

Preserving Terengganu's Heritage Food: How Malay Traditional Food Packaging Influences Consumer Purchase Decisions?

Journal of Tourism, Hospitality
& Culinary Arts (JTHCA)
2025, Vol. 7 (2) pp 143-157
© The Author(s) 2025
Reprints and permission:
UiTM Press
Submit date: 20th August 2025
Accept date: 15th September 2025
Publish date: 30th September 2025

Nurul Anis Rosman Khan

Faculty of Hotel and Tourism Management,
UiTM Cawangan Terengganu, Malaysia
2022900671@student.uitm.edu.my

Nurul Nadzirah Azman

Faculty of Hotel and Tourism Management,
UiTM Cawangan Terengganu, Malaysia
2022900683@student.uitm.edu.my

Nor Saadah Che Deraman*

Faculty of Hotel and Tourism Management,
UiTM Cawangan Terengganu, Malaysia
norsaadah@uitm.edu.my

Nur Farrah Yasmin Abdul Latib

Faculty of Hotel and Tourism Management,
UiTM Cawangan Terengganu, Malaysia
nurfarrah@uitm.edu.my

Proposed citation:

Khan, N. A. R., Azman, N. N., Che-Deraman, N. S., & Abdul-Latib, N. F. Y. (2025). Preserving Terengganu's heritage food: How Malay traditional food packaging influences consumer purchase decisions. *Journal of Tourism, Hospitality & Culinary Arts*, 17(2), 143-157.

Abstract

This study examines how food packaging influences the younger generation's purchasing decisions regarding Traditional Malay foods, focusing on Terengganu's heritage cuisine. Packaging was considered for its functional role and as a medium to promote and preserve traditional foods among younger consumers. The research was conducted in Kuala Dungun and Kuala Terengganu, where 400 respondents completed a self-administered questionnaire. Data were analyzed using SPSS Version 29 through reliability testing and multiple regression analysis. The results showed that the model explained 40.8% ($R^2 = 0.408$) of the variance in consumer purchase decisions. Among the predictors, Design emerged as the strongest factor ($\beta = 0.368$, $p = 0.001$), indicating that visual appeal including color, shape, graphics, typography, and layout plays a key role in creating favorable first impressions. Material ($\beta = 0.186$, $p = 0.001$) and ease of use ($\beta = 0.173$, $p = 0.001$) were also significant, confirming that all hypotheses were

supported. The findings of this study will contribute to efforts in preserving Terengganu's traditional cuisine while supporting the growth and sustainability of Malaysia's food industry.

Keywords:

Terengganu heritage food, consumer purchase decision, packaging design, material, ease of use, preservation of Malay traditional cuisine

1 Introduction

Traditional Malay cuisine is typically defined as food passed down through generations with minimal modification. These dishes evoke a sense of nostalgia and identity, fostering communal bonds (Misran et al., 2022). However, as younger generations gravitate toward convenience and contemporary food trends, traditional foods are becoming less prominent in their daily diets. Factors such as time constraints, changing dietary habits, and inadequate packaging have contributed to the declining relevance of Terengganu's heritage foods (Karim et al., 2024). Additionally, intergenerational knowledge transfer is weakening in the digital era, further impacting the preparation and appreciation of these culinary treasures (Shariff et al., 2022).

While traditional Malay foods hold deep cultural value, most existing studies on their preservation have focused on recipe documentation, cultural festivals, or tourism promotion, with far less emphasis on practical product innovation such as packaging (Tharmabalan et al., 2025). In the current market, many heritage food products are still sold with minimal packaging or designs that fail to capture younger consumers' attention, limiting their competitiveness against modern, mass-produced alternatives. This lack of strategic packaging adaptation represents a missed opportunity to align heritage foods with evolving consumer lifestyles and preferences.

To address these challenges, innovative packaging solutions offer a promising avenue for revitalizing traditional Malay foods. Beyond serving as a protective layer, packaging plays a strategic role in product differentiation, marketing, and consumer engagement. Effective packaging design can enhance visual appeal (Riswanto et al., 2025), improve convenience, and communicate essential product details, such as nutritional value (Chu et al., 2024) and cultural significance. By leveraging modern packaging strategies, traditional Malay foods can be more attractive and accessible to younger consumers, ensuring their continued relevance in contemporary food culture.

To ensure the preservation of Malay heritage, it is essential to maintain and safeguard traditional Malay cuisine. Without proper efforts to preserve these culinary traditions, a significant part of Malay history may fade, depriving future generations of the opportunity to appreciate and experience it. One practical approach to sustaining Malaysia's traditional cuisine is through innovative packaging. The Design, materials, and functionality of packaging play a crucial role in influencing consumer perceptions and purchase decisions, particularly among younger generations. By enhancing the appeal and convenience of traditional Malay food packaging, its relevance and accessibility can be strengthened, ensuring its continued appreciation and consumption.

