

A Consumption Value Perspective on Malacca's Street Food Tourism

Amir Faisal Ahamed Latfi^{1*}, Myzatul Aini Mansor¹, Nik Alif Amri Nik Hashim¹, Zaimatul Awang¹, Aikal Liyani Mohd Rasdi¹, Nor Maizana Mat Naw¹, Mohamad Pirdaus Yusoh¹

Faculty of Hospitality, Tourism and Wellness, Universiti Malaysia Kelantan
Corresponding email: amirfaisal.al@umk.edu.my

Journal of Hospitality, Tourism &
Wellness Studies
Vol. 3 (2) pp 1-12
© The Author(s) 2025
Submit date: 20 May 2025
Accept date: 29 September 2025
Publish date: 31 September 2025

ABSTRACT

Street food has become a crucial experiential dimension of tourism destinations, especially in heritage towns such as Malacca, Malaysia. Although the majority of earlier studies have focused on safety, hygiene, and behaviours associated with street food, there has been little conceptual research exploring how a combination of values affects domestic tourists' attitudes towards street food tourism. Under the premise of the Consumption Value Theory, this conceptual piece proposes a holistic approach to explain domestic tourists' attitudes towards street food in Malacca, using five major dimensions: taste value, health value, price value, emotional value, and social value. Based on recent experiences in the context of tourism and food consumption, the piece aims to make new contributions to the field of street foods and tourism by integrating the three types of value mentioned above into a holistic attitudinal approach.

Keywords: Street food tourism; Consumption value; Domestic travellers; Attitude; Malacca

INTRODUCTION

Food is increasingly becoming an integral part of travelling today, moving from being a basic daily necessity to a significant driver of cultural experience and hedonic consumption. This is, of course, the reality that everyday life is nothing without the enjoyment that comes with eating, which is a driving force that sways everyday life as it contributes significantly towards building everyday culture. Street food, as observed, is very approachable and truly reflects everyday life, especially when associated with heritage. For instance, Malacca, a UNESCO World Heritage Site found in Malaysia, has street food that serves as a dual tourism product. Recent studies within the tourism industry reveal a shift that extends beyond sightseeing to other levels important to travellers themselves: "participation, emotions, and immersion," rather than mere "consumption" (Amaro et al., 2025). Within this experiential context, the street food culture is therefore a unique scene in which the experience of delight, interaction,

and place converge (Björk & Kauppinen-Räsänen, 2019; Şahin & Kılıçlar, 2023). However, in spite of this relevance, research on street food tourism in Malaysia, among similar localities, still focuses largely on issues within the confines of hygiene, food safety, and service, among others, ignoring value-driven evaluations, which largely define tourists' behaviour, their attitudes, and their resulting intentions to act on them.

Studies on food tourism primarily focus on the international segment; thus, the domestic segment receives less attention, despite the importance of domestic visitors in maintaining the destination alive, especially in the aftermath of the pandemic (UNWTO, 2024). The domestic segment is likely to be familiar with the local culture and has feelings toward the local cuisine; therefore, they assess street food sites differently from the international segment. Understanding the importance of domestic visitors in shaping attitudes toward street food is indispensable for successful tourism development. In addressing the gaps in the current literature, the focus of the thematic paper is on developing the use of the Consumption Value Theory with the five core values of taste, health, price, emotional, and social values in the context of domestic travellers' attitude formation in the context of Malacca's street food tourism.

THEORETICAL BACKGROUND

Consumption Value Theory

The Consumption Value Theory states that the values we seek in travelling are not solely utilitarian. Rather, our consumption behaviour is driven by a complex mix of value dimensions, influenced by our thoughts and feelings about an experience (Tan & Chiu, 2024). The current state of modern research in tourism studies has observed an increasing focus on research work that employs the Consumption Value Theory in understanding experiential consumption, specifically in hospitality, food, and culture tourism, in which aspects of an experience are personalized, context-dependent, experiential, aspirational, emotional, aesthetic, and have a profound impact on the emotional state of the consumer (Jalis et al., 2024; An & Choi, 2025; Şahin & Kılıçlar, 2023). By understanding the framework of consumption value, the total perceived experiential value for the traveller is the total valuation of benefits for an experience, subtracting the associated costs or sacrifices made, which cover functional, emotional, social, and epistemic measures that collectively influence the final experiential value (Björk & Kauppinen-Räsänen, 2019; Stone & Zou, 2025).

In the field of tourism, plausible evidence showed that the value perceived by tourists in what they consumed determined how they felt at the destination, their satisfaction, and subsequent behaviours such as return, loyalty, and positive word-of-mouth dissemination (Mohammad Hafidz et al., 2024; Rueda-López et al., 2026). When it comes to street food tourism, applying the Consumption Values Theory enables understanding of experiences associated with consuming local foods to go beyond the need for cleanliness, security, and affordability, and instead consider the values connected to the experience (Sahabuddin et al., 2024). This theory is significant for heritage sites, as street food helps define cultural identity and shape the experiences associated with heritage tourism. (Zhu et al., 2024a; Akbarruddin et al., 2025a).

Street Food in Domestic Tourism

In domestic travel, street food occupies its own niche, which might be described as: It's very affordable, and there's a sense of familiarity and belonging to it, which results in it being very relatable and approachable (Kedla et al., 2025). A domestic tourist easily feels like there's a shared understanding and or culture with street food vendors, which creates a level of familiarity and bonding which isn't easily attainable by foreign travellers, either in this case or in general (Bayraktar, 2024). Thus, street food in this context creates its own social and emotional experience, which in turn influences perceptions and satisfaction levels with a destination in a positive way (Rewtrakunphaiboon & Sawangdee, 2022).

In heritage Places such as Malacca, food on the streets represents more than just sustenance; it signifies the important linkage to their own sense of identity and memory for local tourist visitors (Akbaruddin et al., 2025b). All the above experiences convey the notion that the attitude concerning food on the streets to be touristy may have more influence if it can be related to the broader value concept, such as taste, cost, feelings, bonding, and health (Hurdawaty et al., 2025).

CONCEPTUAL DEVELOPMENT

Taste Value

Taste value describes the experience of tourist consumers of street food in terms of the food's taste, appeal, and freshness. In many research endeavours, taste values are prominent as the principal variable in determining positive attitudes toward foods (Kim et al., 2021; Goolaup et al., 2025a; Şahin & Kılıçlar, 2023; Truong & Nguyen, 2023). In the context of street food in tourism, this variable symbolises authenticity and helps promote a positive image of destinations (Björk & Kauppinen-Räsänen, 2019). Domestic travellers, on the other hand, focus more on taste quality because it reflects familiarity with and culinary heritage. Thus, a positive experience of sensory-pleasing street food is likely to increase favourable attitudes toward Malacca street food (Jalis et al., 2024; Long et al., 2024).

Health Value

Health value refers to people's perspectives regarding hygiene, cleanliness, health safety, and quality. Although health risks are often associated with street food, current studies indicate improvements in health standards and regulations, which are increasing tourists' confidence and influencing their attitudes (Thi Tuyet et al., 2025; Seo & Lee, 2021; Polas et al., 2023). In the domestic market, knowledge of the cuisine can reduce possible danger, although health considerations are also relevant in this decision-making process. When domestic visitors perceive street foods as clean and safe, they are more likely to have positive attitudes toward the destination country (Li et al., 2023; Zhu et al., 2024b).

Price Value

Price value captures the dimensions of affordability, fairness, and value for money. The food on the street has long been considered affordable and accessible; thus, it will continue to appeal to domestic travellers seeking economical experiences. A perception of price fairness makes the attitude toward travel more positive, as attitudes of perceived fairness are strengthened and satisfying. In domestic tourism, where budgets are large, the price values people assign have a strong influence on the positive evaluation of destinations.

Emotional Value

Emotional value is characterised by feelings of delight, excitement, and satisfaction, as well as a connection to memories evoked by street food (Abdul Razak et al., 2024; Pham et al., 2023). Travel is fundamentally emotional, and what travellers eat along the way can elicit strong reactions that influence how they reflect on a place and the memories they retain of it (Khan et al., 2025). In Malacca, street food can evoke nostalgia and a sense of attachment among local tourists, reinforcing positive perceptions of the destination. According to Park & Widyanta (2022) and Li et al. (2023), emotional involvement is a significant motivator that drives attitude development.

Social Value

Social value relates to how street food brings people together and helps establish stronger bonds and feelings of belonging. The act of sharing food from the street is usually a social process that helps to establish bonds and memories (Goolaup et al., 2025b; Moura et al., 2025; Zhu et al., 2024b). This is especially the case when the traveller is discovering within his own country, in that the street foods become a social process involving the whole group of friends and relatives to make the experience more fun and enjoyable (Truong & Nguyen, 2023; Şahin & Kılıçlar, 2023). Such social interactions lead to more positive perceptions of street food tourism (Long et al., 2024; Jalis et al., 2024).

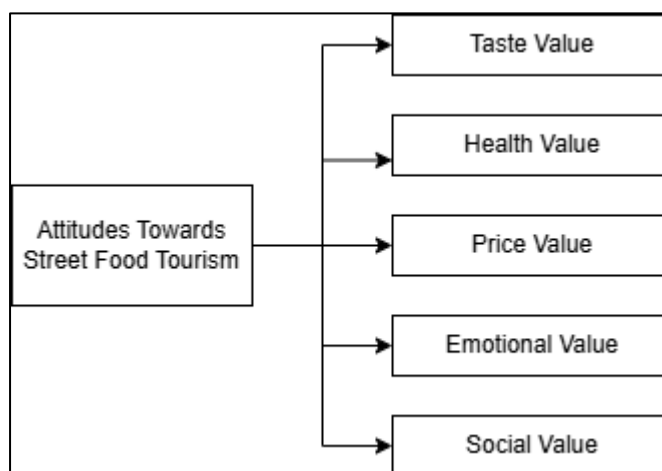


Figure 1. Consumption Value Theory Framework
Source: Sheth et al. (1991)

METHODOLOGY

In this research, a conceptual approach is applied to examine how domestic visitors in Malacca perceive street food tourism, drawing on the Consumption Value Theory (Sheth et al., 1991). By intertwining a compendium of knowledge from contemporary literature, this research develops and establishes important constructs revolving around the theme of the street food experience. Establishing five principal constructs: taste values, cultural/ experiential values, social values, emotional values, and overall attitudes. Each construct has been defined using antecedent theoretical tenets and prior research. The proposed model is conceptual, as the analysis requires bringing together concepts that have been applied in previous studies. This model will apply the principles of Consumption Value Theory in detail, enabling the associations among the different concepts to be understood. The following context will explain the applicable associations. To test the model in an empirical research project, the model may be scrutinised through a quantitative survey research method incorporating Partial Least Squares Structural Equation Modelling (PLS-SEM). This method would be most appropriate for assessing the relationships among the latent constructs of tastes, cultural and experiential values, social and emotional values, etc., and the attitudes of general travellers. The data would be collected via a 5-point Likert-scale questionnaire, with a sample of 200-300 local travellers in Malacca who access popular street food spots. Convenience sampling is recommended for the instrument, as its reliability and construct validity would be assessed prior to data collection.

Expected Theoretical Contributions

This conceptual paper has three important implications. Firstly, this paper extends research on street food tourism beyond hygiene considerations into the broader value of consumption. It tries to incorporate the values of taste, health, cost, emotions, and social aspects of consumption (Li et al., 2023; Şahin & Kılıçlar, 2023; Goolaup et al., 2025a). Secondly, this paper has implications in the domain of domestic tourism research as it focuses on the attitude formation process among domestic tourist visitors, who are largely overlooked in tourism research on foods (Cherian & Natarajamurthy, 2024; Long et al., 2024; Zhu et al., 2024b). Thirdly, this paper establishes the importance of the Consumption Value Theory and its application in experiential food tourism, as it provides insights into the relationship of overall consumption values and their impact on attitude, satisfaction, and behavioural intention (Jalis et al., 2024; An & Choi, 2025, 2023; Stone & Zou, 2025)

Expected Practical Implications

For destination managers, the guidelines emphasise the need to design experiences for street food that address the fusion of sensory experiences, emotional experiences, and social experiences (Truong & Nguyen, 2023; Björk & Kauppinen-Räsänen, 2019). Local authorities should promote more positive perceptions through the visibility of hygiene practices without sacrificing the authenticity of the experience (Seo & Lee, 2021). Street food operators need to embrace emotional experiences, consistency in terms of flavors, and the creation of positive social experiences to enhance value for locals (Yang et al., 2024; Goolaup et al., 2025b; Moura et al., 2025).

CONCLUSION

In this conceptual work, the application of Consumption Value Theory to understanding the feelings towards street food tourism among domestic tourists treats street food as a multifaceted phenomenon in tourism. In compiling studies conducted in recent years, four components have been identified in defining attitudes towards street food. This study represents an important theoretical contribution by applying the Consumption Value Theory to street food tourism, a subject and field that, in reality, has yet to be adequately explored despite its immense cultural richness. Also, the study portrays street food as more than an alternative meal, but as an expression of something, namely identity. Regarding methodological aspects, it provides a sound basis for future testing by recommending a quantitative approach based on PLS-SEM analysis of a set of proposed relationships. Regarding applicability, this study provides a basis for tourism stakeholders to consider not only quality cuisine in their developments, as explored in this research. Overall, the research offers a theoretically driven, context-specific model that advances the field of street food tourism.

REFERENCES

- Abraham, S., Noriega, B. R., & Shin, J. Y. (2018). College students' eating habits and knowledge of nutritional requirements. *Journal of Nutrition and Human Health*, 2(1).
- Adolphus, K., Lawton, C. L., & Dye, L. (2013). The effects of breakfast on behavior and academic performance in children and adolescents. *Frontiers in Human Neuroscience*, 7.
- Abdul Razak, A. L., Mat Nasir, A. A. H., Mohd Zaki, A. R., Fan, C. Y., & Muhammad, N. H. (2024). Factors influencing consumer's purchase intention on new seasonal menu selection (viral food). *Journal of Hospitality, Tourism and Wellness Studies*, 1(1), 77–89. <https://doi.org/10.70944/jhtw.v1i1.1440>
- Akbarruddin, M. N. A., Baba, N., Rahman, A. R. A., & Setiyorni, H. (2025a). Impact of street food experiences on domestic tourists' behavioral intentions to revisit Malacca. *International Journal of Research and Innovation in Social Science*, 8(12), 3092–3101. <https://doi.org/10.47772/IJRISS.2024.8120256>
- Akbarruddin, M. N. A., Baba, N., Rahman, A. R. A., & Setiyorni, H. (2025b). Impact of street food experiences on domestic tourists' behavioral intentions to revisit Malacca. *International Journal of Research and Innovation in Social Science*, 8(12), 3092–3101. <https://doi.org/10.47772/IJRISS.2024.8120256>
- An, S., & Choi, J. (2025). Exploring visitors' coastal gastronomy experiences through the lens of the theory of consumption value. *International Journal of Gastronomy and Food Science*, 40, 101197. <https://doi.org/10.1016/j.ijgfs.2025.101197>
- Bayraktar, Y. (2024). Sustainability in street food: Elaboration likelihood model (ELM) and image theory perspective. *International Journal of Gastronomy and Food Science*, 38, 101029. <https://doi.org/10.1016/j.ijgfs.2024.101029>
- Björk, P., & Kauppinen-Räsänen, H. (2019). Destination foodscape: A stage for travelers' food experience. *Tourism Management*, 71, 466–475. <https://doi.org/10.1016/j.tourman.2018.11.005>
- Cherian, A. M., & Natarajamurthy, P. (2024). Rethinking tourism post-COVID: A public health perspective. *South Eastern European Journal of Public Health*, 66–69. <https://doi.org/10.70135/seejph.vi.2274>
- Dodd, S. (1989). Lexicomputing and the dictionary of the future. In G. James (Ed.), *Lexicographers and their works* (pp. 83–93). University of Exeter Press.
- Faizah Abdul Majid, Jelas, Z., & Azman, N. (2002). Selected Malaysian adult learners'

- academic reading strategies: A case study. Retrieved August 16, 2005, from <http://face.stir.ac.uk/Majidp61.htm>
- Goolaup, S., Nunkoo, R., & Cho, M. (2025a). Food tourists' social interactions: A social capital and social learning perspective. *Tourism Management*, 108, 105128. <https://doi.org/10.1016/j.tourman.2024.105128>
- Goolaup, S., Nunkoo, R., & Cho, M. (2025b). Food tourists' social interactions: A social capital and social learning perspective. *Tourism Management*, 108, 105128. <https://doi.org/10.1016/j.tourman.2024.105128>
- Hurdawaty, R., Dahana, W. D., & Farradia, Y. (2025). Understanding revisit intention in local culinary tourism: The mediating role of memorable culinary tourism experience and destination image. *Tourism and Hospitality*, 6(4), Article 184. <https://doi.org/10.3390/tourhosp6040184>
- Jalis, M. H., Deraman, N. S. C., Elias, J., & Indriastuti, M. (2024). Local food consumption and travelling experience among domestic tourists. *International Journal of Research and Innovation in Social Science*, 8(9), 1001–1010. <https://doi.org/10.47772/IJRISS.2024.809086>
- Kedla, S., Nandini, B., & Chethan, S. (2025). Street food culture and culinary tourism: Economic drift for the tourism industry. *European Journal of Arts, Humanities and Social Sciences*, 2(2), 85–91. [https://doi.org/10.59324/ejahss.2025.2\(2\).09](https://doi.org/10.59324/ejahss.2025.2(2).09)
- Khan, J., Al Jaed, S. A., Zhang, Q., & Li, M. (2025). Gastronomic tourism and tourist hedonic well-being: A moderated mediation model based on perceived authenticity, emotional connection, and tourist food neophilia. *International Journal of Gastronomy and Food Science*, 42, 101294. <https://doi.org/10.1016/j.ijgfs.2025.101294>
- Kim, S., Park, E., Fu, Y., & Jiang, F. (2021). The cognitive development of food taste perception in a food tourism destination: A gastrophysics approach. *Appetite*, 165, 105310. <https://doi.org/10.1016/j.appet.2021.105310>
- Li, A.-N., Dai, Y.-D., Tsai, T., Yeh, G.-T., & Chen, Y.-C. (2023). Effects of food experience, emotion, and place attachment on heritage tourists' revisit intention. In *Advances in hospitality and leisure* (pp. 121–139). Emerald Publishing. <https://doi.org/10.1108/S1745-354220230000019007>
- Long, B., Yusof, N. S., & Azmy, M. M. (2024). Factors influencing the sustainability of food tourism destinations: Evidence from the World Heritage Site of Guilin. *Sustainability*, 16(22), 10027. <https://doi.org/10.3390/su162210027>
- Mohammad Hafidz, H. N., Honorius, H. I., Halihul Jaman, H. H., Muhamad Nasir, M. N., & Mohd Rasdi, A. L. (2024). Factors influencing satisfaction among domestic tourists visiting Muslim-friendly destinations in Kelantan. *Journal of Hospitality, Tourism and Wellness Studies*, 1(1), 1–11. <https://doi.org/10.70944/jhtw.v1i1.1432>
- Moura, A. A., Mira, M. R., & Teixeira, A. R. (2025). The tourist gastronomic experience: Ties between young foodies' motivation and destination development in Portugal. *Tourism and Hospitality*, 6(1), Article 7. <https://doi.org/10.3390/tourhosp6010007>
- Nambiar, R. (2005). *Language learning and language use strategies of tertiary learners for academic literacy: Towards a theoretical and pedagogical model of learning* (Unpublished doctoral dissertation). Universiti Kebangsaan Malaysia.
- Park, E., & Widyanta, A. (2022). Food tourism experience and changing destination foodscape: An exploratory study of an emerging food destination. *Tourism Management Perspectives*, 42, 100964. <https://doi.org/10.1016/j.tmp.2022.100964> (3), 412.
- Pham, L. L. D., Eves, A., & Wang, X. L. (2023). Understanding tourists' consumption emotions in street food experiences.
- Rueda-López, R., Castaño-Prieto, L., Álvarez-Robles, C., & Aguilar-Rivero, M. (2026). Relationships between tourists' motivations, satisfaction, perceived value and loyalty

