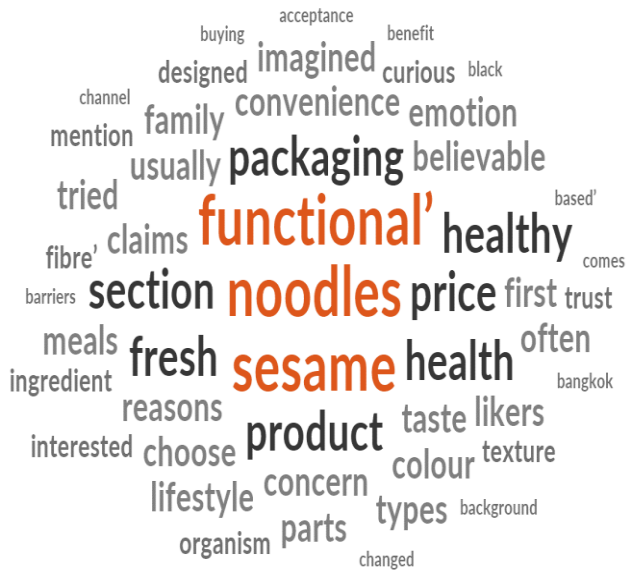


Fig. 2. Word frequency cloud demonstrating essential terms in consumer perceptions of valorised sesame functional noodles

3.1 Marketing Implications

The finding firstly indicates that marketing strategies for valorised functional sesame noodles should prioritise lifestyle compatibility, positioning the product as seamlessly integrated into consumers’ daily routines. This aligns with the lifestyle marketing strategy, which emphasises behavioural feasibility and cultural resonance. Campaigns should highlight versatility in traditional cuisine, family meals, and ease of preparation, thereby reinforcing the product’s role as a natural extension of everyday cooking practices rather than a novel innovation.

Whereby, sensory in physical evaluation underscores the importance of initial impressions formed through visual and experiential cues. This finding supports the application of experiential marketing and sensory branding strategies, which rely on trial, sampling, and immersive product experiences to reduce unfamiliarity and stimulate curiosity. High-quality product imagery, cooking demonstrations, and in-store tastings can serve as effective tools to engage consumers at a sensory level [14].

In addition, packaging and information function as environmental cues that establish trust and shape expectations. This suggests the relevance of packaging communication strategy and information transparency strategy, which emphasise clear seals, visible ingredients, and concise health claims. Packaging should not only serve aesthetic purposes but also enhance credibility, reinforcing perceptions of safety and authenticity.

Moreover, the construction of health meaning highlights the active role of consumers in interpreting health claims through personal and cultural lenses. This corresponds to the concepts of content marketing and educational marketing, which involve providing narratives that connect functional benefits to traditional cooking practices and everyday health concerns. Therefore, storytelling that bridges scientific claims with relatable cultural narratives can enhance consumer engagement and meaning-making.

Additionally, trust formation, though less prominent, remains critical for sustained loyalty. The findings support the adoption of trust-building and transparency strategies, which emphasise ingredient authenticity, process disclosure, and digital communication. Interactive tools such as QR codes linking to supply chain information or endorsements from credible experts can strengthen consumer confidence and reinforce trust.

Finally, economic framing was found to be the least influential theme, indicating that price and promotions play a secondary role. This suggests adopting a value-based marketing strategy that positions the product as a premium offering centred on long-term wellness benefits rather than short-term cost savings [15]. Promotions should emphasise health and lifestyle integration rather than competing on price.

Overall, the findings align with the Stimulus–Organism–Response (SOR) model, in which packaging and economic cues attract attention, sensory evaluation and lifestyle compatibility strengthen engagement, and, finally, customer intention to buy the valorised functional sesame noodles is fostered.

4 Conclusion

This study examines how consumers interpret and respond to valorised sesame functional noodles using the S-O-R framework. For this purpose, a constellation of semi-structured interviews was conducted with 10 interviewees. The thematic analysis revealed several important findings.

First of all, lifestyle compatibility is a dominating theme. The interviewees tend to assess functional noodles based on whether the product fits their daily consumption practices. Second, sensory-physical evaluation manifested interviewees' tendency to focus on visual elements, curiosity, culture, and unfamiliarity. Specifically, sensory function serves as a starting point for the interviewees to enter the evaluation process, which will determine whether they intend to further explore or remain uncertain. Third, packaging is found to be an active external cue that triggers the interviewees' interest in the products. Fourth, health meaning construction indicates that interviewees interpret health based on their personal and past experiences and their understanding of traditional cooking, thereby converting external stimuli into subjective meaning. In contrast, trust plays a relatively minor but meaningful role, and economic-related factors, including price and promotion, serve as conditions rather than the main driving forces.

In addition, word frequency supports thematic analysis by identifying prominent linguistic features relevant to health-oriented cognition and product cues, highlighting the role of lifestyle compatibility and everyday patterns in shaping consumers' responses.