This study aims to identify the packaging factors that influence the purchase of traditional Malay food products. Building on this objective, it seeks to determine the most significant factors influencing consumer purchasing decisions of traditional Malay food products. By achieving these objectives, the study aspires to contribute to the preservation of Terengganu's culinary heritage while enhancing the sustainability of Malaysia's food industry in a rapidly evolving consumer landscape.

2 Literature Review

2.1 Consumer Purchase Decision

Visual cues influence consumer purchase decisions, including packaging design, materials, and usability. Eye-tracking studies show that visual attention to specific packaging elements such as transparency, logo placement, and nutritional information significantly influences purchase intention (Mehta et al., 2024). The consumer decision-making process consists of five key stages: problem recognition, information search, alternative evaluation, purchase decision, and post-purchase evaluation (Sharma et al., 2023).

In the context of Terengganu's traditional Malay food, packaging plays a crucial role at each stage. Visually appealing designs create product awareness, while clear labelling provides essential information (Shukla et al., 2022). Consumers compare alternatives based on packaging aesthetics and branding, influencing their perceived value. Material choices, such as eco-friendly packaging, further impact purchase decisions (Nguyen et al., 2020). Post-purchase, ease of use and functionality determine consumer satisfaction, affecting repeat purchases and brand loyalty (Tunku & Rahman, 2020). Traditional Malay foods can attract younger consumers by optimizing packaging design, materials, and convenience, ensuring their sustained appreciation and preservation.

2.2 Food Packaging

Food packaging extends beyond its basic function of protecting food; it plays a crucial role in ensuring safety, preserving quality, enhancing convenience, and delivering key product information to consumers. It serves as the first point of contact between a product and its potential buyers, functioning as a protective barrier and a marketing and communication medium that can shape consumer perceptions and influence purchasing behaviour. In this regard, previous studies have identified three key dimensions of packaging that are particularly relevant to consumer decision-making: packaging design, packaging material, and ease of use. These are supported by recent findings that visual Design strongly influences attention and purchase decision (Riswanto et al., 2025), that consumers increasingly prioritize ease of use along with Material and safety in their packaging choices (Ernyasih et al., 2025), and that sustainable materials impact both perception and purchase behaviour (Li & Li, 2024). These dimensions collectively capture the visual, physical, and functional qualities of packaging, making them critical areas of investigation in understanding how packaging affects consumer choices. While

each of these dimensions plays a distinct role, their combined impact contributes to the overall consumer experience and product acceptance.

2.2.1 Design

Packaging design is a crucial factor influencing consumer perceptions and purchase decisions, incorporating visual and structural elements such as colour, typography, graphics, shape, and layout (Liu & Zou, 2025). Attractive designs can capture attention, convey product quality, and enhance brand recognition, leading to higher purchase intentions (Vila-López et al., 2021). Colour, in particular, communicates freshness, authenticity, and brand personality (Srivastava et al., 2022), while the overall Design can reflect cultural heritage and authenticity, strengthening consumer trust (Zheng & Shanat, 2025). Additionally, a clear and appealing design helps communicate essential product information effectively, improving consumer understanding and satisfaction. Innovative and distinctive designs in competitive markets can differentiate products and create lasting brand impressions. Given these findings, context-specific research is needed to assess its effect on traditional Malay food products. With that, it can be hypothesized that:

H1: Packaging design has a significant positive influence on consumer purchasing decisions regarding traditional Malay food products

2.2.2 Material

Packaging material is vital in sustainability, food preservation, and consumer perception. Although plastic remains widely used for its durability and low cost, concerns over its environmental impact have increased interest in biodegradable plastics, paper-based options, and recyclable materials (Ncube et al., 2020). However, consumer awareness of eco-friendly packaging is still limited, with many not actively seeking sustainability labels (Ketelsen et al., 2020). In the context of Terengganu's traditional Malay food, using sustainable materials could attract environmentally conscious young consumers.

Beyond sustainability, packaging materials also affect freshness, hygiene, and quality perceptions. Advanced technologies such as active packaging and nanotechnology can extend shelf life and maintain product integrity (Palanisamy et al., 2025). High-quality materials improve handling, storage, and consumer satisfaction, potentially increasing purchase intentions. With that, it can be hypothesized that:

H2: Packaging material has a significant positive influence on consumer purchasing decisions regarding traditional Malay food products

2.2.3 Ease of Use

Ease of use in food packaging refers to the simplicity and convenience consumers can handle, store, and consume the product. Packaging should be designed for easy opening, resealing, and portioning while maintaining product integrity (Brennan et al., 2023). Functional features, such as microwave-safe and resealable packaging, enhance

convenience and have been shown to influence purchasing behaviour (Fennell et al., 2023).