- in a second-tier city: The case of León (Spain). *Cities*, 170, 106650. <https://doi.org/10.1016/j.cities.2025.106650>
- Sahabuddin, M., Alam, M. S., & Nekomahmud, M. (2024). How do perceived and environmental values influence tourist satisfaction, loyalty, and environmental awareness? *Environment, Development and Sustainability*. <https://doi.org/10.1007/s10668-024-05094-3>
- Şahin, A., & Kılıçlar, A. (2023). The effect of tourists' gastronomic experience on emotional and cognitive evaluation: An application of S-O-R paradigm. *Journal of Hospitality and Tourism Insights*, 6(2), 595–612. <https://doi.org/10.1108/JHTI-09-2021-0253>
- Seo, K. H., & Lee, J. H. (2021). Understanding risk perception toward food safety in street food: The relationships among service quality, values, and repurchase intention. *International Journal of Environmental Research and Public Health*, 18(13), 6826. <https://doi.org/10.3390/ijerph18136826>
- Stone, M. J., & Zou, S. (2025). Consumption value in food tourism: The effects on purchase involvement and post-travel behaviours. *Tourism Recreation Research*, 50(2), 214–228. <https://doi.org/10.1080/02508281.2023.2246737>
- Thi Tuyet, T., Do, M. P., & Nguyen, N. (2025). The effect of sensation seeking on intention to consume street food: Utilising the theory of planned behaviour. *Cogent Social Sciences*, 11(1). <https://doi.org/10.1080/23311886.2025.2460716>
- Truong, T. L. H., & Nguyen, T. D. K. (2023). Street food experience and destination image: A study on tourist perceptions in Da Lat. *Journal of International Economics and Management*, 23(3). <https://doi.org/10.38203/jiem.023.3.0075>
- Wang, Y., & Le, T. (2011). Teaching, learning and management: A case study of intercultural communication and education. In *AARE 2006 Conference Proceedings* (pp. 27–30).
- Yang, S., Liu, Y., & Xu, L. (2024). The effect of food tourism experiences on tourists' subjective well-being. *Heliyon*, 10(3), e25482. <https://doi.org/10.1016/j.heliyon.2024.e25482>
- Zhu, Y., Zhu, L., & Weng, L. (2024a). How do tourists' value perceptions of food experiences influence their perceived destination image and revisit intention? A moderated mediation model. *Foods*, 13(3), 412. <https://doi.org/10.3390/foods13030412>
- Zhu, Y., Zhu, L., & Weng, L. (2024b). How do tourists' value perceptions of food experiences influence their perceived destination image and revisit intention? A moderated mediation model. *Foods*, 13(3), 412. <https://doi.org/10.3390/foods13030412>

Research Article

The Impact of Guests' Perception on the Awareness on Green Technology Practices in the Hotel Industry

¹Normala Binti Badrul Hisham, ¹Nurin Rasyidah Binti Rosli, ¹Nurul Amirah Binti Ismail,
¹Nurul Fatihah Binti Rusmadi, & ²Ataul Karim Patwary*

¹*Faculty of Hospitality, Tourism and Wellness, Universiti Malaysia Kelantan*

²*College of Tourism and Hospitality, University of Tabuk, Tabuk, Saudi Arabia*

Corresponding email: raselataul@gmail.com

Journal of Hospitality, Tourism &
Wellness Studies
Vol. 2 (1) pp 13-23
© The Author(s) 2025
Submit date: 12 January 2025
Accept date: 11 February 2025
Publish date: 31 March 2025

ABSTRACT

Green technology helps protect the environment and natural resources while reducing the negative effects of human activity. Green technology is the most effective way to address environmental and economic challenges. Green technology practice was evidenced by using photovoice technology, which is converting light into electricity, as natural resources produce lower levels of environmental damage than conventional sources of energy such as fossil fuel. The research aims to measure the impact of 'individual's knowledge, attitude towards the environment, government policy and regulation on green technology in the hotel industry. The present study also investigates 'guests' perceptions of the hotel industry. The quantitative method will be used through an online questionnaire and is expected to collect at least 386 completed questionnaires. The study findings will help the related parties to further research in this area of interest.

Keywords: Green technology, Environment, Knowledge, Awareness, Hotel industry, Attitude

INTRODUCTION

The Technology Acceptance Model was used to study how the ease of use and utility of green technology applications and practices influence visitors' booking decisions. Significant positive relationships were found between behavioural belief and usefulness and the intention to employ green technology applications and practices. However, there was no correlation between behavioural belief and ease of use, nor between ease of use and intention to use green technology. These findings indicate that guests recognize the value of green technology in attaining sustainability and intend to choose hotels that use it.

Because of expanding global issues such as climate change, population expansion, environmental pollution, and inefficient use and depletion of natural resources, countries must utilise environmentally less destructive technology and methods for economic activity that

protect resources. Sustainable growth is linked to less environmental damage and is fuelled by comprehensive and all-encompassing international and national policies that consider future generations' needs. Several of these policies advocate for the use of green technologies.

Sustainable development is aided by green technology, which includes discovering environmentally favourable sources of growth, generating new environmentally friendly companies, and creating jobs and technologies. Green growth requires increased investments and innovations that serve as the foundation for long-term development and create new economic opportunities. As a result, promoting the green economy necessitates extensive research on its genesis, system-forming elements, and impact on national sustainable development. Business which focuses on economic rewards, the government, which sets environmental goals for sustainable development, and the general public are all interested in green economic development, which represents the interests of a social community.

Green hotels aim to conserve resources, reduce pollution and operating expenses, boost profit margins, and promote ecotourism. Ecotourism depends on a healthy natural environment, which supports the country's economy. This study was carried out to investigate and comprehend eco-tourism guest hotel perceptions of green technology practise in the hotel business. This chapter will examine the problem statement, research objectives, research question, significance of the study, definition of terms, and summary.

1. To measure the impact of an individual's knowledge on the awareness on green technology in the hotel industry.
2. To measure the impact of attitude towards the environment on the awareness of green technology in the hotel industry.
3. To measure the impact of government policy and regulation on the awareness of green technology in the hotel industry.

LITERATURE REVIEW

Individual Knowledge

The concept of green practices varies in the hotel sector and is associated with diverse strategies. According to Kim, Lee, and Fairhurst, green practices are "a value-added business strategy that benefits a hospitality firm that participates in environmental preservation programmed," Kim, Lee, and Fairhurst. Similarly, Rahman, Reynolds, and Svaren (2020) defined "green" as "environmentally friendly, which means conducting business in a manner that reduces waste, conserves energy, and enhances overall environmental health." According to Myung, McClaren, and Li, green practices aim to reduce negative environmental impact by applying environmental measures such as waste reduction and the usage of environmentally friendly products and resources according to Ahmed Hassan Abdou, Thowayeb Hassan Hassan and Mohammed Moustafa El Dief (2020).

Green practices in the hotel sector have been considered from different perspectives, but most scholars have three motives: financial interests, consumer needs and hopes, and interest groups. Identified the interaction of. According to Alom et al. (2019), the main reason for introducing the ecolabel standard is the good image of the environment and the hotel. According to Patwary et al. (2020) eco-friendly practices were originally used to save money. Internal factors such as management attitudes and financial strength, as well as external business variables such as environmental policy, influence the adoption of green practices in the hospitality industry.

Attitude towards Environment

All through the world, green technology, or green habits in the hotel industry, which is the backbone to the development of the global tourism sector, have become generally accepted and used. (Patwary et al., 2022) The natural environment exists in environment and weather, water features, topography, soils, flora, fauna, and so on, while the constructed environment is what man has made, principally buildings and other structures. (Kasim, 2009) The physical environment can affect all areas of health; those living in a clean and safe environment are more likely to enjoy an excellent physical environment and mental health. (Rajagopal, 2019). The hotel will be more interested in the policies and investments offered by the government. In fact, significant investment is required to enhance, modernize, and develop green technology services in the hotel business. According to Tanner and Kast (2003), there are so many demands from customers who are increasingly concerned about environmental care even though the customer is on vacation and vacation abroad. Customers who care about green technology in this hotel are called 'green tourists or eco tourists' in terms of tourism. This right does not mean an alien, Hulk, or a green-coloured creature, but a term used to describe a tourist character who has a good nature and attitude, especially towards the environment and the local community. (Han & Chan, 2013) Eco-tourists always respect the places they visit by not polluting the environment, throwing and burning rubbish everywhere, causing environmental violence at will, and preserving good connections with the local population by not making a fuss. (Moliner et al., 2019).

Government Policy and Regulation

Malaysia is presently one of the world's most prominent countries. It would not have been feasible for us to achieve what we have today without the sacrifices and commitments of our forebears. Despite our country's progress toward becoming a developed nation, Malaysians can be proud of the high quality of life they enjoy. Two of today's most critical issues confront the world at once: climate change and energy supply security. Sustainability is not just about saving energy and reducing greenhouse gas emissions, as Lin and Ho (2011) argue. Economic prosperity in our country is being driven by green technology. Green technology will push us toward a more sustainable and better way of life, which will contribute to creating a knowledge society.

Green Technology goals will be carried out by the new Ministry of Energy, Green Technology, and Water. Everyone is thrilled to see the National Green Technology Policy go into effect, as it will serve as a road map for a greener Malaysia in the coming years. Utilize this chance to promote the National Green Technology Policy's implementation and urge all Malaysians to use green technology. The Malaysian government's unwavering commitment to green technologies will not be swayed. We aspire to a future when cities, townships, and neighbourhoods are constructed using Green Technology principles, providing us with a clean, healthy, and high-quality environment. Our Vision of Green Malaysia is a collection of green villages in Malaysia that I foresee.

Awareness on Green Technology in Hotel Industry

Green technology is a broad term for science and technology to produce environmentally friendly products and services. (Patwary, 2022) Green technology aims to safeguard the environment, repair past environmental damage, and conserve the Earth's natural resources. In the hotel and tourism industries, green technology innovation and implementation are

critical because they may assist generate sustainable and ecologically friendly hospitality and tourism resources.

The hotel industry is one of many elements of the tourism industry. Its operation poses a serious environmental threat due to the heavy consumption and disposal of natural resources such as electricity, water, and consumer goods. And solid waste. If not properly managed, resources can significantly impact the enterprise's environment and operating costs.

In recent years, the hotel industry has become eco-friendly for many reasons (Minjian Guo, Joanna Nowakowska-Grunt, Vladimir Gorbanyov & Maria Egorova 2020). The increasing customer awareness reduces the negative impact of the hotel on the environment, builds a positive image, and increases economic benefits. The delicate balance between an activity and the environment in which it is performed, and the fact that they work together without harming each other, is known in the hotel industry as ecological sustainability.

Research Hypothesis

The literature review highlighted the independent variables like individual knowledge, attitude towards the environment and government policy and regulation between the impact of guests' perception on the awareness of green technology practice in the hotel industry. Therefore, the study planned to examine the effect level among these variables. Based on the literature discussed, the hypotheses of this study were summarized in the following manner:

- H1 There is a relationship between individual knowledge and awareness of green technology practices in the hotel industry.
- H2 There is a relationship between attitude toward the environment and the awareness on green technology practices in the hotel industry.
- H3 There is a relationship between government policy and regulation and the awareness of green technology practices in the hotel industry.

METHODOLOGY

Research Design

This research applied the quantitative method. A questionnaire was used to perform the survey in this study. The sample in this study consists of the guest hotel in Perak. The local citizen, a workers and student, is chosen as the representative of guests' perception that gives an opinion about the impact of guests' perception on the awareness of green technology practices in the hotel industry. Quantitative and descriptive methods were applied as research tools through questionnaires. The questionnaire contains a demographic section with multiple choices. The respondents must choose the determinant choices. The choices ranged from 1 who strongly disagreed to 5 who strongly agreed. In the attitude, perception and expectation section, the Likert- Scale has been applied to know the degree of guests' perception of the awareness of green technology practices in the hotel industry.

Data Collection

Data collection is a method for combining and calculating data from a range of sources to obtain detailed and trustworthy information. Data collecting aids a person or organization in answering similar questions, analysing answers, and forming hypotheses regarding probability and trends. Data were collected through survey forms, questionnaires, and Google Forms. Data could be gathered from primary or secondary sources. The primary data in this research was gathered by using questionnaires. The researchers used Google Forms because it will reduce the cost of using paper and makes it easier for people to answer the research questions during the endemic.

Sampling

Non-probability sampling procedures are those in which the samples are collected so that no single member of the population will have a known chance of being chosen. To put it another way, the degree of tendency in the sample collection is unknown. The researchers employed purpose sampling to conduct this analysis to adequately and cost-effectively cover the enormous number of questionnaires.

Data Analysis

Researchers utilize the Statistical Package for Social Sciences (SPSS) at the end of the study to examine the data acquired using quantitative data gathering approaches. SPSS is a collection of statistical software packages used to analyse social science-related scientific information. The researcher only uses the SPSS method in two ways: descriptive analysis and inferential analysis. Demographic parameters such as mean, median, mode, ratio, and even frequency is defined in a descriptive analysis. The mean table's spectrum is used to determine how frequently respondents will accept or disagree with the argument in the questionnaires.

FINDINGS

Result of Frequency Analysis

Table 1: Frequency Analysis

Classification	Frequency	Percentage
Male	118	30.6
Female	268	69.4
15 - 24 years	212	54.9
25 - 34 years	103	26.7
35 - 44 years	48	12.4
45 years and above	23	6.0
Malay	278	72.0
Chinese	60	15.5
Indian	33	8.5
Other	15	3.9
SPM	122	31.6
Diploma / STPM / Matriculation	94	24.4
Degree	126	32.6
Postgraduate	15	3.9
Other	29	7.5
Yes	220	57.0

No	166	43.0
Affordable	76	19.7
Healthier hotels	99	25.6
Offer eco-friendly facilities	98	25.4
Other	113	29.3

Table 1 shows, that this survey has 386 total respondents, according to the graph. Female respondents made up 69.4 percent of the total (n=268). The data indicated that most individuals who answered the questionnaire were between the ages of 15-24 years old, with 54.9% (n=212) respondents. Malay respondents are the highest accounted for 72 % (n=278) of this survey's total number of respondents. The highest education level among the respondents was the degree level, with 32.6% (n=126) respondents. The highest number of respondents answer yes, with 57%(n=220) respondents. The highest respondent chooses others as reasons for their choice for choosing green technology hotels with 29.3% (n=113).

Result of Descriptive Analysis

Table 2: Descriptive Analysis

Variable	Items	Mean Score	Standard Deviation
Individual Knowledge	I know that the gas released from the garbage dump into the atmosphere.	4.40	0.733
	I agree the smoke formed from the burning of fossil fuels such as coal and petroleum are causing global warming.	4.33	0.795
	I believe the gases released during the respiration of life can harm the eco-system.	3.96	1.191
	I know the gas used as refrigerant in the refrigerator is the cause of the pollution.	3.97	1.095
	I am aware that the adoption of green technology can help minimize the harmful effects of human activity.	4.30	0.845
	I know that green technologies will benefit future generations.	4.31	0.837
Attitude Towards Environment	I am well aware of the significance of green technology to the environment.	4.34	0.817
	I am aware that green technology can ensure a healthy and pleasant atmosphere.	4.39	0.786
	I am aware with many green technology products and equipment.	4.24	0.847
	I am aware that utilising green technology can help to conserve energy and non-renewable natural resources.	4.34	0.806
	I am aware the importance of green technology in hotel industry to the environment.	4.24	0.910
	I know use of green technology can reduce the negative impact of human activities.	4.27	0.848
Government Policies and Regulation	Government policy and regulation are important in hotel industry.	4.21	0.850
	I understand about government policy and regulation through book, newspapers, and magazines.	4.11	0.944
	I get information about policy and regulation through media social and documentaries.	4.13	0.902

I understand meaning of policy and regulation in awareness green technology.	4.19	0.836
I have knowledge about government policy and regulation.	4.08	0.937
The concept of policy and regulation of green technology give me benefit to understand it.	4.19	0.835

Based on table 2, for descriptive analysis statistics for individual knowledge, the mean for 'I know that the gas released from the garbage dump into the atmosphere is 4.40, which is an agree level. As for the 'I agree the smoke formed from the burning of fossil fuels such as coal and petroleum are causing global warming with 4.33 mean is still at agreeing level also similar to the questions 'I believe the gases released during the respiration of life can harm the eco-system at 3.96 mean and 'I know the gas used as the refrigerant in the refrigerator is the cause of the pollution at 3.97 means. The 'I am aware that the adoption of green technology can help minimize the harmful effects of human activity with a mean of 4.30 still at the agreed level. All of the other's questions on individual knowledge were at an agreed level. I know that green technologies will benefit future generations with a mean 4.31. 'I am aware that green technology can ensure a healthy and pleasant atmosphere' mean 4.39. 'I am aware of many green technology products and equipment with a mean of 4.24, which is agree on level. Overall, from the agreement level, it can be concluded that most respondents have a basic knowledge of green technology in the hotel industry. It shows a descriptive analysis statistic for the attitude towards the environment. As for 'I am aware the importance of green technology in hotel industry to the environment', most respondents agree, so the mean is at 4.24 which is at agree level. For 'I know the use of green technology can reduce the negative impact of human activities, the mean is 4.27, 'I am well aware of the significance of green technology to the environment with mean of 4.34, similar to the mean for 'I am aware that utilising green technology can help to conserve energy and non-renewable natural resources which is also 4.34. It is at agreed level. This shows that most respondents agreed with their attitude towards the environment.

The descriptive analysis statistic for government policies and regulations. The mean for the questionnaire is all in agreement level. 'Government policy and regulation are important in hotel industry with a mean of 4.21. 'I understand government policy and regulation through book, newspapers, and magazines' with a mean of 4.11. 'I get information about policy and regulation through media social and documentaries' with a mean of 4.13. 'I understand the meaning of policy and regulation in green technology' means 4.19 which is at agree level. 'The concept of policy and regulation of green technology give me the benefit to understand it with mean 4.19 also. This shows that most respondents agree with the policies and regulations of green technology in the hotel industry. The descriptive analysis statistic for dependent variable is the green technology awareness. As for the 'I know that green technology has good impact on the environment,' the mean is 4.36 at agreed level. The 'I know that with green technology, we can create a better world means 4.31, which is agree on level. 'I know the concept of green technology in the hotel industry' mean 4.16, which is agree on level. 'I have seen green technology that gives benefits to the hotel industry before' mean 4.13, which is the agree level and lastly, the mean for 'I know the green technology has been used in the hotel industry for a while is 4.16, which is agree on level. This shows that the respondents mostly agree with the questions and were aware of green technology in the hotel industry.

Result of Reliability Analysis

Table 3: Reliability Analysis

Variable	Number of Items	Cronbach Alpha
Individual Knowledge	6	0.695
Attitude Environment	6	0.875
Policies And Regulation	6	0.876
Awareness Green Technology	6	0.861

Table 3 shows the individual knowledge and the Cronbach alpha is 0.695. While for attitude towards the environment is 0.875. For the government policies and regulations, the Cronbach alpha is 0.876 and for the awareness of green technology is 0.861.