In conclusion, the findings suggest that the adoption of functional food products is motivated mainly by situational compatibility and consumers' interpretations of health; consequently, the findings of this study confirm the relevance of applying the S-O-R model to this field.

References

1. L. G. S. Ponte, S. F. Ribeiro, J. C. V. Pereira, A. E. C. Antunes, R. M. N. Bezerra, D. T. da Cunha, Consumer Perceptions of Functional Foods: A Scoping Review Focusing on Non-Processed Foods. *Food Rev. Int.* **41**, 6, 1738–1756 (2025).
<https://doi.org/10.1080/87559129.2025.2453030>

2. J. Labrecque, S. Charlebois, Functional foods: An empirical study on perceived health benefits in relation to pre-purchase intentions. *Nutr. Food Sci.* **41**, 5, 308–318 (2011). <https://doi.org/10.1108/00346651111170905>
3. F. Sgroi, C. Sciortino, A. Baviera-Puig, F. Modica, Analyzing consumer trends in functional foods: A cluster analysis approach. *J. Agric. Food Res.* **15**, 101041 (2024). <https://doi.org/10.1016/j.jafr.2024.101041>
4. Fortune Business Insights. (2026, January 26). Functional food and beverage market size, share & industry analysis, by type (functional cereals & grains, functional dairy products, functional bakery products, functional fats & oils, and other functional/fortified foods), distribution channel (supermarkets/hypermarkets, convenience stores, online retail, and others) and regional forecast, 2026–2034 (Report ID: FBI102269). <https://www.fortunebusinessinsights.com/functional-food-and-beverage-market-102269>
5. S. Maqsood, W. Khalid, P. Kumar, I. E. Benmebarek, I. F. U. Rasool, M. Trif, A. Moreno, T. Esatbeyoglu, Valorization of plant-based agro-industrial waste and by-products for the production of polysaccharides: Towards a more circular economy. *Appl. Food Res.* **5**, 1, 100954 (2025). <https://doi.org/10.1016/j.afres.2025.100954>
6. L. Afsah-Hejri, M. Maharlooei, R. Ehsani, R. Maboudian, Promoting sustainable food production through waste reduction and valorization: A California case study. *npj mater. sustain.* **3**, Article 17. (2025). <https://doi.org/10.1038/s44296-025-00060-0>
7. C. Contini, K. Grunert, R. N. Christensen, F. Boncinelli, G. Scozzafava, L. Casini, Does Attitude Moderate the Effect of Labelling Information When Choosing Functional Foods? *Food Qual. Prefer.* **106**, 104795 (2023). <https://doi.org/10.1016/j.foodqual.2022.104795>
8. M. T. Baker, P. Lu, J. A. Parrella, H. R. Leggette, Consumer Acceptance toward Functional Foods: A Scoping Review. *Int. j. environ. res. public health.* **19**, 3, 1217. (2022). <https://doi.org/10.3390/ijerph19031217>
9. J. Aschemann-Witzel, I. C. Stangherlin, Upcycled by-products: How the concept of circular economy may influence consumer evaluations of food quality and trust. *Food Qual. Prefer.* **91**, 104–186. (2021). <https://doi.org/10.1016/j.techfore.2021.120749>
10. S. Abbas, M. K. Sharif, M. Sibte-e-Abbas, T. F. Teferra, M. T. Sultan, M. J. Anwar, Nutritional and therapeutic potential of sesame seeds. *J. Food Qual.* Article 6163753. (2022). <https://doi.org/10.1155/2022/6163753>
11. C. Nouska, M. Irakli, P. Palakas, A. E. Lytou, E. Bouloumpasi, C. G. Biliaderis, A. Lazaridou, Influence of sesame cake on physicochemical, antioxidant and sensorial characteristics of fortified wheat breads. *Food Res. Int.* **178**, 113980 (2024). <https://doi.org/10.1016/j.foodres.2024.113980>
12. J. R. Espinoza-Moreno, R. Gutiérrez-Dorado, A. X. Ruiz-Armenta, E. J., Ruiz-Armenta, E. Aguilar-Palazuelos, J. J. Zazueta-Morales, A. M. Gómez-Favela, Use of sesame by-product and optimized extrusion to obtain a functional flour with improved techno-functional, nutritional and antioxidant properties. *Acta Univ.* **32**, 1-20. (2022). <https://doi.org/10.15174/au.2022.3494>
13. A. Mehrabian, J. A. Russell, An approach to environmental psychology. The MIT Press (1974).
14. A. S. Yudantri, N. Rubiyati, M. Prasana, Sensory marketing and experiential value: drivers of customer satisfaction and revisit intention in slow food restaurant. *TPM Test. Psychom. Methodol. Appl. Psychol.* **32**(S3 (2025): Posted 07 July), 868-872.

15. R. Faisal, F. Rahman, S. Effendi, Cultural adaptation and branding strategy in noodle advertising: A semiotic and marketing perspective. *Int. J. Arts Soc. Sci.* **8**, 9, 171. (2025).