For traditional Malay foods, user-friendly packaging can modernize heritage dishes while preserving their authenticity. Innovative packaging solutions, including tamper-evident and traceability features, can further strengthen consumer trust and satisfaction (Syafudin et al., 2025). By incorporating usability into packaging, producers can improve consumer experience and align with the preferences of younger, convenience-oriented buyers. With that, it can be hypothesized that:

H3: Ease of use significantly influences consumer purchasing decisions regarding traditional Malay food products

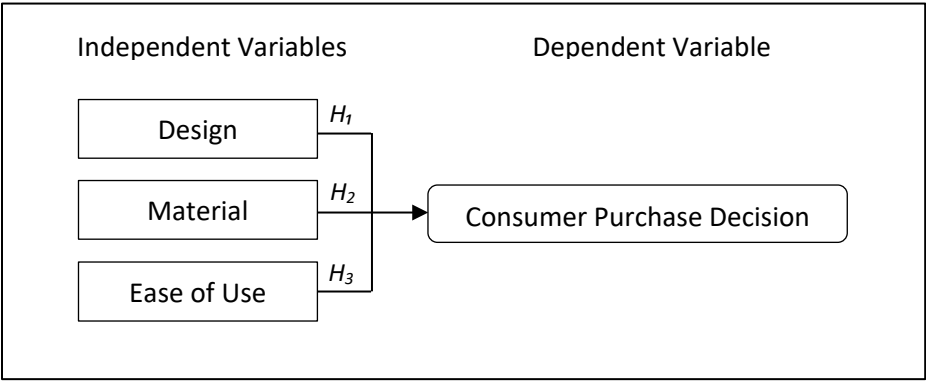


Figure 1: Conceptual Framework (Mohd Noor & Mohamad Fuzi, 2024)

3 Methodology

This study applies a quantitative research approach to examine how packaging influences young consumers' purchasing decisions for traditional Malay food in Terengganu. Purposive sampling focused on consumers in Kuala Terengganu and Kuala Dungun, with a combined population of 448,900 (Department of Statistics Malaysia, 2020). Kuala Terengganu and Kuala Dungun were selected as the study locations because they represent two central urban and semi-urban districts in Terengganu with significant consumer markets for traditional Malay food. Kuala Terengganu, as the state capital, is the economic and cultural hub where conventional food businesses, restaurants, and retail outlets are highly concentrated, making it a suitable site to capture diverse consumer behaviours. Kuala Dungun, on the other hand, provides a semi-urban context where traditional food consumption remains strong and is closely linked to local community practices and cultural identity. The combination of these two districts allows for a balanced perspective, capturing both urban consumer trends and community-based consumption patterns, thereby enhancing the representativeness and relevance of the findings to the broader population of Terengganu. Based on Krejcie and Morgan's (1970) formula, a sample of 384 is required. However, 400 responses were collected to account for unusable data. A bilingual (English and Bahasa Malaysia) self-administered questionnaire was developed around key variables, packaging design,

packaging material, ease of use, and purchasing behaviour, and measured using a 5-point Likert Scale. The questionnaire covers demographics, purchase decisions, aesthetics, material attributes (durability, sustainability), and functionality. Data is collected online via Google Forms, distributed through email, social media, and QR codes, with follow-ups conducted to improve response rates. Ethical procedures are followed by obtaining informed consent. A pilot test involving 31 volunteers is undertaken before the survey to refine wording and layout, ensuring clarity and reliability. Data collection takes place between November and December 2023. Data analysis is carried out using descriptive statistics to profile respondents, reliability testing to ensure internal consistency of the instrument, Pearson correlation to examine relationships between variables, and multiple regression analysis to identify the most influential packaging factors on consumer purchase decisions. The findings aim to reveal how packaging elements shape consumer behaviour and support the preservation of Terengganu's traditional Malay food heritage.

4 Findings

4.1 Demographic Profile of Respondents

Table 1 presents the demographic analysis of 401 respondents, covering factors such as age, gender, race, education level, occupation, frequency of purchasing Malay traditional food per month, and the most popular and authentic places to buy Malay traditional food in Terengganu. The respondents are residents of both Kuala Terengganu and Dungun.

Table 1: The frequency of section A (Demographic)

Variables	Categories	Frequency	Percentage (%)
Age (Years Old)	11 - 15	64	16.0
	16 - 20	135	33.7
	21 - 26	202	50.4
Gender	Male	170	42.4
	Female	231	57.6
Race	Malay	400	99.8
	Chinese	0	0
	Indian	0	0
	Orang Asli	1	0.2
Level of education	SPM	16	4.0
	Diploma	129	32.2
	Undergraduate/ Postgraduate	190	47.4
	Degree		
	Master's Degree	4	1.0
	Doctorate (PhD)	0	0
	UPSR	62	15.5
Occupation	Government Sector	4	1.0
	Non-government sector	22	5.5
	Self-employed	12	3.0

	Student	352	87.8
	Non-employed	11	2.7
Frequency of buying Malay traditional food in one month.	Strongly Not Often	15	3.7
	Not Often	28	7.0
	Neutral	118	29.4
	Often	183	45.6
	Strongly Often	57	14.2
Where are the most popular and authentic places to buy Malay traditional foods in Terengganu?	Restaurants or cafes	94	23.4
	Stalls (Night Market, Street vendors, etc.)	302	75.3
	Supermarket	2	0.5
	Online purchase	3	0.7

4.2 Reliability Analysis

Table 2 presents the Cronbach's Alpha values, confirming that all variables exhibit high internal consistency and reliability for this study. Cronbach's Alpha, a measure of internal consistency, ensures that the survey items effectively represent the research variables (UCLA, 2021). The results, generated using SPSS, show that all variables meet the acceptable threshold of 0.70 or higher, making them statistically reliable.