Result of Pearson Correlation Analysis

Table 4: Pearson Correlation Analysis

Hypothesis	Correlation Coefficient R-value	P-Value	Result (Supported/Not Supported)
H ₁ There is a moderate positive relationship between individual knowledge and the awareness of green technology practice in the hotel industry.	0.649 (Moderate positive)	0.01	Supported
H ₂ - There is moderate positive relationship between the attitude towards the environment and the awareness on green technology practice in the hotel industry.	0.692 (Moderate positive)	0.01	Supported
H ₃ There is high positive relationship between the government policy and regulation and the awareness on green technology practices in the hotel industry.	0.808 (High positive)	0.01	Supported

Table 4 the relationship between a dependent variable which is awareness of green technology and an independent variable which is individual knowledge, attitude towards the environment and government policy and regulation. It shows individual knowledge and attitude towards the environment is a moderate positive correlation related to the impact of guests' perception on the awareness of green technology practice in the hotel industry, with a correlation coefficient of 0.649 and 0.692. While the government policy and regulation are a high positive correlation related to the impact of guests' perception on the awareness of green technology practices in the hotel industry, with a correlation coefficient of 0.808. The p-value of individual knowledge, attitude towards the environment and government policy and regulation is less than 0.000, which is less than the highly significant level of 0.0001. Therefore, there is a significant relationship between individual knowledge, attitude towards the environment and government policy and regulation (independent variable) and the impact of guests' perception on the awareness of green technology practices in the hotel industry (dependent variable).

DISCUSSIONS

Analysis of the literature on the impact of guests' perception on the awareness of green technology practices in the hotel industry. Most tourists know green technology is very important nowadays. This study, its shows little factors that affect the performance of the green technology in the industry. Gagi, Jovii, & Erdeji, (2013) about the relationship between green technology and ecotourism perception. Customers who use green hotel will respond well because they know green technology is a good choice for the environment because its friendly technology helps hotels reduce their environmental effects by regulating water and energy use and decreasing waste.

In addition, the relationship between attitude towards environment and green technology awareness in industries also gives a good response. According to Xiayun Zhang & Feng Dong (2020), green technology attitudes have been identified as individual awareness of green technology because with the selfish attitude, the threat to the environment become increase and worst. So, with the attitude of love for the environment, the development of green technology to preserve the environment can be achieved.

This study suggests further study on the intention of using green technology in the hotel industry. Given that this study was only conducted among the community in Malaysia regardless of religion and culture in answering this questionnaire, it is not focused on only certain age groups. In this proposal, there are 3 future research which are theoretical, methodological, and practical

Theoretical

The research investigates the relationship between perceived knowledge and awareness of green technology in the hotel industry. This research has shown variables which are perceived individual knowledge (independent variable), perceived policies and regulation (independent variable), perceived attitude towards the environment (independent variable), and awareness of Malaysian tourists on green technology in the hotel industry (dependent variable).

As for recommendations, hotels owner can review the result of this research and take action to apply more green technology in their hotel facilities. With application, interface will help improve the customers' satisfaction with their facilities. The findings also can contribute to generating new ideas and new knowledge on the importance of including a green technology facility in the hotel while helping create more awareness of green technology which will improve the customers experience in more useful and effective ways. Therefore, it will influence the customers' decisions. Studying the visitors' preferences and opinion green technology also helps enhance the relationship between hotel owners and their target visitors.

Moreover, accessibility of green technology facilities in the hotel industry may help in maintaining and sustaining a better environment, therefore, it will create awareness and demands on the facilities for a better future and encourage the visitors to take concerns on the importance of green technology with a good marketing strategy.

Methodological

In future research on this topic, the quantitative research approach should be used rather than the qualitative method to acquire the information from respondents. This is because the target market consists of Malaysian visitors that have been to green technology facilities hotels. The information was gathered using the Google Forms survey questionnaire. In summary, future research should use this method because the outcomes can be simply demonstrated using the data acquired. Then, the research results would be more relevant, trustworthy, and applicable to the target population.

Practical

Moreover, the awareness of green technology on hotel industry will create a better environment as most of it is used to more practical use to sustain nature and the environment. Due to the lack of knowledge and promotion of this green technology in the hotel industry, most visitors and customers have little desire to find and stay at green technology facilities. As a result, it's critical to educate more individuals on hand to assist the visitors who need clarification on the green technology. A better initiative for the green technology facilities will help the visitors understand more on green technology and improve the customers satisfaction and experience with the services.

CONCLUSION

This study aimed to determine the impact of guests' perception on the awareness on green technology practices in the hotel industry in Perak. The results obtained in chapter 4 through Statistical Package for the Social Sciences (SPSS) were discussed further and at the same time conclusions were made based on the results. As a result, it may be proven that there is a significant relationship between individual knowledge, attitude towards the environment and government policy and regulation regarding the impact of guests' perception of green technology practices in the hotel industry in Perak.

REFERENCES

- Alom, S., Patwary, A. K., & Khan, M. M. H. (2019). Factors affecting the turnover intention of Bangladeshi migrants in the United Arab Emirates: An empirical study on the hotel industry. *International Journal of Innovation, Creativity and Change*, 8(3), 344–360.
- Baker, J. (2011). The Technology Organization Environment Framework. In *Information Systems Theory* (pp. 231–245). https://doi.org/10.1007/978-1-4419-6108-2_12
- Bhat, V. N. (1999). Does it pay to be green? *International Journal of Environmental Studies*, 56, 497–507.
- Bohdanowicz, P., & Martinac, I. (2003). Attitudes towards sustainability in chain hotels: Results of a European study. In *Proceedings from the CIB 2003 International Conference on Smart and Sustainable Built Environment*, Brisbane, Australia.
- Elkington, J. (1994). Toward the sustainable corporation: Win–win–win business strategies for sustainable development. *California Management Review*, 36(2), 90–100.

- Haider, T. P., Völker, C., Kramm, J., Landfester, K., & Wurm, F. R. (2019). Plastics of the future? The impact of biodegradable polymers on the environment and on society. *Angewandte Chemie International Edition*, 58(1), 50–62.
- ICMAI. (2021). *Journal of Physics: Conference Series*, 1950(1), 012024. <https://doi.org/10.1088/1742-6596/1950/1/012024>
- Irena, A., & Blazevic, B. (2010). Sustainable hotels: Sustainable life cycle practice in Croatian hotels. *Tourism & Hospitality Management*, 161–177.
- Kelly, J. (2007). Stated preferences of tourists for eco-efficient destination planning options. *Tourism Management*, 28(2), 377–390.
- Kirkal, D. (1998). Attitudes to environmental management held by a group of hotel managers in Edinburgh. *Journal of Hospitality Management*, 17(1), 33–47.
- Manaktola, K., & Jauhari, V. (2007). Exploring consumer attitude and behavior towards green practices in the lodging industry in India. *International Journal of Contemporary Hospitality Management*, 19(5), 364–377.
- Maxwell, D., Sheate, W., & Vorst, R. (2006). Functional and systems aspects of the sustainable product and service development approach for industry. *Journal of Cleaner Production*, 14(17), 1466–1479.
- Patwary, A. K. (2022). Examining environmentally responsible behaviour, environmental beliefs and conservation commitment of tourists: A path towards responsible consumption and production in tourism. *Environmental Science and Pollution Research*, 1–10.
- Patwary, A. K., Omar, H., & Tahir, S. (2020). A conceptual model of what influences consumers when visiting green hotels in Malaysia. *International Journal of Innovation, Creativity and Change*, 11(11), 11–25.
- Patwary, A. K., & Rashid, B. (2016). The impacts of hospitality services on visit experience and future visit intention of student travelers. *International Journal of Business and Technopreneurship*, 6(8), 107–125.
- Patwary, A. K., Rasoolimanesh, S. M., Rabiul, M. K., Aziz, R. C., & Hanafiah, M. H. (2022). Linking environmental knowledge, environmental responsibility, altruism, and intention toward green hotels through ecocentric and anthropocentric attitudes. *International Journal of Contemporary Hospitality Management*. Advance online publication. <https://doi.org/10.1108/IJCHM-04-2022-0412> (add DOI if known)
- Ramdhani, M. A., Aulawi, H., Ikhwana, A., & Mauluddin, Y. (2017). Model of green technology adaptation in small and medium-sized tannery industry. *Journal of Engineering and Applied Sciences*, 12(4), 954–962.
- Scanlon, N. L. (2007). An analysis and assessment of environmental operating practices in hotel and resort properties. *Journal of Hospitality Management*, 26(3), 711–723.
- Shrivastava, P., & Hart, S. (1995). Creating sustainable corporations. *Business Strategy and the Environment*, 4(3), 154–165.
- Varpio, L., Paradis, E., Uijtdehaage, S., & Young, M. (2020). The distinctions between theory, theoretical framework, and conceptual framework. *Academic Medicine*, 95(7), 989–994.
- Xia, D., Zhang, M., Yu, Q., & Tu, Y. (2019). Developing a framework to identify barriers of green technology adoption for enterprises. *Resources, Conservation and Recycling*, 143, 99–110.

Research Article

The Factors Influence Customer Satisfaction With E-Hailing Services Among Local Tourists in Malaysia

Marlisa Abdul Rahim*, Shaarmila Shanmugasundram, Shafiq Ikhwan Suhaimi, Sharafina
Atiqa, & Ng Wen Jin

*Faculty of Hospitality, Tourism and Wellness, Universiti Malaysia Kelantan
Corresponding email: marlisa@umk.edu.my*

Journal of Hospitality, Tourism &
Wellness Studies
Vol. 2 (1) pp 24-38
© The Author(s) 2025
Submit date: 16 January 2025
Accept date: 16 February 2025
Publish date: 31 March 2025

ABSTRACT

Malaysia's tourism sector is currently becoming more active, with an increase in the number of local tourists. This would also make the e-hailing industry more vibrant, as many local tourists will use the e-hailing ride to get from one location to another. The purpose of this research is to look at the factors that influence customer satisfaction with e-hailing services among local tourists. The goal of this study is to discover the factors that influence customers satisfaction on e-hailing services, such as promotion, safety, and reliability. These factors are vital in ensuring that local tourists are satisfied with e-hailing services. The primary data of the study used was collected from a structured questionnaire, where analysis was performed using SPSS Version 27 software. The survey was distributed to 384 of local tourists in Peninsular Malaysia. Through this study, researchers seek to learn more about the factors that influence local tourist satisfaction with e-hailing services.

Keywords: Local Tourist, E-hailing Satisfaction, Promotion Factors, Safety, Reliability.

INTRODUCTION

The movement of services and people from one location or the other is referred to as transportation (Encyclopaedia Britannica, 2019). The forms of transportation involve air, water, wire, infrastructure, and space, as well as land rail and road. E-hailing is also one form of travelling transportations which are offered to consumers who need to commute from one location to another. Ride-hailing services are transportation services booked through smartphone applications in partnership with transportation networks (Man et al., 2019). An e-hailing service is an operation of developing a service platform based on Internet technology, connecting certified vehicles and drivers, and combining supply and demand information to

provide non-cruising rental car reservation services (Masri,2021). E-hailing is a type of alternative mobility which is also known as ‘ridesharing’ or ‘automobile sharing’. In general, e-hailing is a mode of transportation that transports at least two passengers to the same location

According to Man et al. (2019), Ride-hailing services have evolved into a multibillion-dollar industry where the number of e-hailing operators has grown in response to the growing acceptability and adoption of the services' demand. The global ride-hailing services market is expected to grow by 16.5 percent in 2019 and even more in 2020..E-hailing was first introduced in Malaysia in late 2013, with Uber as the first provider (Daud et al., 2021). Ride-hailing services in Malaysia have increased significantly, especially in densely populated cities such as Kuala Lumpur, Putrajaya, and Petaling Jaya. Grab is the most popular service whilst companies such as MyCar, Mula, EzCab, Riding Pink, and Gojek are expected to enter the country’s ride-hailing industry (Chung & Al-Khaled, 2020).

E-hailing provides customers with travel needs and drivers through a mobile application service platform. The mobile phone's time is synchronized with the network, and the user pays via the application when the phone arrives at the destination, and the fee is passed (Ubaidillah et al., 2019). Furthermore, the number of registered e-hailing users is rapidly increasing around the world. As a result, the purpose of this research is to examine the link between three factors influencing consumer satisfaction with e-hailing services in Malaysia such as promotion, safety, and reliability factors. There are three objectives of this research:

1. To examine the relationship between promotion and consumer satisfaction with e-hailing services.
2. To examine the relationship between safety and consumer satisfaction with e-hailing services.
3. To examine the relationship between reliability and consumer satisfaction with e-hailing services.

Significance of the Study

Researchers

The result of the study helps the researchers to evaluate the relationship between three factors on consumer satisfaction among local tourist in Malaysia in terms of promotion, safety and reliability. The results help researchers to understand more about factors influencing local tourists’ satisfaction on e-hailing services.

Tourist

This study provides information about consumer satisfaction towards e-hailing services. This study evaluates consumer satisfaction in terms of three factors such as promotion, safety and reliability. Data gathered helps the e-hailing providers to know what factors are influencing consumers when purchasing an e-hailing service.

Tourism sector

The data provides the tourism sector with information on how people decide on purchasing tourism products and services and what factors influence them to do so. The result enables the tourism sector to improve its management in persuading people to purchase a tourism service. To conclude, it also helps in the advancement of tourism planning.

LITERATURE REVIEW

Consumer Satisfaction

Consumer satisfaction is the degree to which a consumer is satisfied with a service or a product. Consumers also play a critical part in the survival and sustainability of enterprises. A business without consumers is impossible, and such a business would be unable to function properly. Consumers are among the most important factors that contribute to any business (Idros, 2019). In addition, consumer satisfaction can be used to determine a product's or service's quality. The most straightforward predictor of a company's potential earnings is due to higher customer satisfaction. This is supported by Lee et al. (2016), where emotions such as happiness or regret are influenced by consumer satisfaction, whereas a customer's perception of effectiveness is based on how well it fulfils the customer's needs.

Promotion Factor

Promotional activities impact customers' thinking and emotions when they buy items or services (Jee & Akram, 2020). Marketers use communication to inform, persuade, and remind potential customers of a product to influence their decisions. Besides, marketing and communication initiatives that modify the price-value relationship of a product or service as perceived by the target audience are referred to as promotion (Junio et al., 2018).

Promotion is among the most effective marketing mix variables for advertising a tourism destination. According to the overall strategy, improvements or innovations include identifying the first highly effective advertising, sales department, and branding programmes that are going to be implemented, including the best tools for assessing and reporting the promoting activities (Lee et al., 2016).

Safety Factor

Passenger views of changeover paths and protection at platforms have been shown to be important factors for customer satisfaction. Besides, journey attributes such as physical protection, road trip duration, linkage dependability, transmission time, and details concerning transfers are also contributing to customer satisfaction. Consumers have always been concerned about security while using ridesharing facilities. Consumers mention that e-hailing security issues include the driver, consumer security, vehicle condition, and insurance benefits, which may impact consumer preference to travel (Suhaimi et al., 2018).

Owing to the unavailability of safety features like the Emergency buttons on e-hailing applications, as well as weak safety policies by governments, protection has been one of the

most contentious issues primarily in the e-hailing industry. Users' protection is paramount to e-hailing service providers. Consumers are more confident in using the e-hailing service when there are obvious regulations and protections in place (Adam et al., 2018).

Reliability Factor

Reliability refers to an organization's capacity to execute services precisely and consistently. The reliability element was discovered to have a strong influence on customer satisfaction in a prior study (Man et al., 2019). As we know in the transportation industry, reliability refers to the capacity to deliver service consistently and on time (Indra & Ibrahim, 2017). Reliability refers to the possibility that a business, technology, or service would work successfully instead of for a timeframe, either in a specific condition but without breakdown (Omar et al., 2019). According to Chung et al. (2020), a firm to provide facilities exactly when promised is linked towards its trustworthiness. The reliability test is a way to determine a level's sustainability. Researchers use Cronbach's alpha value as an indication to measure the degree of consistency (Zulhelmi et al., 2018). The questionnaire's reliability ensures that the questionnaire is always consistent, steady, and equivalent since dependability is a concept used to reduce errors throughout the actual study analysis (Jenal et al., 2021).

The relationship between promotion factor, safety factor, reliability factor and customer satisfaction of e-hailing service among local tourists

According to Jee and Akram (2020), the relationship between the promotion factor and customer satisfaction with e-hailing service has discovered that ride-hailing service promotion and demand have a large, favourable, and strong link. This means that any increase in marketing efforts will result in an increase in demand for ride-hailing services. As stated by Jee et al. (2020), from the perspective of promotion, it is important for ride-hailing service providers to engage in ongoing promotional efforts to increase their sales. When purchasing goods or services, promotional efforts may have an impact on customers' feelings and emotions (Indra & Ibrahim, 2017).

On the other hand, the relationship between safety factors and customer satisfaction with e-hailing services will affect the decision-making of tourists. According to Suhaimi et al., (2018), security is a fundamental issue while utilizing e-hailing platforms, and vendors are required to follow safety rules, norms, and legislation. A safety assessment is one of the most important factors that could persuade consumers to utilise an e-hailing service. Vehicles type, model, quality, the actual moment in time routing which the automobile travels, the maximum gas mileage requirement and reporting requirements, the car should not be older than five years, and the surveillance and assessment standards are all in place to ensure the security of e-hailing customers (Ngo, 2015).

Lastly, the relationship between reliability factors and customer satisfaction with e-hailing services will affect the tourism industry. Reliability is the capacity to provide ride-sharing services with security and punctuality for customers, allowing them to honour the exceptional service provided by ridesharing (Zailani et al., 2020). Customer satisfaction with the public transportation company's services is strongly linked to reliability (Man et al., 2019).

Research Hypothesis

A hypothesis must be testable and realistic, taking current knowledge and methodologies into account. Furthermore, a hypothesis is a forecast or explanation of a link between two variables. It suggests that an independent variable and a dependent variable have a systematic connection. As a result, the research suggests:

H1: There is a significant relationship between promotion and customer satisfaction with e-hailing services

H2: There is a significant relationship between safety and customer satisfaction with e-hailing services.

H3: There is a significant relationship between reliability and customer satisfaction with e-hailing services.

Research Framework

The conceptual framework for this research is seen in Figure 1. The three factors that make up the independent variables are promotion, safety, and reliability. Local tourist satisfaction with e-hailing services is the dependent variable.

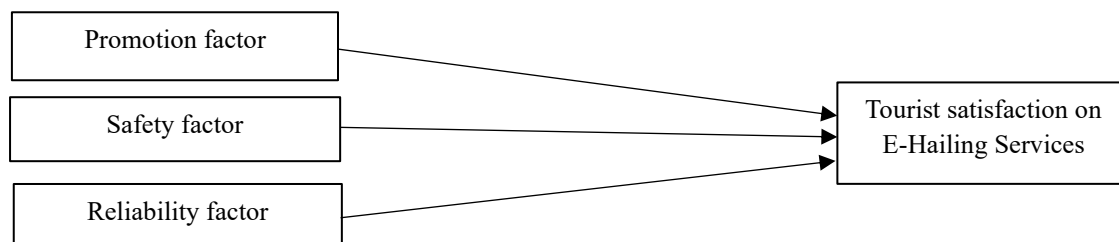


Figure 1: Conceptual Framework of the relationship between promotion, safety, and reliability with consumer satisfaction on e-hailing services

METHODOLOGY

Research Design

The study incorporates factors that influence consumer satisfaction with e-hailing businesses among Malaysian tourists. A quantitative technique is used in this study, and data will be collected from individuals using a self-directed questionnaire. The relationship between safety, promotion, and reliability among Malaysian tourists is the subject of a descriptive study. The descriptive study design assists in answering the research questions and achieving research objectives.