Table 2: Reliability analysis

Variables	Number of Items	Cronbach's Alpha
Consumer Purchase Decision	5	0.748
Design	6	0.823
Material	5	0.850
Ease of Use	5	0.841

These values indicate that consumer purchase decisions (0.748) demonstrate moderate reliability, while Design (0.823), Material (0.850), and ease of use (0.841) have strong internal consistency. Therefore, the reliability of the data collection instrument is well established, ensuring the accuracy of the study findings.

4.3 Multiple Regression Analysis

Table 3: Model Summary table

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.638 ^a	.408	.403	.46236

a. Predictors: (Constant, VE_EOU, VE_DSG, VE_MTR)

Table 3 illustrates that the value for R is 0.638, which shows a correlation between the dependent and independent variables. Besides, the value for R-squared for a model is 0.408. The study's mean is 40.8% suggesting that favourable circumstances affect consumers' buying decisions. Table 9's significant value of zero or $p < 0.05$ indicates the significance of this investigation.

Table 4: ANOVA Test Results

Model	Sum of Squares					
1	Regression	58.404	3	19.468	91.066	<.001 ^b
	Residual	84.870	397	.214		
	Total	143.274	400			

a. Dependent Variable: VE_CPD

b. Predictors: (Constant), VE_EOU, VE_DSG, VE_MTR

As for the ANOVA test, we can see that the value of F (3,397) is 91.066 and the p value is $0.001 < 0.05$, which means that the model is significant enough to determine the outcome of the research.

4.4 Hypotheses Testing

Table 5: Coefficient of the Dependent Variable

Model		B	Coefficient Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.096	.169		6.486	<.001
	VE_DSG	.339	.051	.368	6.681	<.001
	VE_MTR	.171	.054	.186	3.201	.001
	VE_EOU	.174	.051	.173	3.393	<.001

a. Dependent Variable: VE_CPD

Hypothesis testing was performed by using multiple regression analysis. The statistical analysis supported the research hypothesis since all of these variable values are below $p < 0.05$. The Design variable was statistically significant toward Consumer Purchase Decision since the p-value is $0.001 < 0.05$. When Design increases by one standard deviation, Consumer Purchase Decision increases by 0.368. Thus, H1 is supported.

Furthermore, the variable of Material was found to be statistically significant since the p-value is $0.001 < 0.05$. When Material increases by one standard deviation, Consumer Purchase Decision increases by 0.186. Therefore, H2 is supported. Lastly, the variable of Ease of Use was also found to be statistically significant, with a p-value of $0.001 < 0.05$. When Ease of Use increases by one standard deviation, Consumer Purchase Decision increases by 0.173. So, H3 is supported. The model explained 40.8% ($R^2 = 0.408$) of the variance in Consumer Purchase Decision, leaving 59.2% influenced by other unexamined factors such as price, brand loyalty, and product quality. Among the predictors, Design emerged as the strongest factor ($\beta = 0.368$, $p = 0.001$), indicating that visual appeal including colour, shape, graphics, typography, and layout plays a decisive role in attracting attention and creating a favourable first impression. We can conclude that all hypotheses were supported.

Table 6: Hypothesis

Hypothesis	Finding
H1: Packaging design positively influences consumers to purchase the traditional Malay food product	Supported
H2: Packaging material positively influences consumers to purchase the traditional Malay food product	Supported
H3: The packaging ease of use positively influences consumers to purchase the traditional Malay food product	Supported

5 Discussion

The findings highlight that Design is the most influential factor in shaping consumer purchase decisions for traditional Malay food packaging in Terengganu. Visual appeal including colour, shape, graphics, typography, and layout is decisive in attracting consumer attention and creating a favourable first impression. This outcome aligns with Vila-López et al. (2021), who observed that even minor label design changes can significantly influence consumer preferences. Similarly, Liu and Zou (2025) identified packaging design as a critical determinant of consumer perceptions, integrating visual and structural elements. The present study also resonates with Srivastava et al. (2022), who emphasised that colour conveys freshness, authenticity, and brand personality attributes. These attributes are particularly relevant in traditional Malay food packaging, where cultural symbolism enhances consumer trust and acceptance.

Likewise, Jamil & Abu Bakar (2025) highlighted those designs reflecting cultural heritage can enhance consumer trust and strengthen brand identity, which may explain the strong influence of Design in the Terengganu market. In this context, integrating traditional motifs, locally inspired colour schemes, and culturally relevant graphics could differentiate products in a competitive market and foster emotional connections with consumers, ultimately increasing purchase intentions.

Material showed a significant but more minor influence ($\beta = 0.186$, $p = 0.001$). While consumers often lack the technical expertise to evaluate the quality of packaging materials, increasing environmental awareness has contributed to growing interest in eco-friendly options (Tu & Mustaffa Halab, 2024). However, similar to findings by Ketelsen et al. (2020), the modest impact observed in this study may be due to limited sustainability education and the fact that many consumers in emerging markets, including Terengganu, do not actively seek sustainability labels when making food purchases. Packaging material is widely acknowledged in literature as a key factor in sustainability, food preservation, and shaping consumer perceptions. Although plastic remains the most common choice for its durability and low cost, its environmental drawbacks have encouraged exploration of biodegradable plastics, paper-based packaging, and recyclable materials (Ncube et al., 2020). For Terengganu's traditional Malay food sector, adopting sustainable materials could appeal particularly to environmentally conscious young consumers, provided that public awareness campaigns support such initiatives.

Beyond sustainability, packaging materials influence freshness, hygiene, and product quality perceptions. Advanced innovations such as active packaging and nanotechnology can extend shelf life and maintain product integrity (Priyanka et al., 2024). This statement aligns with prior research suggesting that high-quality, functional materials not only improve handling and storage but also enhance consumer satisfaction, which in turn boosts purchase intentions. The relatively smaller effect size found in this study indicates that while Material matters, other factors such as Design or functionality might play a more dominant role in influencing consumer behaviour.

Ease of use ($\beta = 0.173$, $p = 0.001$) had the weakest effect among the variables but was still statistically significant. This finding suggests that while consumers value convenience features, they may not be the primary driver of purchasing decisions in the context of traditional Malay foods. Similar to the observations of Yadav (2024), packaging elements that allow easy opening, resealing, storage, and portion control can enhance consumer satisfaction by improving product handling and usability. However, the smaller effect size in this study may indicate that aesthetic appeal or cultural authenticity could outweigh functional convenience for many consumers.

Ease of use in food packaging is defined in literature as the simplicity with which consumers can handle, store, and consume the product. Maintaining product integrity while offering easy-to-use features is key to enhancing consumer experience (Nawi & Yusof, 2024). Functional innovations such as microwave-safe, resealable, and portion-controlled packaging improve convenience and have been linked to higher purchase intentions (Ren & Tengku Anuar, 2024). For traditional Malay foods, integrating these features can modernize heritage dishes without compromising authenticity. Additionally, innovative packaging solutions, such as tamper-evident seals and traceability technologies, can strengthen consumer trust and align with the expectations of younger, convenience-oriented buyers (Nagaveni & Poosarla, 2024). This suggests that future product development could benefit from balancing modern usability features with the cultural and sensory attributes that make traditional foods distinctive.

In conclusion, all three hypotheses (H1, H2, H3) were supported. Still, Design proved to be the dominant driver of purchase decisions, underscoring the importance of aesthetic and cultural elements in marketing traditional food products.

6 Conclusion

This study confirms that Design is the most critical factor influencing consumer purchase decisions for traditional Malay food products in Terengganu, followed by Material and ease of use. The strong influence of Design stems from its ability to create a positive first impression and attract attention on the shelf. Material and ease of use remain essential, but are secondary considerations for most consumers. The findings also highlight a lack of consumer awareness regarding eco-friendly packaging, suggesting that material quality is often judged based on appearance rather than sustainability credentials. Despite some limitations in data collection, the study

successfully achieved its objectives, providing insights into packaging elements that could help preserve and promote traditional Malay food heritage.

7 Recommendation

Future research should expand the geographical scope beyond Terengganu to include other Malaysian states, enabling broader generalization. Additionally, studies could explore packaging's role in supporting food security, particularly for export markets. Consumer education campaigns on eco-friendly packaging could increase awareness and raise the importance of material quality in purchase decisions. Packaging innovation should focus on enhancing visual appeal while integrating sustainable materials and improving usability without sacrificing cost efficiency.

For businesses, investing in distinctive and culturally relevant packaging designs could help attract younger consumers and strengthen brand recognition. Incorporating modern design trends while retaining traditional cultural elements can create a balance between heritage preservation and market competitiveness. Moreover, future studies should consider other potential factors such as price, branding, and product freshness that may account for the unexplained variance in consumer purchase decisions.

8 About the authors

Nurul Anis Rosman Khan is a final-year student of Foodservice Management at Universiti Teknologi MARA (UiTM) Cawangan Terengganu, Malaysia. Her academic interests include foodservice operations, customer service, and hospitality management.

Nurul Nadzirah Azman is a final-year student of Foodservice Management at Universiti Teknologi MARA (UiTM) Cawangan Terengganu, Malaysia. Her academic interests include foodservice operations, customer service, and hospitality management.

Nor Saadah Che Deraman is a lecturer at the Faculty of Hotel & Tourism Management, Universiti Teknologi MARA (UiTM) Cawangan Terengganu, Malaysia. Her research focuses on gastronomy, culinary arts, and consumer behaviour, especially in food consumption, dining experiences, and cultural food heritage. She is also interested in sustainable practices, quality of life, and other issues in the culinary and hospitality industry.