Population and sample size

Overall, the population of international and domestic tourists is 231.3 million. However, the researches population of this study only involves local tourists in Malaysia. The target population for local tourists is 131.66 million. To determine the sample size, Krejcie and Morgan (1970) sample was used in this study.

S = sample size

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841)

N = the population size of domestic tourists in a year

P = the population proportion (assumed to be 0.5 since this would provide the maximum sample size)

d = the degree of accuracy expressed as a proportion (0.5)

$$S = \frac{x^2 NP(1 - P)}{d^2(N - 1) + (x^2 P(1 - P))}$$

$$S = \frac{3.841(2054000000)(0.5)(1 - 0.5)}{(0.05)^2(2054000000 - 1) + 3.841(0.5)((1 - 0.5))}$$

$$S = \frac{1972353500}{5135000.958}$$

$$S = 384.099$$

$$S = 384$$

The exact population sample is 384 but the return of the questionnaire answered by respondents was 385.

Data Collection

In the first stage, the data collection method that had been used in online surveys using Google Forms. The reasons why the researchers used this platform are free access and user-friendliness. It also makes it easier for the researchers to collect all the data from local tourists. The second stage of data collection was fieldwork. In this study, a questionnaire was used as the instrument for primary data collection. There are 6 six parts of the section that respondents need to answer. The questionnaire was distributed to the local tourists in Malaysia.

Sampling

Sampling is a technique for obtaining data in academics to learn about a particular population by studying the findings of a sample of people rather than focusing on specific individuals (Turner, 2020). Probability sampling and non-probability sampling are the two major sample methodologies used in this study. Random samples are used in probability sampling, enabling important inferences about overall demography to be drawn (Stratton, 2021). Non-probability sampling is frequently related to qualitative research and the construction of research articles (Taherdoost, 2016). The non-probability approach, known as a simple sampling method, was chosen as the sample design in this investigation. Facility sampling is a non-probability or non-random sampling strategy which it concerns participants from a target group who satisfy the study's requirements, such as easy accessibility, geographic location, capacity at a given time, or desire to participate (Etikan et al., 2016).

Research Instrument

The items measuring the chosen research constructs were adopted from prior related research in the field of tourism consumer behaviour.

Table 1: Measurement items

Measurements	Number of items in the questionnaires	Scales used	Author
Section A: Demographic information	8	Adapt	Chia et al (2006)
Section B: Travellers in Malaysia	5	Adapt	Chia et al (2006)
(Dependent Variables) Section C: Customer satisfaction of e-hailing	5	Adopt	Man, et al (2019)
(Independent Variables) Section D: Promotion factor	5	Adopt	Suriyamongkol (2016)
(Independent Variables) Section E: Safety factor	5	Adopt	Ibrahim, Yunoh (2020)
(Independent Variables) Section F: Reliability factor	5	Adopt	Man, et al (2019)
Total	33		

Data Analysis

Researchers used the Statistical Programmers for Social Science (SPSS) version 27 to examine the primary data. SPSS is a program-based data processing and analysis window that allows the creation of tables and pie charts. Computers aided researchers in lowering the effort required to determine the information and making quantitative analysis easily and quickly. The researchers used descriptive statistics, reliability statistics, Pearson's correlation, and regression to evaluate quantitative data.

FINDINGS

Result of Frequency Analysis

Table 2: Demographic Profile of Sample

Characteristic	Frequency	Percentage (%)
Gender		
Male	182	47.3
Female	203	52.7
Age		
Below 18 years old	33	8.6
18-22 years old	125	32.5
22-30 years	172	44.7

	old		
	Above 30 years old	55	14.3
Race	Malay	150	39.0
	Chinese	107	27.8
	Indian	122	31.7
	Others	26	1.6
Marital Status	Single	232	73.5
	Married	102	26.5
Education Level	Primary	16	4.2
	Secondary	49	12.7
	Diploma	98	25.5
	Bachelor of Degree	190	49.4
	Master Degree	23	6.0
	PhD	9	2.3
Occupation	Student	217	56.4
	Employed	88	22.9
	Employed Part-time	34	8.8
	Self-Employed	25	6.5
	Unemployed	12	3.1
	Retired	9	2.3
Income Level	Below RM 2000	243	63.1
	RM 2001 – RM 3000	88	22.9
	RM 3001 – RM 4000	43	11.2
	Above RM 4000	11	2.9
States	Kelantan	35	9.1
	Terengganu	18	4.7
	Perak	30	7.8
	Wilayah Persekutuan	15	3.9
	Sarawak	12	3.1
	Sabah	20	5.2
	Negeri Sembilan	77	20.0
	Kedah	32	8.3
	Johor	38	9.9
	Pahang	25	6.5
	Pulau Pinang	33	8.6
	Perlis	10	2.6
	Selangor	23	6.0
	Melaka	17	4.4

The respondent profile is summarized in Table 2. The total number of respondents for male was 182, while there were 203 female respondents. The highest percentage of respondents was those from 22-30 years old (44.7%), the second highest is for 18-22 with 32.5%, followed by those above 30 years old (14.3%) and the age cohort of below 18 years old (8.6%). 385

respondents consisted of Malay (150 respondents), Chinese (107 respondents), Indian (122 respondents) and others (26 respondents). The highest percentage of respondents was Malay (39.0%) and followed by Indian respondents which have 31.7%, third is Chinese respondents who have 27.8 % and other races have 1.6%.

Next, the total number of respondents for single status was 232 respondents (73.5%), whilst those who are married were 102 respondents (26.5 %). The questionnaire was completed by 4.2 % (16 respondents) having primary education, and 12.7 % of respondents with secondary education (49 respondents). There were also 25.5 % (98 respondents) with a diploma. The highest respondents were 49.4 % (190 respondents) with a bachelor's degree followed by 6.0 % (23 respondents) with a master's degree, and the lowest were those with a Ph.D., which is 2.3 % (9 respondents).

Besides that, students dominated the responses (56.4 % (217), whilst the employed accounting stated 22.9 % (88 respondents). There were 8.8 % (34 respondents) who were employed part-time, 6.5 % (25 respondents) were self-employed, 3.1 % (12 respondents), and 2.3 % (9 respondents) were retirees.

Furthermore, the analysis showed that there were 22.9 % (88 respondents) who had income levels ranging from RM 2001 to RM 3000. The highest was 63.1 % (243 respondents) with income below RM 2000, followed by 11.2 % (43 respondents) from RM 3001 to RM 4000, and the lowest was 2.9 % (11 respondents) with income ranging from RM4000 and above.

Moreover, Negeri Sembilan had the greatest percentage of respondents with 20% (77 respondents). Kelantan received 9.1 % (35 respondents), Terengganu with 4.7 % (18 respondents), Perak with 7.8 % (30 respondents), Wilayah Persekutuan with 3.9 % (15 respondents), Sabah with 5.2 % (20 respondents), Kedah with 8.3 % (32 respondents), Johor with 9.9 % (38 respondents), Pahang with 6.5 % (25 respondents), Pulau Pinang with 8.6 % (33 respondents), Perlis with 2.6 % (10 respondents), Selangor with 6.0 % (23 respondents) and Malacca. The questionnaire was completed by 4.4 % of respondents (17 people). Sarawak had the lowest participation rate, which was at 3.1 % (12 respondents).

Result of Descriptive Analysis

This study has analysed the mean and standard deviation for sections C, D, E, and F of the questionnaires.

Table 3: Descriptive Statistics

Variable	Items	Mean Score	Standard Deviation
Promotion	I started using the e-hailing service app because it has sales discounts/promotions.	7.0364	2.88833
	I will not use the e-hailing app without a promotion discount.	6.7377	2.93706

	I will follow all the conditions to get a discount no matter how difficult the condition is.	6.8338	2.79758
	I usually check for promo codes for the e-hailing apps before using the service.	7.0390	2.78595
	I feel a very reasonable price when using the promo code of the e-hailing service.	7.1013	2.73435
Safety	I feel safe when using e-hailing services because the booking transparency information is provided, such as the driver's name and car plate number.	7.6571	2.46578
	I feel secure when travelling using e-hailing services because the historical journey is recorded systematically.	7.3870	2.48503
	I feel safe when travelling using e-hailing services because my location can be declared on social media.	7.3766	2.50437
	I feel safe when using e-hailing services on the same road as other road users.	7.4831	2.51047
	I am concerned about the speed limits when using e-hailing services.	7.4468	2.51100
Reliability	I like to use the e-hailing service because the driver can provide the service as promised.	7.5273	2.55051
	I like to use e-hailing services because the fares of e-hailing services are reliable	7.4234	2.49060
	I like to use e-hailing services because e-hailing companies are reliable.	7.4026	2.53034
	I like to use e-hailing services because the security aspect of e-hailing is satisfactory.	7.4753	2.45162
	I like to use e-hailing services because time management is good.	7.4130	2.53174
Customer satisfaction of e-hailing	I am overall satisfied with e-hailing services.	7.6052	2.32849
	I am satisfied with the convenience of e-hailing services.	7.5766	2.36841
	I am satisfied with the payment method.	7.5662	2.30181
	I am satisfied with drivers' attitude.	7.5481	2.42242
	I am satisfied with the e-hailing application	7.6545	2.36789

Result of Reliability Test

A reliability system was used to assess a system's overall stability and performance over a particular period and under various testing situations. The pilot test was conducted with 30 people before being circulated to 385 people via an internet survey.

Table 4: Results of the Reliability Test

Variable	Number of items	Cronbach's Alpha coefficient	Strength of Association
Promotion	5	0.977	Excellent
Safety	5	0.988	Excellent
Reliability	5	0.984	Excellent
Customer satisfaction	5	0.985	Excellent

Cronbach's Alpha Coefficient values for the independent and dependent variables in this study are shown in Table 4. We may deduce from Table 4 that all variables were more than 0.9. Consequently, the conclusion presented was considered reliable and may be accepted in this study. The promotion variable that impacted customer satisfaction with e-hailing service among local tourists in Malaysia was measured using five questions, and the Cronbach's Alpha result for this section was 0.977, which was excellent. As a result, the coefficients derived for the promotion variable questions were reliable.

Following that, there were five questions to assess the safety variable that might affect consumer satisfaction with e-hailing services among Malaysian tourists, and the result was 0.988, which was considered excellent. As a result, the coefficients calculated for the safety variables were reliable. Besides, there were also five questions which were utilised to measure the dependability variable that might influence consumer satisfaction with e-hailing service among Malaysian tourists, and the outcome for this section was 0.984, which was deemed as outstanding. As a result, the coefficients produced for the reliability variable questions were reliable.

Finally, another five questions were used to assess consumer satisfaction with e-hailing services among Malaysian tourists, and the Cronbach's Alpha result for this section's was 0.985, indicating an excellent status. As a result, the coefficients derived for these questions in assessing consumer satisfaction with e-hailing services among Malaysian tourists were also reliable. Since the Cronbach's Alpha charge for the variables exceeded 0.7, it may be concluded that surveys were extremely trustworthy and that the study can proceed.

Pearson Correlation

One of the most important analyses that examined the linear relationship between the two variables was Pearson's correlation analysis. The goal of this study is to see if there are any relationships between independent variables (promotion, safety, and reliability factor) and

dependent variable (customer satisfaction with e-hailing services). If the relationship is substantial, the researchers must determine what degree of association strength is acceptable.

Table 5: Pearson Correlation Analysis

Hypothesis	P-Value	Result (Supported/Not Supported)
H ₁ : There is a relationship between promotion factors and customer satisfaction with e-hailing services among local tourists in Malaysia	0.770	Supported
H ₂ : There is a relationship between safety factors and customer satisfaction with e-hailing services among local tourists in Malaysia.	0.924	Supported
H ₃ : There is a relationship between reliability and customer satisfaction with e-hailing services among local tourists in Malaysia.	0.924	Supported

Table 5 showed the result of the Pearson Correlation Analysis. For the promotion factor, the significant value, and the total number of respondents (385). The p-value was 0.000, which was less than the 0.01 level of significance. The promotion component and customer satisfaction of the e-hailing service exhibited a high positive link with a correlation value of 0.770. Besides that, for the safety factor, the significant value, and the total number of instances (385). The p-value was 0.000, which was less than the 0.01 level of significance. The correlation value of 0.924 revealed a very high positive relationship between the safety of e-hailing services and consumer satisfaction. Next, the significant value and case count for the reliability factor were 385. The p-value was 0.000, which was less than the 0.01 level of significance. With a correlation value of 0.924, there was a very strong positive link between the reliability of e-hailing services and consumer satisfaction.

DISCUSSION & RECOMMENDATION

This study aligns with several previous investigations. For instance, research by Jee and Akram (2020) highlighted that promotion and demand significantly influence ride-hailing services. Similarly, Suhaimi et al. (2018) identified security as a major concern when using e-hailing platforms, emphasizing the need for service providers to comply with safety regulations, standards, and legislation. In another study, Ubaidillah et al. (2019) found a significant relationship between the safety of e-hailing services and customer satisfaction. Moreover, they also reported a strong correlation between service reliability and consumer satisfaction with e-hailing platforms.

The present study examines the role of reliability in e-hailing services and investigates the relationship between key service factors—promotion, safety, and reliability—and consumer satisfaction. Specifically, the objective is to determine how these variables influence consumer satisfaction with e-hailing services among local tourists in Malaysia. However, the scope of this study was limited to Malaysian tourists, which restricts the generalizability of the findings. The results may differ if the study is extended to include international tourists visiting

Malaysia. Therefore, future research is encouraged to explore consumer satisfaction with e-hailing services among international tourists as well.

Additionally, the current study focused solely on three factors—promotion, safety, and reliability. It is possible that other significant variables affecting consumer satisfaction were not considered. Future studies could incorporate additional dimensions such as transparency or service responsiveness to provide a more comprehensive analysis.

The study employed a sample size of 385 respondents, as suggested by Krejcie and Morgan (1970), which is considered adequate for generalizing findings to a larger population. Nonetheless, larger sample sizes could further enhance the validity and reliability of future studies. Furthermore, future researchers may consider adopting qualitative approaches, such as interviews or open-ended survey questions. These methods can yield higher response rates, allow for immediate clarification of ambiguous responses, and provide deeper insights into customer perceptions. This approach could help eliminate misunderstandings and significantly enrich the study outcomes.

Lastly, researchers should remain attentive to evolving factors that influence customer satisfaction with e-hailing services, as these factors may change over time. Exploring elements such as consumer trust could assist industry players in designing more effective marketing strategies. Scholars may also develop new frameworks to assess customer satisfaction in the dynamic e-hailing environment. Given the variability of consumer satisfaction across regions, localized surveys should be conducted to gain more accurate insights.

CONCLUSION

In conclusion, since this is one of the most effective marketing strategies, these three factors must be addressed together to make the tourist business more colourful and vivid with a diverse range of tourism goods. As a method to boost Malaysian tourism, e-hailing providers and the government should work together to provide the finest service possible to local tourists. The results of this study will aid researchers in better understanding consumer satisfaction with e-hailing services among local tourists. Future research should consider a well-balanced population sample. An imbalanced sample will produce an inconsistency in the results, which will only favour one group. The sample size should then be increased to acquire precise, accurate, and consistent findings. Researchers could also examine integrating more variables to discover more factors that impact the motivation of Malaysian adolescent travellers to go to other locations. As a consequence, in order to make the tourist industry livelier by providing a variety of tourism services, DMOs and local governments must collaborate effectively in providing reliable services.

REFERENCES

- Ahmad Sahir Jais, & Azizan Marzuki. (2020). E-hailing services in Malaysia: Current practices and future outlook. *Journal Name*, 18(3), 128–141. <https://www.researchgate.net/publication/343087867>
- Azimah Daud, Muhamad Khalil Omar, & Razieman Mohd Yusoff. (2021). Understanding the determinants of e-hailing service adoption in restoring pre-pandemic normalcy. *International Journal of Academic Research in Business and Social Sciences*, 11(6), 874–882. https://hrmars.com/papers_submitted/10218
- Britannica, The Editors of Encyclopaedia. (2019, December 2). Transportation. *Encyclopedia Britannica*. <https://www.britannica.com/technology/transportation-technology>
- Chia, K. M., Ahmad, R., Tee, P. K., & Rashid, T. A. (2019). Evaluation of service quality dimensions towards customer's satisfaction of ride-hailing services in Kuala Lumpur, Malaysia. *International Journal of Recent Technology and Engineering*, 7(5), 102–109. <https://www.ijrte.org/wp-content/uploads/papers/v7i5s/ES2132017519.pdf>
- Chung, J. F., & Al-Khaled, A. A. S. (2020). The ride-hailing services: An empirical study among private university students in Klang Valley, Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 10(12), 769–785. <https://www.researchgate.net/publication/348176529>
- Indra Balachandran, & Ibrahim Bin Hamzah. (2017). The influence of customer satisfaction on ride-sharing services in Malaysia. *International Journal of Accounting, Business and Management*, 5(2), 184–196. <https://www.ftms.edu.my/journals/pdf/IJABM/Nov2017/184-196.pdf>
- Jee Fenn Chung, & Akram Abdulraqueeb Sultan Al-Khaled. (2020). The ride-hailing services: An empirical study among private university students in Klang Valley, Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 10(12), 796–785. <https://www.researchgate.net/publication/348176529>
- Lee, Y. C., Wang, Y. C., Lu, S. C., Hsieh, Y. F., Chien, C. H., Tsai, S. B., & Dong, W. (2016). Empirical research on customer satisfaction study: A consideration of different levels of performance. *SpringerPlus*, 5(1). <https://doi.org/10.1186/s40064-016-3208-z>
- Mohd Idros, N. A. N., Mohamed, H., & Jenal, R. (2019). Determinant factors of customer satisfaction for e-hailing service: A preliminary study. In *Advances in Intelligent Systems and Computing* (Vol. 843, pp. 803–811). Springer. https://doi.org/10.1007/978-3-319-99007-1_7
- Nur Zaimah Ubaidillah, Chan Yong Yi, Mohd Khairul Hisyam Hassan, Sharifah Sabrina Syed Ali, & Josephine Yau Tan Hwang. (2019). The determinants of Generation Z intention to use the Grab e-hailing services. *International Journal of Academic Research in Business and Social Sciences*, 9(11), 483–495. <https://www.researchgate.net/publication/340451414>
- Nurul Farah Izzah Zailani, Albattat, A., Sulaiman, A. H., Abu Nazari, I. A., & Nik Nasirman, N. F. (2020). Factors influencing consumer perception on ride-sharing application

services: A case study of Grab Car. *Journal Name*, 57(9), 2490–2495.
<https://www.researchgate.net/publication/348899866>

Ridzuan Masri. (2021). The competitive position of e-hailing giant in Asia Pacific region: Challenges for Malaysian startups. *International Journal of Business Administration*, 1(1), 1–7. <https://ijbmcjournal.files.wordpress.com/2021/05/ijba-vol-1-1-1-2021.pdf>

Ruzzakiah Jenal, Hazura Mohamed, Siti Aishah Hanawi, & Nur Athirah Nabila Mohd Idros. (2021). User satisfaction index of e-hailing services based on co-creation value. *Journal of Theoretical and Applied Information Technology*, 99(10), 2445–2457. <http://www.jatit.org/volumes/Vol99No10/22Vol99No10.pdf>

Research Article

The Development of Community-Based Ecotourism Destinations at Gua Musang, Kelantan

Muhammad Badrul Iman Bin Ruslan, Nurul Fatihah Izzani Binti Zulkanai, Nurul Fatin Nabila Binti Arse Zaidy, Soo Kwan Nen & Roslizawati Binti Che Aziz*

Faculty of Hospitality, Tourism and Wellness, Universiti Malaysia Kelantan
Corresponding email: roslizawati@umk.edu.my

Journal of Hospitality, Tourism &
Wellness Studies
Vol. 2 (1) pp 39-49
© The Author(s) 2025
Submit date: 10 January 2025
Accept date: 12 February 2025
Publish date: 31 March 2025

ABSTRACT

Ecotourism is one of the tourist attractions at Gua Musang. Gua Musang is a hotspot for tourists seeking to experience tropical flora and fauna. The purpose of the research is to explore the development of Community-Based Ecotourism (CBE) destinations at Gua Musang, Kelantan. The goal of the study is to identify the potential of Community-Based Ecotourism (CBE) products or destinations at Gua Musang that can be developed as an ecotourism attraction and examine the strategic approach that was taken by the local government to promote Community-Based Ecotourism (CBE) products or destinations at Gua Musang. The primary and secondary data for the study will be collected by using interviews and case studies. The respondents for the interview are the Gua Musang State Officer, the KESADAR Officer, the Gua Musang Chief Village, and the locals. For the duration of an interview, the researcher will take 30 minutes or one hour for a section interview. The data will be recorded in audio and text. The research conducted can be used in the future by the government or as a research reference

Keywords: Community-Based Ecotourism, Gua Musang, Kelantan

INTRODUCTION

Due to globalization, tourism has contributed a considerable amount of revenue, accounting for 12% of the global Gross Domestic Product (GDP) (Dudic, 2020). In places with limited growth prospects, tourism may be a driving force for economic development. Tourism, on the other hand, contributes to the depletion of regional resources; it accounts for 5% of global carbon emissions, for example. Mass tourism has a detrimental influence on both natural resources and the cultural identity of a place (Dudic, 2020). Other than that, this research also

focuses on the growth of community-based ecotourism (CBE). If created and run responsibly, community-based ecotourism (CBE) may benefit the community, environment, and economy (Mustafa, 2020). Community-based ecotourism (CBE) is defined as rural, sustainable tourism that has a positive impact on rural livelihoods (Kim, 2019). Community-based ecotourism (CBE) aims to conserve the environment while also strengthening communities by giving them some influence over tourism programmers and their outcomes (Masud, 2017). Kelantan is a state in Malaysia situated on the east coast of the peninsula, bordering Thailand. Alternative names for Kelantan include Tanah Serendah Sekebun Bunga, Negeri Cik Siti Wan Kembang, and Serambi Mekah. Kelantan's capital city is Kota Bharu. Kelantan is the oldest state in peninsular Malaysia. Kelantan has much to offer in terms of arts, culture and heritage tourism, ecotourism as well as cross border tourism. Kelantan has a natural asset whose cultural traditions, heritage, and unique values are practiced by the local communities, making Kelantan a hotspot for visitors who are interested in Kelantan's heritage and culture.

The main objective of this study is to identify the potential of developing Community-Based Ecotourism (CBE) products at Gua Musang, Kelantan. The specific objectives are as follows:

1. To identify the potential of Community-Based Ecotourism (CBE) products or destinations at Gua Musang that can be developed as an ecotourism attraction.
2. To examine the strategic approach taken by the local government to promote Community-Based Ecotourism (CBE) products or destinations at Gua Musang.

Significance of the Study

National Tourism Policy (2020-2030)

The research proposal supports the Nation Tourism Policy (2020-2030), which can assist the government in improving potential product Community-Based Ecotourism (CBE) through the National Tourism Policy (NTP) (National Tourism Policy, 2020). It is to harness the competitiveness of Malaysia's tourism industry in an increasingly competitive and uncertain world by increasing revenue, securing partnerships and investment, empowering local communities, and ensuring sustainability (National Tourism Policy, 2020).

East Coast Economic Region (ECER) Master Plan 2.0 (2018-2025)

East Coast Economic Region Development Council (ECERDC) is planning sustainable Community-Based Ecotourism initiatives in the region while keeping in mind the need to protect and conserve the natural environment and cultural assets. While constructing or upgrading tourism facilities for visitors' convenience and comfort (East Coast Economic Region, 2018). The research proposal is supporting the ECERDC to continue preserving and conserving ECER's natural resources while also adding economic value and improving the community's quality of life in the identified locations.

National Ecotourism Plan (NEP) 2021-2025

The research proposal is supporting the Ministry of Tourism, Arts, and Culture (MOTAC) to implement the plan strategically for the future. For example, the National Ecotourism Plan was

also introduced as a way to strengthen eco-tourism development in Malaysia by focusing on eco-tourism site conservation.

Majlis Daerah Gua Musang (MDGM) Strategic Plan

The research proposal is supporting the Majlis Daerah Gua Musang (MDGM) to achieve its vision and mission. The MDGM is planning to build resources and infrastructure tourism with environmental conservation and sustainable use of natural resources.

LITERATURE REVIEW

The Provision of Ecotourism

Ecotourism has the ability to encourage sustainable behaviour, community economic benefits, and environmental preservation. Ecotourism is defined as travel to relatively undeveloped natural destinations with the intention of educating about, admiring, and able to enjoy natural settings and diverse wildlife in the ecosystem, as well as learning about environmental culture and history, all of which can lead to environmental conservation (Lee, 2007). The term "ecotourism" refers to tourism that is carried out properly in order to protect the environment and the well-being of local people (Hunt, 2015). Ecotourism is a reflection of the community, culture, economy, and environment of the area. It not only provides a solution for long-term social, economic, and environmental development, but it also fosters natural and cultural diversity (Osman, 2018).

Furthermore, the destination's service provider partners are typically small, locally owned businesses. Then it reduces detrimental effects on the natural and social environments. World Tourism Organization of the United Nations (UNWTO, 2013). The characteristic promotes the preservation of natural areas that are used as ecotourism attractions by providing economic benefits to host communities, organizations, and authorities that manage natural areas for conservation purposes, providing alternative employment and income opportunities for local communities, and raising awareness of natural and cultural assets among both locals and tourists. World Tourism Organization of the United Nations.

Community-Based Ecotourism

Community-based ecotourism (CBE) is a kind of ecotourism that focuses on the development of local areas and gives residents significant influence and participation in its creation and maintenance, with the bulk of the benefits remaining in the community (Denman, 2001). Community-Based Ecotourism (CBE) is the channel via which the client is introduced to the product. It guarantees that local populations are involved and gives a plethora of options for meetings and interactions with tourists. Furthermore, CBE may assist local communities through a number of activities such as cultural shows, souvenir sales, tourist guides, general merchants, and environmental and cultural asset protection (Aseres, 2015).

According to the previous study, the feature of ecotourism is determined by two factors: experiential characteristics and education, which includes aspects such as interpretation of the natural environment and cultural manifestations (Sardiana, 2015) Sustainability is a hallmark of Community-Based Ecotourism, according to prior research. The World Commission on

Environment and Development defined sustainability as addressing current demands while not jeopardizing future generations' ability to meet their own (Sardiana, 2015).

The previous researcher stated that community-based ecotourism (CBE) is critical to the fundamentality of active participation of local people in the tourism development process, in order to minimize negative social, cultural, environmental, and economic effects through local control, and to maximize local benefits through further implementation of tourism initiatives (Sakata & Prideaux, 2013). Participation of local communities in Community-Based Ecotourism (CBE) allows individuals to participate in the decision-making process for the generation and equitable distribution of economic benefits (Yanes, 2019).

The Potential of Community-Based Ecotourism (CBE) Products or Destinations that can be Developed as an Ecotourism

Community-based Ecotourism (CBE) is an increasingly popular approach to ecosystem conservation across developing countries. It has been recognized for its potential to become an effective method for addressing myriad socio-ecological issues and thereby ensuring greater sustainability in managing natural resources (Stronza & Gordillo, 2008). According to a number of recent studies, community-based ecotourism (CBE) development has the ability to favourably transform community perspectives on how natural and cultural resources are used (Stone, 2015). For example, research has shown that CBE platforms are used domestically in a variety of African, Latin American, and Asian nations (Baktygulov & Raeva, 2010).

CBET has the potential to bring numerous socio-economic benefits to the Islanders in terms of generating foreign exchange, creating local employment, stimulating national and local economies, fostering international peace, and increasing environmental awareness and education, according to previous research conducted in the case of Puerto Princesa, Palawan Island in the Philippines (Andrea & Jugmohan, 2008). According to earlier research, Rafflesia in Lojing has the potential to be promoted as a worldwide tourism destination for visitors to Kelantan (Azlan, 2011). Ecotourism is the community's primary source of revenue as well as its primary activity, with 70 per cent of families participating in tourism-related activities at Agua Blanca. Community-based ecotourism (CBE) has increased consumption and quality of life while also improving community organization, reducing emigration, and improving environmental conservation (Ballesteros, 2011).

The Best Strategic Approach Taken by the Local Government to Protect or Promote Community-Based Ecotourism (CBE)

Local government must upgrade tourist attractions and share regional tourism information both at home and abroad in order to boost regional tourism. (Ishikawa and Fukushige, 2007). Tourism is seen as a tool to grow the economy by local governments, regardless of their political affiliation. They seek to find materials and create images that might be used for tourism to contribute to local income production and economic growth, as well as to benefit them socially and politically, based on this idea. (Ballesteros and Ramirez, 2007).

A priority policy is to improve skills for working in ecotourism development projects. To meet market demands, training institutions should expand their capacity, and men and women working on ecotourism development plans should be encouraged to provide high-quality

service that meets the needs of both the community and tourists. United Nations World Tourism Organization (UNWTO, 2013). The CBE strategy should assist the community in reclaiming historical practices, revitalizing productive activities, and emphasizing the population's ethnic background, harkening back to the community's history and distinct qualities, such as architecture, cuisine, music, and handicrafts. The World Tourism Organization of the United Nations (UNWTO, 2013).

Ecotourism resources must be managed sustainably to maintain their long-term survival and continuity. These regulations should cover how to plan and manage activities in natural areas in a way that ensures visitor satisfaction while also protecting fragile natural sites and their biodiversity, waste management, and use intensity control, all while emphasizing the area's unique features, such as topography, climate, natural elements, and protected areas. Only by coordinated planning and management can these unique assets be preserved for current and future generations. (OECD, 2010). Expanding and developing new items, as well as diversifying regional distribution, will help to expand the product base. Aside from that, local cultural practices should be emphasized so that communities can legitimately share their traditions and customs with tourists. (OECD,2010).

METHODOLOGY

Research Design & Strategy

This study uses a qualitative methodology approach, which, expressed in words, is also used to understand a concept, thought or experience. In addition, the analysis obtained will provide information on Community-Based Ecotourism (CBE) destinations at Gua Musang.

The researcher's research design is the framework for the methodologies and approaches he or she will use. The research design aids researchers in the formulation of successful studies by assisting them in the development of suitable research procedures for the subject matter (Veal, 2006). Other than that, the researcher will apply the qualitative method to collect data on Community-Based Ecotourism (CBE) at Gua Musang, Kelantan. Qualitative research is used to evaluate the link between gathered data and observation based on statistical equations, as well as to examine the importance and perception of complex social phenomena like the essence of human experience (Veal, 2006).

Sampling Strategy

Then, for the data collection and analysis progress, the sampling strategy is fine-tuned (Farrugia, 2019). The sampling strategy is the plan put in place to ensure that the sample utilized in the research study is representative of the population taken from. In terms of sampling, any study's participant selection technique should be woven into the overall reasoning (Punch, 2004). The researcher will use qualitative research in this project. Furthermore, the purposive sample in this study will be chosen by the researcher based on what the researcher believes is appropriate for the study. The intentional selection of a participant based on the features and attributes that someone possesses is known as purposeful study, also known as judgment sampling (Etikan, 2016).

Purposive sampling was used to select respondents who were most likely to give appropriate results (Palinkas, 2015). The researcher's decision to use a purposive technique is based on the concept that, given the study's goals and objectives, specific types of people may hold diverse and relevant perspectives on the ideas and issues in concern and, hence, must be included in the sample (Robinson, 2014). For example, the researcher is doing a study-based development of community-based ecotourism (CBE) products and destinations in Gua Musang.

Data Collection Method

Methods that were used in this study were the duration method and secondary data. The qualitative method in this study was a method that was done by interviewing some potential respondents who have authority at Gua Musang.

Table 1: Duration method/One-to-one interview table

Potential Respondent	Duration / Approach
Gua Musang State Officer	2
Local Communities	8
Local Guides	2
TOTAL	12

They have more knowledge of the history, culture and exotic places of Gua Musang. Besides that, secondary data is the data that has already been collected through primary sources and made readily available for researchers to use for their own research. It is a type of data that has already been collected in the past.

Data Analysis Process

Data analysis is a process of gathering and analyzing useful and relevant information or data that can be obtained from the process of data collection in order to make a decision by own values. Data may be examined on a thematic basis utilizing an open, axial, and selective coding system, according to Benner (1985). The analytical approach of this study was done by interviewing the locals and the people who have the authority in Gua Musang. Another approach was to search for information about Gua Musang using secondary data such as journal articles, books, websites, and newspapers. This study also has accurate data. By having accurate data, the data could be used to identify the potential and strategic approach that could be used to develop Community-Based Ecotourism (CBE) at Gua Musang. There were some processes of data analysis that needed to be considered in this study in order to have accurate data that was cleaning the data. This was crucial in the early step of the study before the core analysis in order to remove erroneous data and to prevent flawed analysis results. Having the data cleaned up will result in the data being organized and this would avoid any mistakes in this study later on.

FINDINGS

Table 1: The Potentials of Community-Based Ecotourism (CBE) Products or Destinations at Gua Musang that can be Developed as an Ecotourism Attraction.

Research Questions	Theme
What are the characteristics of Community-Based Ecotourism (CBE) products or destinations at Gua Musang?	Theme: Identifying the potential of Community-Based Ecotourism (CBE) products or destinations at Gua Musang that can be developed as an ecotourism attraction. Respondent 1 and 5 said that the potential product or destination to develop in Gua Musang as ecotourism destination is Lojing Highland as it has Rafflesia flower and it is the most popular ecotourism product because of the curiosity of the tourists that want to know more about the exotic flower and it also is protected by the local guide and local communities, so the life cycle of the Rafflesia flowers can be preserved in a long time for the visitors to view them.
Is there any main potential for Community-Based Ecotourism (CBE) products or destinations at Gua Musang that can be developed as ecotourism attractions?	Respondents 2 and 6 said that the potential product or destination in Gua Musang that can be developed as an ecotourism attraction is Hot Spring Ber at Lojing Highland as it has a nice environment and the hot spring, the main attraction of the place is the hottest hot spring in Kelantan with 72 Celcius degree.
What are the best strategic approaches taken by the local government to promote Community-Based Ecotourism (CBE) products or destinations at Gua Musang?	Respondent 3 stated that the cave of Gua Chiku is a potential product for the Gua Musang Community-Based Ecotourism because of the uniqueness of the cave, which has seven floors and rock formations that resemble the shape of some animals such as elephants, frogs, and lizards. It also gained massive popularity due to being viral on social media despite being a new tourism attraction that was just opened to the public in 2020 before the pandemic hit the country. Respondent 4 made a point where the potential product for the Community-Based Ecotourism (CBE) in Gua Musang is the Taman Negara Kuala Koh because the tourists can have a different lifestyle and experience the nice natural environment. Besides, the tourist can do some activities at Taman Negara Kuala Koh such as kayaking, jungle trekking, and swimming in the river. Respondent 7 made a statement that the potential product for Community-Based Ecotourism (CBE) in Gua Musang is Tasik Ketitir. The lake is the focal point of the local community for sightseeing, leisure, and enjoyment in a clean and pleasant setting. Tasik Ketitir, a former mining site near Gua Musang, has recently been transformed into a leisure park. Respondent 8 said that the potential product for the Community-Based Ecotourism (CBE) in Gua Musang is Hentian Eco R&R Lojing. It was built for the tourists to have their rest stop during their visit to the ecotourism attraction at the Lojing. It is also located nearby highway and mountain that have beautiful view. Respondent 9 said that the potential product for the Community-Based Ecotourism (CBE) in Gua Musang is Gua Madu. It has a unique limestone cave found in Gua Musang which is rich in river resources and surrounded by green forests. Gua Madu is also suitable for villagers and tourists to do recreational activities. On the wall of this cave, there are beehives and honey bees. Due to that, the cave is called Honey Cave. Respondent 10 said that the potential product for the Community-Based Ecotourism (CBE) in Gua Musang is Moonriver Lodge. Tourists that visit Gua Musang may stay at Moonriver Lodge, which is a homestay or hotel. They may gather in the lovely space while taking in the fresh air and admiring the beauty of the surrounding trees and flowers. For their convenience and pleasure, a parking space and a garden are offered.

Table 2: The Strategic Approach That Was Taken by The Local Government to Promote Community-Based Ecotourism (CBE) Products or Destinations at Gua Musang.

Research Questions	Theme
What is the latest strategy implemented by the local government to promote Community-Based Ecotourism (CBE)?	Theme: The strategic approach that was taken by the local government to promote Community-Based Ecotourism (CBE) products or destinations at Gua Musang. The first respondent answered that the latest strategy implemented by the local government to promote Community-Based Ecotourism (CBE) is "Rafflesia Conservation Area" was chosen because it represents a significant finding of natural resources. Gua Musang District Council manages this conservation area. Since this significant discovery, travelers have been introduced to the notion of eco-tourism, which has breathed new life into the rehabilitation and protection of the Lojing region while the second respondent answered that the latest strategy implemented by the local government to promote Community-Based Ecotourism (CBE) is by trying to do improvement at Gua Chiku because it has many characteristics that can attract the tourist. It is a chance for the local government to help and protect the natural caves.
Do the promotion strategies will make new changes to the Community-Based Ecotourism (CBE) at Gua Musang?	Both respondents agreed to the second question as they both believed that the promotion strategies can attract tourists, thus encouraging the government to build more facilities for tourism attractions.
Do you agree or disagree that Community-Based Ecotourism (CBE) will raise the economy in future? Why?	Both respondents also agreed to the third question that CBE will raise the economy in the future because the income would generate more projects for the government to improve the facilities and expansion of the ecotourism attractions, thus creating job opportunities for the local communities to handle the management of the ecotourism attractions and facilities.
As the Gua Musang State Officer, how far the Community-Based Ecotourism (CBE) can be protected?	Both respondents agreed that CBE can be protected for a long time and the government has to make sure to help and give the opportunity to the local community to protect the ecotourism resources and well-being alongside the government.
Do you think the strategic approach was taken by the local government to promote Community-Based Ecotourism (CBE) at Gua Musang can successful or not?	Both respondents agreed that the strategic approach that was taken by the local government to promote CBE at Gua Musang can be successful because the ecotourism destination has their own uniqueness and the government have used many promotions platform like official websites and Facebook pages to promote the ecotourism and they have built many facilities for the comfortableness of the tourists.

Limitation

There were some limitations in this study and one of those was respondents. In this study, no respondent can answer the interview questions because the researcher only chooses the specific respondents like the local community, local guide, and the state government. Besides that, some respondents are afraid of the researcher due to the pandemic Covid-19 so they think the interview session is not suitable to implement in the research paper.