Nur Farrah Yasmin is a lecturer at the Faculty of Hotel & Tourism Management, Universiti Teknologi MARA (UiTM) Cawangan Terengganu, Malaysia. Her academic interests include gastronomy, culinary arts, and consumer behaviour, focusing on food consumption patterns, dining experiences, and the preservation of cultural food heritage. She is also researching sustainable practices, quality of life, and other related topics in the culinary and hospitality sectors.

9 References

- Beaumenay-Joannet, D. (2022). What the EU can do to reduce single use packaging and plastic pollution in food services? POLICY BRIEFING. https://rethinkplasticalliance.eu/wp-content/uploads/2022/07/1831-ZWE-Horeca-Report_stage-1-Stage-4-1.pdf
- Behe, B. K., Huddleston, P. T., Childs, K. L., Chen, J., & Muraro, I. S. (2020). Seeing through the forest: The gaze path to purchase. *PLOS ONE*, 15(10), e0240179. <https://doi.org/10.1371/journal.pone.0240179>
- Chu, R., Hetherington, M. M., & Tang, T. (2024). Designers' Needs in Leveraging the Evolving Role of Packaging for Promoting Healthy Eating. *Sustainability*, 16(15), 6365.
- de Vries, R., Jager, G., Tijssen, I., & Zandstra, E. H. (2018). Shopping for products in a virtual world: Why haptics and visuals are equally important in shaping consumer perceptions and attitudes. *Food Quality and Preference*, 66, 64–75. <https://doi.org/10.1016/j.foodqual.2018.01.005>
- Department of Statistics Malaysia Official Portal. (n.d.). V1.Dosm.gov.my. https://v1.dosm.gov.my/v1_/
- Ernyasih, E., Nugrahani, R. A., Mohamed, N. M. Z. N., Setiawan, A., Al-Hafidz, M. A., & Daruki, D. (2025). Analyzing the Impact of Ergonomics, Biodegradability, and Material Science on Consumer Behavior in Food Packaging. *International Journal of Automotive and Mechanical Engineering*, 22(2), 12344-12358.
- Grunert, Klaus. G. (2011, December). Sustainability in the Food Sector: A Consumer Behaviour Perspective. *AgEcon Search*; *AgEcon Search*. <https://ageconsearch.umn.edu/record/121943/files/Grunert-ok.pdf>
- Gutierrez, M. M., Meleddu, M., & Piga, A. (2017). Food losses, shelf-life extension and environmental impact of a packaged cheesecake: A life cycle assessment. *Food Research International*, 91, 124–132. <https://doi.org/10.1016/j.foodres.2016.11.031>
- Karim, N. A., Isa, S. M., Fuza, Z. I. M., & Ali, F. M. (2024). Bepang Pulut Terengganu: Legasi Pembuatan dan Snek Warisan: (Bepang Pulut Terengganu: The Legacy of its Craft and Heritage Snack). *Asian Journal of Environment, History and Heritage*, 8(Special Issues).
- Ketelsen, M., Janssen, M., & Hamm, U. (2020). Consumers' response to environmentally-friendly food packaging - A systematic review. *Journal of Cleaner Production*, 254(254), 120123. <https://doi.org/10.1016/j.jclepro.2020.120123>
- Khan, M. M., Waheed, S., & Ahmad, N. (2018, December). (PDF) Product Packaging and Consumer Purchase Intentions. *ResearchGate*. https://www.researchgate.net/publication/329736165_Product_Packaging_and_Consumer_Purchase_Intentions
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610.
- Li, R., & Li, H. (2024). The impact of food packaging design on users' perception of green awareness. *Sustainability*, 16(18), 8205.
- Liu, C., Samsudin, M. R., & Zou, Y. (2025). The impact of visual elements of packaging design on purchase intention: Brand experience as a mediator in the tea bag product category. *Behavioral Sciences*, 15(2), 181.
- Lucid Content Team. (2017, December 6). Definition and Examples of the Consumer Decision-Making Process. *Www.lucidchart.com*. <https://www.lucidchart.com/blog/consumer-decision-making-process#:~:text=What%20is%20the%20consumer%20decision>

- Malaysia, D. of S. (n.d.). Malaysia - Populasi Penduduk Malaysia | OpenDOSM. Open.dosm.gov.my. <https://open.dosm.gov.my/ms-MY/dashboard/population>
- Mardatillah, A., Raharja, S. J., Hermanto, B., & Herawaty, T. (2019). Riau Malay food culture in Pekanbaru, Riau Indonesia: commodification, authenticity, and sustainability in a global business era. *Journal of Ethnic Foods*, 6(1). <https://doi.org/10.1186/s42779-019-0005-7>
- Mehta, A., Serventi, L., Kumar, L., & Torrico, D. D. (2024). Exploring the effects of packaging on consumer experience and purchase behaviour: insights from eye tracking and facial expressions on orange juice. *International Journal of Food Science and Technology*, 59(11), 8445-8460.
- Nahar, N., Karim, S., Karim, R., Ghazali, H., Krauss, S., Nahar, N., Karim, S., Karim, R., Ghazali, H., & Krauss. (2018). The Globalization of Malaysia National Cuisine: A Concept of "Gastrodiplomacy." *Journal of Tourism, Hospitality & Culinary Arts (JTHCA)*, 10(1), 42–58. <https://ir.uitm.edu.my/id/eprint/65294/1/65294.pdf>
- Naim Misran, N., Md Sharif, M. S., Akbarruddin, M. N. A., Saad, M., & Muhamed Yusoff, A. (2022). Cultural identity of Malay Bugis: a reflection in traditional food practices. *Journal of Tourism, Hospitality and Culinary Arts*, 14(1), 140-163.
- Ncube, L. K., Ude, A. U., Ogunmuyiwa, E. N., Zulkifli, R., & Beas, I. N. (2020). Environmental Impact of Food Packaging Materials: A Review of Contemporary Development from Conventional Plastics to Polylactic Acid Based Materials. *Materials*, 13(21), 4994. <https://doi.org/10.3390/ma13214994>
- Nguyen, A. T., Parker, L., Brennan, L., & Lockrey, S. (2020). A consumer definition of eco-friendly packaging. *Journal of Cleaner Production*, 252(119792), 119792. <https://doi.org/10.1016/j.jclepro.2019.119792>
- Otto, S., Strenger, M., Maier-Nöth, A., & Schmid, M. (2021). Food packaging and sustainability – Consumer perception vs. correlated scientific facts: A review. *Journal of Cleaner Production*, 298, 126733.
- Pal, M., Devrani, M., & Hadush, A. (2019). Recent developments in food packaging technologies. 1–25. https://www.researchgate.net/publication/330555330_Recent_developments_in_food_packaging_technologies
- Palanisamy, Y., Kadirvel, V., & Ganesan, N. D. (2025). Recent technological advances in food packaging: sensors, automation, and application. *Sustainable Food Technology*.
- Brennan, L., Francis, C., Jenkins, E. L., Schivinski, B., Jackson, M., Florence, E., ... & Ryder, M. (2023). Consumer perceptions of food packaging in its role in fighting food waste. *Sustainability*, 15(3), 1917.
- Fennell, K., Lu, G., Mahmoudi, M., Lee, E., & Almenar, E. (2023). US consumers' awareness, purchase intent, and willingness to pay for packaging that reduces household food waste. *Foods*, 12(23), 4315.
- Syafrudin, M., Alfian, G., & Fitriyani, N. L. (2025). Smartphone-Based Food Traceability System Using NoSQL Database. *arXiv preprint arXiv:2506.02033*.
- Tharmabalan, R. T., Rusli, S. A., Lo, R., Saidin, N. F. B., & Basar, Z. (2025). From tradition to table: An introduction to the culture and nutritional significance of Malaysian fermented foods products. *Journal of Ethnic Foods*, 12(1), 18.
- Mohd Noor, N. H., & Mohamad Fuzi, A. (2024). Packaging features and purchasing decisions: strengthening the local home-based products. *International Journal of Art and Design (IJAD)*, 8(2/SI), 68-79.

- Jamil, A., & Abu Bakar, M. F. (2025). Aligning Brand Identity with Public Expectation: The Critical Role of Design in Product Extension Success. *International Journal of Research and Innovation in Social Science*, VIII(XII), 1445–1455. <https://doi.org/10.47772/ijriss.2024.8120123>
- Tu, L., & Mustaffa Halab, K. N. (2024). Exploring the Influence of Green Packaging Design on Consumer Purchasing Behavior: A Comprehensive Analysis. *International Journal of Academic Research in Business & Social Sciences*. <https://doi.org/10.6007/ijarbss/v14-i1/19743>
- Priyanka, P., Rani, R. U., Yadav, R., Bajal, N., Mandal, B., & Kumar, A. (2024). Role of Active Packaging for Food Freshness and Quality Maintenance. *International Journal of Environment, Agriculture and Biotechnology*, 9(4), 023–030. <https://doi.org/10.22161/ijeab.94.4>
- Yadav, S. K. (2024). The influence of packaging on consumer perception. *Indian Scientific Journal of Research in Engineering and Management*, 08(04), 1–5. <https://doi.org/10.55041/ijsrem32315>
- Ren, C., & Tengku Anuar, T. F. (2024). Packaging's Impact on consumer purchase intention: a comprehensive review. *International Journal of Entrepreneurship and Management Practices*. <https://doi.org/10.35631/ijemp.724014>
- Nagaveni, S., & Poosarla, V. G. (2024). Future trends in intelligent packaging solutions (pp. 383–411). Elsevier BV. <https://doi.org/10.1016/b978-0-443-15388-4.00015-8>
- Perry, M. S. (2017). Feasting on Culture and Identity: Food Functions in a Multicultural and Transcultural Malaysia. *3L the Southeast Asian Journal of English Language Studies*, 23(4), 184–199. <https://doi.org/10.17576/3L-2017-2304-14>
- Popovic, I., Bossink, B. A. G., & Sijde, P. C. van der. (2019). Factors Influencing Consumers' Decision to Purchase Food in Environmentally Friendly Packaging: What Do We Know and Where Do We Go from Here? *Sustainability*, 11(24), 7197. <https://doi.org/10.3390/su11247197>
- Prakash, G., & Pathak, P. (2017). Intention to buy eco-friendly packaged products among young consumers of India: A study on developing nation. *Journal of Cleaner Production*, 141, 385–393. <https://doi.org/10.1016/j.jclepro.2016.09.116>
- Raji, M. N. A., Ab Karim, S., Ishak, F. A. C., & Arshad, M. M. (2017). Past and present practices of the Malay food heritage and culture in Malaysia. *Journal of Ethnic Foods*, 4(4), 221–231. <https://doi.org/10.1016/j.jef.2017.11.001>
- Riswanto, A. L., Kim, S., Williady, A., Ha, Y., & Kim, H. S. (2025). How visual Design in dairy packaging affects consumer attention and decision-making. *Dairy*, 6(1), 4.
- Schaefer, D., & Cheung, W. M. (2018). Smart Packaging: Opportunities and Challenges. *Procedia CIRP*, 72, 1022–1027. <https://doi.org/10.1016/j.procir.2018.03.240>
- Sharif, M. S. Md., Nor, N. M., Zahari, M. S. M., & Muhammad, R. (2015). What Makes the Malay Young Generation had Limited Skills and Knowledge in the Malay Traditional Food Preparation? *Procedia - Social and Behavioral Sciences*, 202, 152–158. <https://doi.org/10.1016/j.sbspro.2015.08.218>
- Shariff, S. M., Zahari, M. S. M., Hanafiah, M. H., & Ishak, N. (2022). Traditional gastronomy knowledge transfers among Malay women: an exploratory study. *Journal of Foodservice Business Research*, 25(3), 277–301.
- Sharma, P., Ueno, A., Dennis, C., & Turan, C. P. (2023). Emerging digital technologies and consumer decision-making in retail sector: Towards an integrative conceptual framework. *Computers in Human Behavior*, 148, 107913.