The limitation of this study is the respondents do not have more information about the potential of Community-Based Community (CBE). For example, several respondents are not familiar with the ecotourism destination so they are avoiding answering the interview questions. This also become one problem for the researcher when it comes to providing the data for the finding. Next, some respondents have different levels of education. This also gives a disadvantage to the researcher because the respondents cannot express their idea clearly, and the answers that they gave is very short such as yes or no and some descriptions.

The data collection method is also one of the limitations of this study. In this study, the researcher goes to survey the potential Community-Based Ecotourism (CBE) destination in Gua Musang with the team members to collect the data. The limitation of the research is the interview method using more time and money in order to gather data because the interview session took time around 20 minutes to 30 minutes for one respondent. The researcher also needs to find consistent respondents to answer the interview questions. The potential of the CBE destination also needs to be researched before the researcher goes to visit the place.

CONCLUSION AND RECOMMENDATION

Overall, ecotourism may provide a unique experience for everyone, and as locals are aware, there are many things available in Gua Musang if it is investigated. Apart from that, if the government plays a role and the locals willing to provide good cooperation, the development of ecotourism sites in Gua Musang would be more extensive. The research finding for this research study showed that some of the tourist attractions were not well-maintained, their reputation and popularity could be boosted by making them viral on social media and some irresponsible companies would take the advantage to expand their business even if it would harm the natural environment in the tourist attractions. The development of community-based ecotourism destinations in Gua Musang is particularly desirable for ecotourism companies and ecotourism destinations for future development in Gua Musang, according to the findings of this study.

Furthermore, tourism-related stakeholders should consider how to sensitively incorporate the socio-cultural past and present of ethnic-based attractions into tourism planning, development, and operation, as well as how to present the community's current development stage to outsiders so that the community does not become trapped in a frozen image of itself.

The recommendation is to create a community product. The product is certainly one of the most significant parts of community-based tourism. You'll need a local excursion or activity that provides insight into the local community's daily lives while also educating tourists about their culture. Then, the local community can introduce handcrafted products from Kuala Koh's Orang Asli and every tourist attraction in Gua Musang. Tourists always hire local guides from the village, as they are the best guides because they know everything there is to know about the town. For example, every cave that you want to enter, such as Chiku Cave, Musang Cave, Honey Cave, and places that are difficult to enter, such as the Rafflesia Conservation Park of the Lojing Highlands.

REFERENCES

- Aseres, S. (2015). *Potentialities of community participation in community-based ecotourism development: Perspective of sustainable local development – A case of Choke Mountain, Northern Ethiopia* (p. 4). Madawalabu University.
- Andrea, J., & Mtapuri, O. (2008). Characteristics of community-based tourism: Towards a comparison between North and South (pp. 67–78).
- Azlan, I. (2011). *Interact with the land: Exploring the potential of Jungle Railway for ecotourism opportunities*. Department of Landscape Architecture, Faculty of Architecture, Planning and Surveying, Universiti Teknologi MARA Malaysia.
- Baktygulov, S., & Raeva, D. (2010). *Creating value for all: Community-based tourism*. GIM Case Study (B058).
- Cáceres-Feria, R., Hernández-Ramírez, M., & Ruiz-Ballesteros, E. (2007). Depopulation, community-based tourism, and community resilience in southwest Spain. *Journal of Rural Studies*, 88, 108–116.
- Denman, R. (2001). *Guidelines for community-based ecotourism development*. The Tourism Company for WWF. <https://www.wwf.org.uk>
- Dudić, B., Radovanov, B., Gregus, M., Marcikić Horvat, A., & Karović, V. (2020). Using a two-stage DEA model to measure tourism potentials of EU countries and Western Balkan countries: An approach to sustainable development. *Sustainability*, 12(12), 4903. <https://doi.org/10.3390/su12124903>
- East Coast Economic Region (ECER). (2018). *ECER Master Plan 2.0: The next leap 2018–2025* (pp. 73–75). <https://www.ecerdc.com.my/>
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4.
- Farrugia, B. (2019). WASP (write a scientific paper): Sampling in qualitative research. *Early Human Development*, 133, 69–71.
- Gammaz, S., & Emara, M. (2019). Community-based ecotourism strategies: Key indicators for successful practices in developing countries. *Journal of Urban Research*, 31(1), 103–122. <https://dx.doi.org/10.21608/jur.2019.88566>
- Ishikawa, N., & Fukushima, M. (2007). Impacts of tourism and fiscal expenditure on remote islands: The case of the Amami Islands in Japan. *Applied Economics Letters*, 14(9), 661–666.
- Kim, M., Xie, Y., & Cirella, G. T. (2019). Sustainable transformative economy: Community-based ecotourism. *Sustainability*, 11(18), 4977. <https://www.mdpi.com/2071-1050/11/18/4977>
- Majlis Daerah Gua Musang (MDGM). (2020). *Visi dan misi*. <https://mdgm.kelantan.gov.my/index.php/mdgm/profil/visi-misi-moto>
- Masud, M. M., Aldakhil, A. M., Nassani, A. A., & Azam, M. N. (2017). Community-based ecotourism management for sustainable development of marine protected areas in Malaysia. *Ocean & Coastal Management*, 136, 104–112.
- Ministry of Tourism, Arts and Culture (MOTAC). (2020). *National Tourism Policy (2020–2030): Executive summary* (pp. 13–20). <https://motac.gov.my/en/download/category/114-dasar-pelancongan-negara-dpn-2020-2030>
- Ministry of Tourism, Arts and Culture (MOTAC). (2020). *National Ecotourism Policy (2020–2030): Executive summary* (pp. 43–66). <https://motac.gov.my/en/download/category/86-pelan-eko-pelancongan-kebangsaan-2016-2025>

- Ministry of Tourism, Arts and Culture (MOTAC). (2021). *Strategic Plan MOTAC 2021–2025* (p. 20). <https://motac.gov.my/en/download/category/121-pelan-strategik-motac-2021-2025>
- Minaei-Bidgoli, B., Tan, P. N., & Punch, W. F. (2004, December). Mining interesting contrast rules for a web-based educational system. In *2004 International Conference on Machine Learning and Applications* (pp. 320–327). IEEE.
- Mohd Noh, A., Razzaq, A., Mustafa, M., Nordin, M., & Ibrahim, B. (2020). Future community-based ecotourism (CBET) development. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(9), 4991–5005. <https://archives.palarch.nl/index.php/jae/article/view/4733>
- OECD. (2010). *OECD factbook 2010: Economic, environmental and social statistics*. OECD Publishing. <https://doi.org/10.1787/factbook-2010-en>
- Osman, T., Shaw, D., & Kenawy, E. (2018). Examining the extent to which stakeholder collaboration during ecotourism planning processes could be applied within an Egyptian context. *Land Use Policy*, 78, 126–137.
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*, 42(5), 533–544.
- Robinson, O. C. (2014). Sampling in interview-based qualitative research: A theoretical and practical guide. *Qualitative Research in Psychology*, 11(1), 25–41.
- Sakata, H., & Prideaux, B. (2013). An alternative approach to community-based ecotourism: A bottom-up locally initiated non-monetised project in Papua New Guinea. *Journal of Sustainable Tourism*, 21(6), 880–899.
- Sardiana, I. K., & Purnawan, N. L. R. (2015). Community-based ecotourism in Tenganan Dauh Tukad: An indigenous conservation perspective. *Jurnal Kajian Bali*, 5(2), 347–368.
- Stone, M. T. (2015). Community-based ecotourism: A collaborative partnerships perspective. *Journal of Ecotourism*, 14(2–3), 166–184. <https://doi.org/10.1080/14724049.2015.1023309>
- Stronza, A., & Gordillo, J. (2008). Community views of ecotourism. *Annals of Tourism Research*, 35(2), 448–468.
- Tourism Malaysia. (2017). *Tourism sector to remain third largest contributor to economy*. <https://tourism.gov.my/statistics>
- Veal, A. J. (2006). Economics of leisure. In C. Rojek, S. M. Shaw, & A. J. Veal (Eds.), *A handbook of leisure studies* (pp. 140–161). Springer.
- World Tourism Organization (UNWTO). (2013). *UNWTO tourism highlights: 2013 edition*. <https://doi.org/10.18111/9789284415427>
- Yanes, A., Zielinski, S., Diaz Cano, M., & Kim, S. I. (2019). Community-based tourism in developing countries: A framework for policy evaluation. *Sustainability*, 11(9), 2506.

Research Article

Impact of Destination Quality, Access Quality and Accommodation Quality on Customer Satisfaction in Tourism Industry at Langkawi, Malaysia

Santhra Segaran, Lim Chee Chean & Yusuf Babatunde Adeneye*

*Faculty of Hospitality, Tourism and Wellness, Universiti Malaysia Kelantan
Corresponding email: adeneye.yb@umk.edu.my*

Journal of Hospitality, Tourism &
Wellness Studies
Vol. 2 (1) pp 50-63
© The Author(s) 2025
Submit date: 7 January 2025
Accept date: 7 February 2025
Publish date: 31 March 2025

ABSTRACT

This paper investigates the impact of service quality through destination, access, and accommodation quality on customer satisfaction in the tourism industry at Langkawi, Malaysia. The study uses quantitative research by using a method of descriptive research to obtain data. The data were collected from respondents using questionnaires. 300 usable responses were received from tourists vacationing in Langkawi and analysed using correlation analysis. Findings show that destination quality, access quality, and accommodation quality positively correlate with customer satisfaction. Therefore, the findings from this study show that service quality impacts customer satisfaction and plays an important role in tourism destination areas.

Keywords: Customer satisfaction; accommodation quality; destination quality; access quality; service quality; Langkawi

INTRODUCTION

Malaysia's revenue has traditionally come from the tourism sector. Between 2005 and 2019, the tourist sector had grown at a constant annual rate of 10%, outperforming other sectors of the Malaysian economy. This sector has contributed significantly to the economy over the last 30 years, primarily as a source of foreign revenue. Meanwhile, Langkawi Island has become one of Malaysia's and Asia's most popular tourist destinations. Between 2005 and 2010, the average yearly increase in visitor arrivals had been 7%, with 2.45 million tourists visiting the island (Langkawi Development Authority, 2011). Therefore, this study examines three main research objectives. First, we will examine the relationship between access quality and customer satisfaction in Langkawi, Malaysia. Second, to investigate the relationship between accommodation quality and customer satisfaction in Langkawi, Malaysia. Third, to assess the relationship between destination quality and customer satisfaction in Langkawi, Malaysia.

Significance of the Study

Research on the impact of service quality and customer satisfaction in the tourism industry in Langkawi, Malaysia, is still unknown since only a few researchers are working on it, and more studies are needed to figure out precisely what the tourism industry demands. Since technological progress has advanced, people in the Langkawi tourism industry should be very careful to utilise them. The researchers utilised that analysis but not so much on more precise factors that impact service quality and customer satisfaction in the tourism industry based on primary sources collected as a guide on this study.

LITERATURE REVIEW

Access Quality

Information and communication technology (ICT) is a pervasive enabler or tool (ICT). According to the studies reviewed, ICT is crucial in developing a country's economy, especially a segment of disadvantaged society. Residents of Langkawi would benefit from having digital access by being able to communicate with their leaders, such as their "*Ketua kampung*" or village chief, as well as the local government, which includes the Langkawi Municipal Council (LMC) and the Langkawi Development Authority (LADA).

Accommodation Quality

The technology used in hotels with the aim to improve customer service drives the adoption of information technology (IT) in the hotel business (Sweat & Hibbard, 1999). Using technologies to improve guest services has produced a substantial and positive influence on addressing administrative difficulties experienced in managing the hotel. Hotel management should also be aware of the potential of IT in the hotel sector. When evaluating the degree of service provided, hotel managers should consider four essential quality criteria. Assuring quality would eventually lead to an increase in their customer base. Customers' shifting lifestyle necessitates creative and inventive use of technology by the hotel business to make its services offer more value (Siguaw et al., 2000).

Destination Quality

The quality of the destination of the hotel sector relies on environmentally friendly design and concepts to save money and meet customer demand. As recommended by the green movement within the hotel sector, maintaining excellent environmental quality should be the top priority of the business. Environmental issues are deemed significant since hotel guests often value them highly. A resort corporate company is partly developed due to its environmental efforts (Bohdanowicz, 2005). Customers enthusiastically adopt the ecologically friendly suggested behaviours.

Customer Satisfaction

Customer satisfaction is important. According to the theory of satisfaction as a result of subjective factors, customers are satisfied with a target product or service. Customers are directly questioned about their impressions or assessments of the "worse than or better than expected" (Oliver, 1997). The perception result is referred to as "subjective disconfirmation,"

a construct of the thought. Accordingly, customer satisfaction is a direct measure of subjective disconfirmation, which means that how the magnitude of the prior expectations impacts a satisfaction level whenever there is "confirmation," which occurs when customers quite agree nor disagree. Expectations and perceptions, as well as subjective disconfirmation, have been found to influence customer satisfaction in a variety of situations (Churchill & Surprenant, 1982).

Research Hypotheses

The literature review below revealed the independent variables and dependent variables, such as examining the relationship between access quality and customer satisfaction, investigating the relationship between accommodation quality and customer satisfaction in Langkawi, Malaysia, and assessing the relationship between destination quality and customer satisfaction in Langkawi, Malaysia. As a result, the research will focus on the level of factors that influence these variables. Based on the literature that was discussed, the study hypotheses were summarised as follows:

- H₁** There is a significant relationship between access quality and customer satisfaction.
- H₂** There is a significant relationship between accommodation quality and customer satisfaction.
- H₃** There is a significant relationship between destination quality and customer satisfaction.

Research Framework

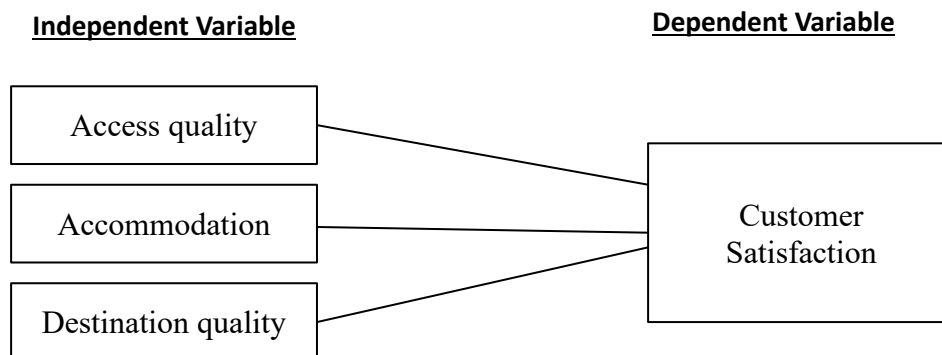


Figure 1: Research Framework

METHODOLOGY

Research Design

Researchers design the specific data collection and evaluation methods and procedures required. As a result, it is recognised as the framework for this research because it answers the research question. The study uses quantitative research by using a method of descriptive research as a way to obtain data. Quantitative research analyses numerical data using mathematically based methodologies (Aliaga & Gunderson, 2006). People are polled in an organised manner for their opinions in the quantitative technique to provide reliable data (The

marketing donut, 2009). To obtain relevant data, this study used a questionnaire to elicit responses from respondents. Distributing questionnaires is the main instrument of this study to collect variable data from respondents. Data were collected from respondents using a questionnaire, which will be used as the main information in this study. Thus, 300 respondents from tourists vacationing in Langkawi will answer the questionnaire. The information relating to the respondent are gender, age, marital status, race, income level, and state. According to Sekaran and Bougie (2016), the sample size for a good quantitative study should be between 30 to 500.

Data Collection

Data collection is a methodology for obtaining complete and trustworthy data by gathering information from various sources. Data collecting enables a person or organisation to answer pertinent questions, analyse outcomes, and forecast future probabilities and trends. The data for this study was collected by a survey employing questionnaires. The questionnaire is a data collection tool in which respondents are asked to answer a series of questions; this form of study is usually easier to track. Furthermore, because this study had many participants, researchers used this method to collect data and information because it is efficient.

Sampling

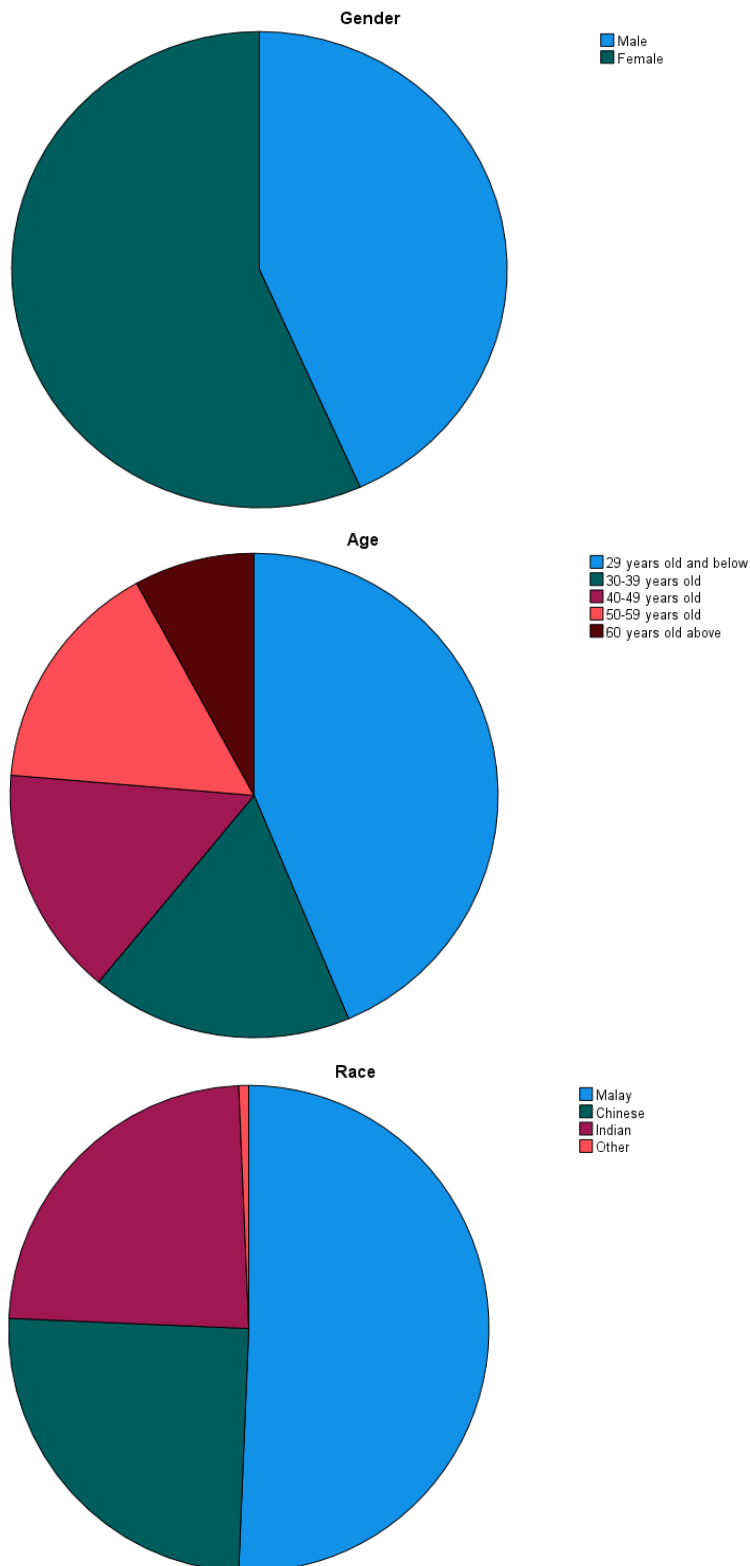
Non-probability convenience sampling was used as the sampling technique. It would be ideal to utilise the whole population in any study, but in most circumstances, this is not practical because the population is almost limited. For this reason, most studies use sample approaches such as convenience sampling (Etikan, 2016). Convenience Sampling is inexpensive and straightforward, and the subjects are readily available. The researcher must describe how the sample differs from the one chosen at random. It is also necessary to describe the subjects who may be excluded during the selection process and those who are overrepresented in the sample (Etikan, 2009). The primary goal of convenience sampling is to collect information from participants who are easily accessible to the researcher, such as recruiting providers who attend a staff meeting for study participation. In addition, the convenience sampling method was applied in this research because this method would save the time and cost of the researchers during the data collection stage. The respondents were tourists that had experienced the services provided and the satisfaction that the tourist experience from the tourism industry in Langkawi, Malaysia

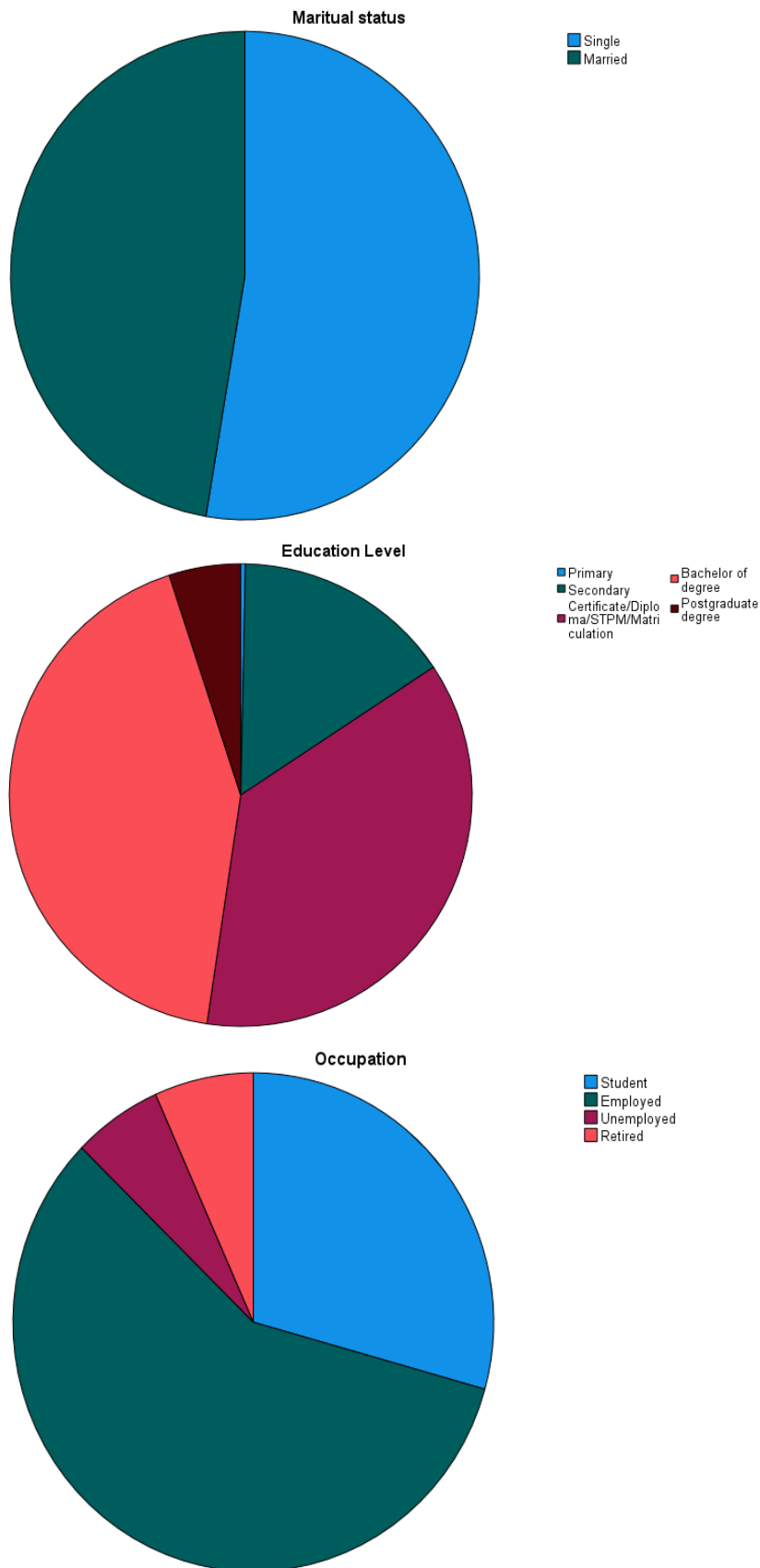
Data Analysis

Data analysis is a technique for evaluating data and understanding the outcomes of operations to make data analysis simple, detailed, and accurate. Data analysis used all of the statistics machinery and outcomes. To examine the data in this study, the researchers used descriptive statistics, reliability, Pearson correlation, and multiple regression analysis. The analysis also evaluated the data using the independent variable (IV) and the dependent variable (DV).

FINDINGS

Result of Frequency Analysis





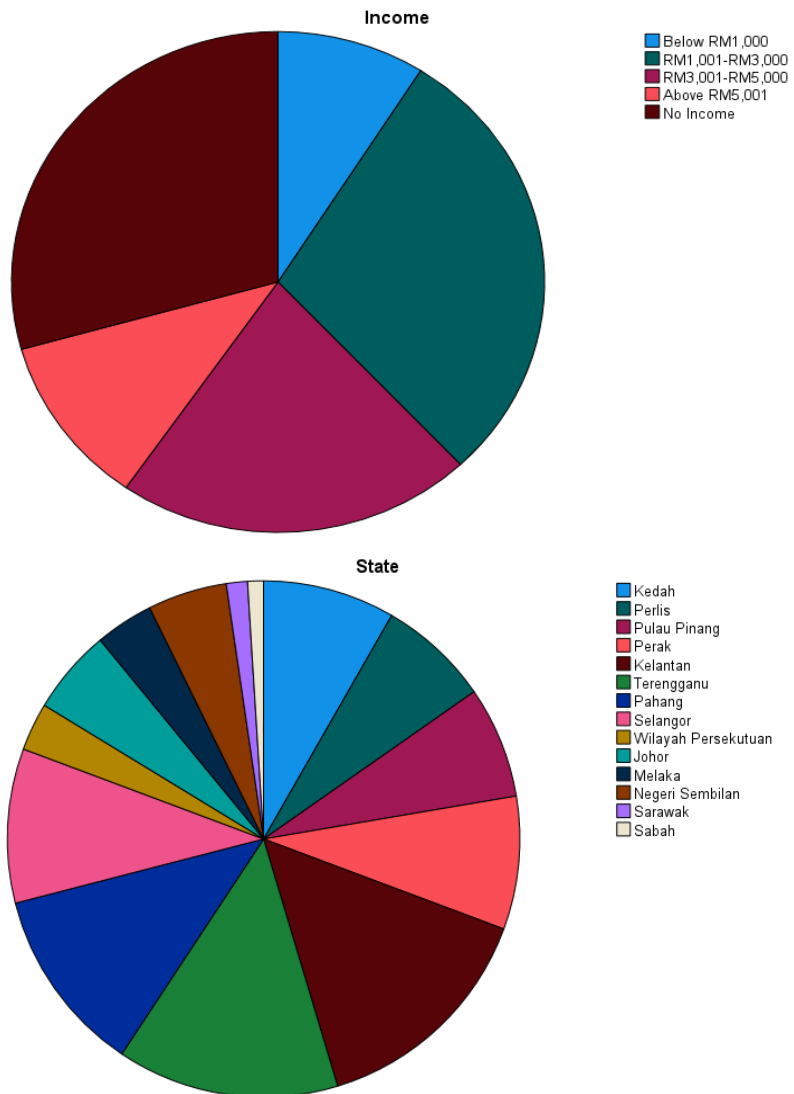


Table 1: Frequency Analysis

Characteristic	Frequency	Percentage
Gender		
Male	130	43.3
Female	170	56.7
Age		
29 years old and below	131	43.7
30-39 years old	52	17.3
40- 49 years old	46	15.3
50 - 59 years old	47	15.7
60 years old above	24	8.0
Race		
Malay	152	50.7
Chinese	75	25.0
Indian	71	23.7
Other	2	0.7
Marital Status		
Single	158	52.7
Married	142	47.3
Education Level		
Primary	1	0.3
Secondary	46	15.3
Certificate/ Diploma/ STPM/ Matriculation	110	36.7
Bachelor of Degree	128	42.7
Postgraduate Degree	15	5.0
Occupation		
Student	88	29.3
Employed	174	58.0
Unemployed	18	6.0
Retired	20	6.7
Income Level		

Below RM 1,000	27	9.0
RM 1,001- RM 3,000	87	29.0
RM 3,001- RM5,000	65	21.7
Above RM 5,001	33	11.0
No income	88	29.3
State		
Kedah	25	8.3
Perlis	21	7.0
Pulau Pinang	21	7.0
Perak	25	8.3
Kelantan	44	14.7
Terengganu	42	14.0
Pahang	35	11.7
Selangor	29	9.7
Wilayah Persekutuan	9	3.0
Johor	16	5.3
Melaka	11	3.7
Negeri Sembilan	15	5.0
Sarawak	4	103
Sabah	3	1.0

Table 1 shows the characterisation of respondents. Out of 300 respondents, 130 respondents (43.3 per cent) were male, while 170 respondents (56.7 per cent) were female. For a group of the age of the respondents, 131 (43.7 per cent) respondents were 29 years old and below, 52 (17.3 per cent) respondents were between 30 to 39 years old, 46 (15.3 per cent) respondents were between 40 to 49 years old, 47 (15.7 per cent) respondents were between 50 to 59 years old and 24 (8.0 per cent) respondents were 60 years old and above, next, for the race categories. The highest frequency was Malay at 50.7%, followed by Chinese at 25.0%, Indian at 23.7% and other races at 0.7%. Most of the respondents had a degree (42.7%, n=128), and this was followed by 110 respondents (36.7%) with a Certificate/Diploma/STPM/Matriculation, 46 respondents (15.3%) from secondary school, 15 respondents (5.0%) with a postgraduate degree, and only one respondent (0.3%) from primary school.

Besides, in terms of occupation, most of the respondents were employed, with 174 respondents (58.0%), 88 respondents (29.3%) were students, 20 respondents (6.7%) were retired, and 18 respondents (6.0%) were unemployed. Most of the respondents had a monthly income of below

RM1,000, with 87 respondents (29.0%), 87 (29.0 per cent) respondents earning between RM 1001 to RM 3000, 65 (21.7 per cent) respondents earning between RM 3001 to RM 5000, and 33 (11.0 per cent) respondents earned above RM5001, while 88 (29.3 per cent) of respondents had no income.

Lastly, the result according to the place of origin indicated that the higher number of respondents were from Kelantan which is 14.7% (n=44) followed by Terengganu with 14.0% (n=42) of respondents, Pahang was 11.7% (n=35) of respondents, Kedah and Perak had the same percentage which was 8.3% (n=25) of respondents, Perlis and Pulau Pinang also had the same percentage which was 7.0% (n=21) of respondents, Selangor had 9.7% (n=29) of respondents, Wilayah Persekutuan Kuala Lumpur had 3.0% (n=9) of respondents, Johor had 5.3% (n=16) of respondents, Melaka had 3.7% (n=11) of respondents, Negeri Sembilan had 5.0% (n=15) of respondents, Sarawak had 1.3 % (n=4) of respondents, and lastly Sabah had the lowest respondent which is 1.0% (n=3) from the total respondents.

Result of Descriptive Analysis

Table 2: Descriptive Analysis of Items in Research Constructs

Variable	Item	Mean Score	Standard Deviation
Access Quality	The transportation and parking in Langkawi are convenient	4.12	.683
	There is a convenience of food and beverages in Langkawi	4.10	.759
	There is are convenience and hygienic of restrooms in Langkawi	4.03	.797
	Information resources are available in Langkawi	4.12	.756
	There is a range of activities programmed in Langkawi	4.20	.787
Accommodation Quality	There is core mobility in Langkawi	4.13	.743
	There is a good communication system in Langkawi	4.11	.751
	There are ambulances/safety car across Langkawi	4.10	.784
	Intra-state service and security are available in Langkawi	4.11	.737
	There is amenity (comfort/recreation) in Langkawi	4.18	.782
	There are supplementary mobilities in Langkawi	4.06	.780
Destination Quality	There are quality roads in Langkawi	4.07	.704
	The safety of roads in Langkawi is high	4.00	.752
	The cleanliness of roads in Langkawi is good	4.01	.780
	There is a public transport in Langkawi	4.03	.799
	The hospitality of people in Langkawi is sound	4.00	.805
	Langkawi is much concerned for the people living in the area	3.97	.771

Customer Satisfaction	The level of people's friendliness is high in Langkawi	4.01	.805
	There are accommodation quality and services in Langkawi	4.08	.780
	The restaurant's quality and services in Langkawi are good	4.04	.768
	Prices of foods and commodities in Langkawi are relatively cheap	3.73	.905
	There are quality foods in Langkawi	4.04	.777
	There is the nightlife in Langkawi	4.03	.767
	There are shopping opportunities in Langkawi	4.15	.774
	There is an island in Langkawi	4.18	.802
	The beauty of scenery in Langkawi is wonderful	4.20	.764
	I enjoyed the visit to Langkawi	4.39	.652
	I am satisfied with my decision to visit Langkawi	4.27	.779
	I prefer the Langkawi destination	4.21	.755
	I have positive feelings regarding Langkawi	4.22	.766
	My experience in Langkawi is exactly what I need	4.20	.732
	My choice to visit Langkawi was a wise one	4.18	.765
	Travelling to Langkawi was a pleasant visit	4.27	.756

Table 3 : Descriptive Statistics of Variables

Variable	N	Mean	Standard Deviation
Access Quality	300	4.113	.56899
Accommodation Quality	300	4.1139	.56981
Destination Quality	300	4.0367	.53576
Customer Satisfaction	300	4.2490	.59284

This study involved 300 respondents, and it analysed the mean and standard deviation for the dependent variable, which was customer satisfaction, and independent variables, which were access quality, accommodation quality, and destination quality of the questionnaire. In the Descriptive Analysis for independent variables, the highest score was accommodation quality (mean=4.113, SD=0.56899), followed by access quality score (mean=4.1139, SD=0.56981), and the lowest score for the independent variable was destination quality (mean=4.0367, In SD=0.53576) In. The score for a dependent variable, which was customer satisfaction, was scored (mean=4.2490, SD=0.59284). It could be concluded that accommodation quality was the most influential in customer satisfaction in the tourism industry in Langkawi, Malaysia.

Result of Reliability Analysis

Table 4: Result of Reliability Analysis

Variable	Number of Items	Cronbach's Alpha
Access quality	5	0.807
Accommodation quality	6	0.841
Destination quality	15	0.918
Customer satisfaction	7	0.904

We can see the significant relationship between the independent and dependent variables in table 4 using Cronbach Alpha. All variables in the table were more than 0.8. Because of this higher result, all variables can be used in this investigation. This section's Cronbach's alpha value of 0.904 is excellent because it measures the personal variable influencing 300 visitors visiting Langkawi Island, Malaysia. Thus, the coefficient value obtained for the questions in terms of the customer satisfaction variable is reliable. Next, Cronbach's Alpha values for access quality and accommodation quality were 0.807 and 0.841, respectively, which are considered good, followed by destination quality with 0.918, considered excellent. This shows that the respondents understood the questions so well; hence, the questionnaires were approved for this analysis.

Result of Pearson Correlation Analysis

Table 5: Pearson Correlation Analysis

Hypothesis	P - Values	Result
H₁ - There is a significant relationship between access quality and customer satisfaction.	.742	Supported
H₂ - There is a significant relationship between accommodation quality and customer satisfaction.	.708	Supported
H₃ - There is a significant relationship between destination quality and customer satisfaction.	.808	Supported

Hypothesis 1: Access Quality

H1: There is a relationship between access quality and customer satisfaction

The Pearson correlation coefficient, significant value, and number of responses (300) are shown in the above table. The p-value was 0.001, which was less than the 0.01 level of significance. The correlation value of 0.742 indicated a very high positive correlation between access quality and customer satisfaction.

Hypothesis 2: Accommodation Quality

H2: There is a relationship between accommodation quality and customer satisfaction

The Pearson correlation coefficient, significant value, and a number of responses (300) are shown in the above table. The p-value was 0.001, which was less than the 0.01 level of significance. The correlation value of 0.708 indicated a high positive relationship between accommodation quality and customer satisfaction.

Hypothesis 3: Destination Quality

H3: There is a relationship between destination quality and customer satisfaction

The Pearson correlation coefficient, significant value, and a number of (300) responses were presented in the above table. The p-value was 0.001, which was below the significance level of 0.01. The correlation coefficient of 0.808 demonstrated a high positive relationship between destination quality and customer satisfaction.

DISCUSSIONS & RECOMMENDATIONS

Langkawi is Malaysia's most popular tourist destination, having a higher percentage of international visitors. To keep Langkawi's position as Malaysia's top island destination, the tourism industry's management must be aware of these characteristics and behaviours. In order to attract domestic tourists' attention, they should examine their preferences. Tourists should be treated with respect and be given a positive impression of Langkawi Island by providing a discount in exchange for their positive feedback. Furthermore, the three aspects of access, accommodation, and destination influence satisfaction and inclination to return. Stakeholders or the resort's owner should use this feedback to improve services and solve the situation. Domestic tour providers will benefit as a result of the increased revenue. As a result, there is no doubt that there will be a long-term positive impact on the tourism industry.

CONCLUSION

In conclusion, this research has proven the significant relationship between access quality, accommodation quality, and destination quality towards customer satisfaction. Based on the data analysis, the finding shows that factors such as access quality, accommodation quality, and destination quality have a positive influence towards customer satisfaction. This paper has also described in detail how people could be satisfied with their travel experience. Considering the study's limitations, future researchers should focus not only on local tourists but also on international tourists, which might produce the best outcome. Tourism in Malaysia needs to be more aware of this perception, and stakeholders should be aware of the factors that affect customer satisfaction in order to fulfil tourist needs. With this step, the challenges that Langkawi faced can be reduced, and this problem can be solved.

REFERENCES

- Authority, L. D. (2011). *Tourist arrival statistic: 2005 -2010*.
- Etikan, I. (2016). Experimental Design: The Role of Treatment. *Biometrics & Biostatistics International Journal*, 3(4).
- Etikan, I. M. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1.
- Gunderson, A. &. (2013). An investigation into the determinants of customer satisfaction. *Journal of Marketing Research*, 19(4), 491–504.
- Oliver, R. L. (1997). Satisfaction: A behavioural perspective on the consumer. *New York, NY: Irwin-McGraw-Hill*.
- Sekaran, U. &. (2016). Research methods for business: A skill building approach.
- Siguaw, J. A. (2000). Adoption of information technology in US hotels: strategically driven objectives. *Journal of Travel Research*, 39(2), 192-201.
- Suanmali, s. (2014). Factors affecting tourist satisfaction: an empirical study in the northern part of thailand. *Shs web of conferences*, 12, 01027.
- Sweat, J. a. (1999). “Customer Disservice.” Information Week, June 21, 65-78. *Journal Sunny Ham; Woo Gon Kim; Seungwhan Jeong (2005). Effect of information technology on performance in upscale hotels. , 24(2), 0–294. .*
- Zeithaml, V. &. (2000). Services marketing. *New York, NY: McGraw-Hill*.
- Zeithaml, V. A. (2000). Service quality, profitability, and the economic worth of customers: What we know and what we need to learn. *Journal of the Academy of Marketing Science*, 28(1), 67–85.