- Shukla, P., Singh, J., & Wang, W. (2022). The Influence of Creative Packaging Design on Customer Motivation to Process and Purchase Decisions. *Journal of Business Research*, 147(147), 338–347. <https://doi.org/10.1016/j.jbusres.2022.04.026>
- Siegle, D. (2015). Critical Values of the Pearson Product-Moment Correlation Coefficient. Neag School of Education, University of Connecticut.
- Spence, C. (2016). Multisensory Packaging Design. *Integrating the Packaging and Product Experience in Food and Beverages*, 1–22. <https://doi.org/10.1016/b978-0-08-100356-5.00001-2>
- Spence, C., & Velasco, C. (2018). On the Multiple Effects of Packaging Colour on Consumer Behaviour and Product Experience in the “Food and Beverage” and “Home and Personal Care” Categories. *Food Quality and Preference*, 68(68), 226–237. <https://doi.org/10.1016/j.foodqual.2018.03.008>
- Srivastava, P., Ramakanth, D., Akhila, K., & Gaikwad, K. K. (2022). Package design as a branding tool in the cosmetic industry: consumers’ perception vs. reality. *SN Business & Economics*, 2(6). springer. <https://doi.org/10.1007/s43546-022-00222-5>
- Sue, C., Fauzan, T., & Anuar, T. (2019). *Packaging Innovation As A Commodification Excellence Factor For Small And Medium Enterprises (SMES) Case Study: Frozen Keropok Lekor Packaging In Kelantan*. <http://www.ijemp.com/PDF/IJEMP-2019-05-03-01.pdf>
- Tunku, U., & Rahman, A. (2020). *The influence of packaging design elements upon consumer buying behaviour among young adults towards food products ngoi zhong sheng odelia lee a research project submitted in partial fulfillment of the requirements for the bachelor of communication (hons) advertising faculty of arts & social science*. http://eprints.utar.edu.my/4022/1/fyp_AV_2020_NZS_%2D_1800262.pdf
- UCLA. (2021). *What does Cronbach's Alpha mean? | SPSS FAQ*. Stats.oarc.ucla.edu. <https://stats.oarc.ucla.edu/spss/faq/what-does-cronbachs-alpha-mean/>
- Vila-López, N., Kuster-Boluda, I., & Alacreu-Crespo, A. (2021). Designing a Low-Fat Food Packaging: Comparing Consumers’ Responses in Virtual and Physical Shopping Environments. *Foods*, 10(2), 211. <https://doi.org/10.3390/foods10020211>
- Wikström, F., Williams, H., Trischler, J., & Rowe, Z. (2019). The Importance of Packaging Functions for Food Waste of Different Products in Households. *Sustainability*, 11(9), 2641. <https://doi.org/10.3390/su11092641>
- Xie, X. (2019). Ease of use design for food packaging for the elderly. *Frontiers in Art Research*, 1, 22–30. <https://doi.org/10.25236/FAR.20190205>
- Zheng, W., Kanyan, L. R., & Shanat, M. B. (2025). Cultural authenticity and purchase intention of Chinese luxury brand logo. *Journal of Graphic Engineering and Design*, 16(1), 5-16.