Research Article

A Study of Knowledge, Awareness and Action Towards Healthy Food Intake Among Higher Education Institution Students

¹Nurul Aishah Binti Zulkifli, ¹Nisha A/P Gunalan, ¹Mohammad Haziq Bin Mohd Ismail & ²Naziatul Aziah Binti Mohd Radzi*

¹*Faculty of Hospitality, Tourism and Wellness, Universiti Malaysia Kelantan*

²*Faculty of Economy and Management, Universiti Kebangsaan Malaysia*

Corresponding email: naziah.radzi@ukm.edu.my

Journal of Hospitality, Tourism &
Wellness Studies

Vol. 2 (1) pp 64-75

© The Author(s) 2025

Submit date: 13 January 2025

Accept date: 13 February 2025

Publish date: 31 March 2025

ABSTRACT

Healthy food intake is essential for good health and nutrition. It protects against many chronic non - communicable diseases, such as heart disease, diabetes, and cancer. Eating various foods and consuming less salt, sugars, and saturated and industrially produced trans-fats are essential for a healthy diet. This study aimed to examine a study of knowledge, awareness, and action toward healthy food intake among higher education institution students. The researchers used a quantitative technique and questionnaires by Google Forms to conduct this survey. A Statistical Package Social Science (SPSS) version 26.0 was used to analyse the data. The findings showed that knowledge and awareness had a relationship with a p-value of 0.000. The result indicated a significant relationship between knowledge and awareness of healthy food intake. There are a few recommendations related to the study proposed by the researchers.

Keywords: Knowledge, Awareness, Healthy Food Intake

INTRODUCTION

Food and nutrition literacy are crucial challenges in ensuring the food system's long-term viability, which has a significant impact on public and environmental health. It is because of their importance to human health; the concepts of food literacy and nutrition literacy have only lately been defined. Adolescent health is influenced by childhood happiness, and it sets the tone for material and adult health (Vidgen & Gallegos, 2014). Diet and physical activity are two important parts of a wealthy society's lifestyle that increase the risk of serious diseases, including cancer and coronary heart disease. Early in life, lifestyles and health ideas appear to be established, laying the groundwork for subsequent years. As a result, it is critical to keep an eye on changes in university students' health behavior and to understand what factors, such as risk knowledge and attitudes, may influence their adoption of healthy habits. University is a

critical time for students to change their bad eating habits. Obesity and overweight, as well as the illnesses that go along with it, have become a global issue. (Chelsey R Canavan, 2019).

It appears to enhance the chance of weight gain based on how it interacts in addition to these other risk issues such as poor diet as well as an inactive lifestyle. This research sought to classify the major of awareness, knowledge, and action toward healthy food intake among higher education institution students. Emotional eating is the tendency to overeat in reaction to emotions such as stress, sadness, boredom, anxiety, or irritation. One factor why emotional eating may rise in stressful conditions is that some people may use food to deal with emotion rather than the more adaptive means of controlling their emotions (Cunliffe, 2020).

The objective of this study was as follows;

1. To identify the knowledge of healthy food intake practices among higher education institution students.
2. To investigate the relationship awareness of healthy food intake practices among higher education institution students.

Significance of the Study

Based on this study, food awareness and action are in the direction of a healthy diet. Besides, given the knowledge and awareness about a balanced diet were investigated. This allows them to gain more knowledge about healthy food intake. Thus, people could spread knowledge and put action to all the students and close acquaintances to share information about healthy balanced, diets and maintaining proper nutrition. It also could help individuals to maintain their body weight by maintaining a balanced diet and avoiding obesity.

Furthermore, this study could be used as a valuable reference for future researchers. This may become a second tool for future researchers. The investigator needed to explore and understand more about healthy food intake and its advantages. A future investigator could use this study to gain more information and knowledge in future studies about awareness and action toward healthy food intake whether increasing or decreasing.

LITERATURE REVIEW

Knowledge

Knowledge is part of the reality of knowing indirectly or indirectly. Knowledge is also said to be a cognitive relationship with reality for a person. Knowledge is called based on reality because it is from everyday experience and contact. Knowledge through introduction not only encompasses people, animals, and things but however, knowledge of see's own mental health (L Zagzebski, 1995). The field of subjective well-being growth in the field of swabs reflects larger societal trends concerning the value of the individual, the importance of subjective views in evaluating life, and the recognition that well-being necessarily includes positive elements that transcend economic prosperity.

Subjective health complaints depended on interactions between demands and coping, more than demand and control. The combination of high demands and low coping was associated with most health problems, whereas low demand and high coping had the lowest level. It is well known that stress may exacerbate gastrointestinal symptoms and complaints. When expectancies were positive, high demands are no health risk in healthy organisms. Negative effects occurred only when there was a lack of coping. This suggests that lack of coping with stress, meaning low expectancies of the outcome, plays an important role in patients with subjective health complaints (R. Lind, 2005). To explore the hypothesis that this effect can be explained largely by individual differences in the degree to which some people were apt to be more under normative control, subjects were asked to indicate their intentions, attitudes, and subjective norms toward performing 30 behaviours. Between-subjects and within-subjects analyses were performed. The within-subjects analyses revealed important differences in whether subjects are under attitudinal or normative control across- the behaviours.

There are similarities between it and subjective food of hypersensitivity that should be investigated further. There are several reasons why patients attributed their health complaints to food. It was, first, easier and more acceptable to present somatic complaints, rather than feelings of sadness or depression, and avoid being labelled psychologically disturbed. In fact, patients were often hostile to the idea that their symptoms had a psychological explanation, and they seemed to grasp any possible organic explanation for their symptoms. Several meals during the day create many possibilities for random coincidence and wrong attribution between food intake and pain. Wrong attribution may also be ascribed to “associative learning” or influence. Occasionally, healthcare workers, friends, and therapists in the field of alternative medicine offer “good advice” that may be wrong. In our health region, patients with gastrointestinal problems are often told to avoid having milk and wheat in their diet. The high prevalence of suspected adverse reactions to these food items might be the result of this local influence (C Trafimow, Krystina, 1996).

Awareness

The importance of political awareness among the people and it depends on the level of awareness of the people to bring positive influence. (Carl Görtz, 2021). Health awareness among married, adolescent, and highly educated people. Most of these categories have a normal and balanced BMI compared to those who are not from this category. (Ammal M, 2021) Health awareness among married, adolescent, and highly educated people. Most of these categories have a normal and balanced BMI compared to those who are not from this category (Ammal M, 2021). Seniors lack awareness about healthy eating, health care and healthy lifestyle practices that make them vulnerable to deadly chronic diseases. Studies have found that most senior citizens die in their early 50s, this is due to the lack of health awareness among the elderly.

Awareness of physical activity since school age and early adolescence can cultivate a daily routine to do physical activity from an early age that leads to a healthy lifestyle. (Magid Taheri, 2013) The nutritional evaluation of food products initially offered in VMs was in line with the few previous studies that quantitatively evaluated the nutritional quality of food products. However, the product replacement was successful in increasing healthy positive and healthy

negative product sales while decreasing unhealthy options. (Alice Rosia, 2016)

The importance of consumer awareness as an antecedent of knowledge of functional food ingredients for healthy food choices, the aim of this study is to explore consumers' ingredient awareness and the determinants influencing it (Sabine Bornkesselab, 2014). The consumer's ingredient awareness showed low influences, the effect size for the predictor's age and health status did not show a relevant influence on education, health status, health motivation, and information strategies (Sabine Bornkesselab, 2014). Awareness of young adults back to start a healthy lifestyle once more and improve the connection between the foods they feed into the body, including habits and ways of eating with a healthier lifestyle and balanced nutrition (Sabine Bornkesselab, 2014).

Research Hypothesis

The hypothesis for this research is to see if there are any significant differences between the independent variables and dependent variables: -

- H1 : There is a connection between knowledge and healthy food intake among higher education institution students.
- H2 : There is a connection between awareness and healthy food intake among higher education institution students

Research Framework

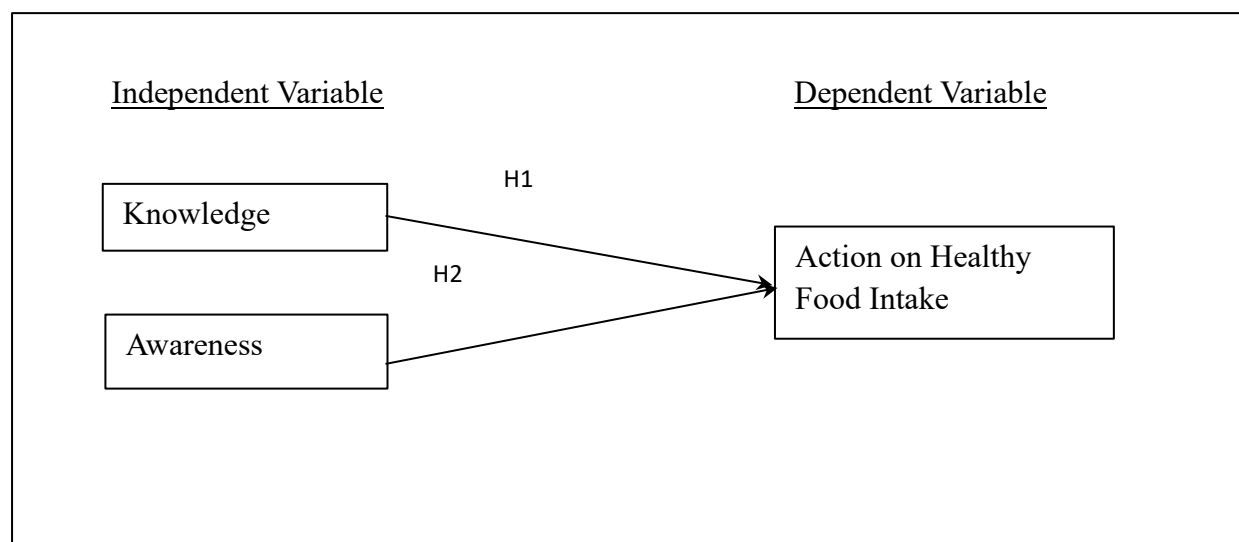


Figure 1: Research Framework

METHODOLOGY

Research Design

Research design is a part of a plan that will identify the method and procedure for collecting data and analysing the data for this study. In short, it is known as a framework for the research plan. A quantitative technique and questionnaires by Google Forms were used to conduct a survey. The study mainly focused on the collection of numerical data and generalizes it to a few groups of people according to age, gender, profile history, and ethnic background and to explain specific phenomena. Students are choosing as representatives to give feedback towards knowledge, awareness and action towards healthy food intake among higher education institution students.

Data Collection

The data for this study was obtained from primary sources. Primary data was data collected effectively from primary sources by research groups that have used questionnaires. The questionnaire used in this study was created using Google Forms. The questionnaire was applied to collect the information regarding the study of knowledge and awareness towards healthy food intake among higher education institution students.

Sampling

The researcher used the probability technique because samples were chosen at random. The researchers used Krejcie and Morgan's (1970) formula to evaluate the sample group to provide an accurate and relevant sample for this study. The respondents consist of 370 higher education institution students who will be selected from all institutions in Malaysia.

$$s = \frac{x^2 N_p (1 - P)}{e^2 (N - 1) + x^2 p (1 - p)}$$

Data Analysis

Data analysis is a way of reviewing records that uses statistical, logical, and analytical methods. The Statistical Package for Social Science (SPSS) is the data analysis tool. The SPSS programmer would be beneficial to the researcher in identifying the best statistical approach to apply. The SPSS data will explain statistics such as cumulative percentage and valid percentage. The researchers will utilize SPSS version 26.0 to build tables for data entry and analysis. The researcher was able to acquire data for industry study as well as do descriptive analysis, reliability analysis, and correlation analysis.

FINDINGS

Result of Frequency Analysis

Table 1: Frequency Analysis

Characteristics	Frequency	Percentage
Gender		
Male	134	36.2
Female	236	63.8
Race		
Chinese	40	10.8
Indian	77	20.8
Malay	245	66.2
Others	8	2.2
Religion		
Islam	249	67.3
Buddha	44	11.9
Hindu	71	19.2
Others	6	1.6
Academic Program		
FHPK	269	72.7
FKP	75	20.3
JDS	10	2.7
Others	16	4.3
Years of Respondents		
Year 1	29	7.8
Year 2	58	15.7
Year 3	235	63.5
Others	48	13.0

Table 1 presents the demographic profile of the respondents (N = 370). A total of 134 respondents were male (36.2%), while 236 were female (63.8%). In terms of ethnicity, the majority were Malay (66.2%), followed by Chinese (20.8%), Indian (10.8%), and others (2.2%). Most respondents identified as Muslim (67.3%), with the remainder comprising Hindus (19.2%), Buddhists (11.9%), and other religions (1.6%). The majority were enrolled in the Faculty of Hospitality, Tourism and Wellness (FHPK) (72.7%), followed by FKP (20.3%), JDS (2.7%), and other programs (4.3%). In terms of academic year, most were in Year 3 (63.5%), followed by Year 2 (15.7%), other years (13.0%), and Year 1 (7.8%).

Result of Descriptive Analysis

Table 2: Descriptive Analysis

Variable	Items	Mean Score	Standard Deviation
Knowledge	I easily get information about eating healthy food intake.	4.38	0.933
	I was exposed to information about healthy food intake starting from school days.	4.49	0.762
	I realize the importance of knowledge about current healthy food intake.	4.62	0.632
	I know that healthy food intake is like taking adequate nutritional requirements in a daily diet.	4.63	0.561
	I know that health foods such as grains, legumes, and vegetables can improve one's health.	4.64	0.632
	A balanced diet and calorie deficit can help a person to achieve an ideal weight.	4.65	0.571
	I know healthy food intake can ensure that our body can receive all the nutrients that are sufficient it to function properly.	4.65	0.630
	I know the important of eating patterns because what we eat will highly influences occurrence of obesity.	4.65	0.557
	I understand that individuals who frequently skip meals, especially breakfast tend to over-eating at other meal times.	4.56	0.723
	A personas environment and emotions greatly influence daily food intake whether it is healthy or unhealthy food.	4.60	0.719
Awareness	I am awareness that healthy eating intake will affect my weight control	4.54	0.682
	I am aware that obesity is influenced by unhealthy eating habits.	4.64	0.636
	I am aware that healthy food intake is very important for a community.	4.66	0.617
	The healthiness of food has little impact on my food choices.	4.49	0.769
	I am very particular about the healthiness level of food intake that I eat.	4.28	1.024
	I am aware that by consistently eating fast food will raise my cholesterol level.	4.58	0.687
	I am aware that it is important to know	4.57	0.680

	about healthy food intake.		
	I am aware that it is important to eat two pieces of fruit and 250g of vegetables a day.	4.41	0.848
	I am aware that I cannot continue to consume too much sugar.	4.51	0.827
	I am aware that I must following a healthy and balanced diet for a better living.	4.34	1.014
Action of Healthy Food Intake	I always attend healthy eating-related programs.	3.92	1.245
	Exercise should not affect health.	3.18	1.588
	I will practice dietary food because it is part of the healthy food intake routine.	4.42	0.820
	I eat, what I like and I do not worry much about my food intake.	4.21	1.055
	It's difficult for me to practice healthy food intake due to my tight schedule.	4.12	1.156
	Healthy foods are more easily spoiled.	3.50	1.524
	I will make healthy food intake as a preference of family and friends.	4.38	0.932
	I cannot practice a healthy food intake because the price is expensive.	3.52	1.529
	I will make fresh fruit and vegetables as my snacks.	4.26	0.993
	I will pay attention to the contents of my daily food intake.	4.32	0.958

The result in table 2 above shows that item of knowledge factor 1 (I easily get information about eating healthy food intake) has the highest mean score ($M = 4.38$, $SD = 0.933$) meanwhile item of knowledge factor 8 (I know the importance of eating patterns because what we eat will highly influences the occurrence of obesity) shows the lowest mean score ($M = 4.65$ $SD = 0.557$). As for the item of awareness factor 10 (I am aware that I must follow a healthy and balanced diet for a better living) shows the highest mean score ($M = 4.34$ $SD = 1.014$) meanwhile item of awareness factor 3 (I am aware that healthy food intake is very important for a community) shows the lowest mean score ($M = 4.66$ $SD = 0.617$). Lastly, as for the item of action of healthy food intake factor 2 (Exercise should not affect health) shows the highest mean score ($M = 3.18$ $SD = 1.588$) meanwhile item of action of healthy food intake factor 3 (I will practice dietary food because it is part of the healthy food intake routine) shows the lowest mean score ($M = 4.42$ $SD = 0.820$).

Result of Reliability Analysis

Table 3: Reliability Analysis

Variable	Number of Items	Cronbach Alpha
Knowledge	10	0.893
Awareness	10	0.871
Action on Healthy Food Intake	10	0.788

Table 3 shows that reliability analysis for the independent variable, which is the first one was knowledge with 10 questions, shows a Cronbach Alpha value of 0.893. Awareness is the second independent variable which has 10 questions in questionnaire where the Cronbach Alpha value is 0.871. Lastly, the dependent variable which is action on healthy food intake has a Cronbach Alpha value which is 0.788.

Result of Pearson Correlation Analysis

Table 4: Pearson Correlation Analysis

Hypothesis	P-Value	Result
H1: There is a significant relationship between knowledge to action toward healthy food intake.	0.000	Supported
H2: There is a significant relationship between awareness and action toward healthy food intake.	0.000	Supported

The value for hypothesis 1 is below 0.05 and the p-value is under 0.05. Thus, the alternative hypothesis will be accepted, and the null hypothesis will be refused. The intensity of the relationship between knowledge and action toward healthy food intake is strong. Hypothesis 2 shows that the significant value is below 0.05 and the p-value is above 0.05. Therefore, the alternative hypothesis was accepted, and the null hypothesis was refused. The intensity of the relationship between awareness and action toward healthy food intake is strong.

DISCUSSION AND RECOMMENDATION

This study was conducted to look at knowledge, awareness, and action toward healthy food intake among higher education institution students. Furthermore, this study determined the relationship between information, awareness, and a healthy lifestyle among higher education institution students. Data were gathered through convenience sampling where the questionnaires were answered by the respondents among students of higher education institution, University Malaysia Kelantan. Nutrition education programmes were intended to promote nutrition knowledge in the community or a specific target demographic with the goal of promoting healthy eating habits. In most industrialized countries, citizens are educated about dietary standards or the intake of core food groups. Few studies have investigated the degree of nutrition knowledge in the general public or other specific group samples, and the impact of nutrition knowledge on dietary intake remains largely unknown (Charina, 2014). Improving health and leading a healthy lifestyle is critical for nations seeking to improve and establish sustainable development strategies while avoiding allocating money to lifestyle diseases. Chronic diseases are becoming more prevalent in developing countries, emphasizing the importance of providing health care in a way that protects and enhances health. Many chronic diseases may be induced by an inactive lifestyle, whereas healthy lifestyle behaviours can reduce disease risk (Fahad, 2020).

Future researchers should give more time to distribute questionnaires so that researchers can discover people who are more suitable and qualified to be respondents. For sample sizes of 370 respondents, it is difficult to finish data collection in a short amount of time. The researchers can then clarify the study's objective to the respondents if respondent were having trouble answering the questions. To avoid respondents merely answering the questions, this is critical. They may require some clarification and clarification so that the researchers may obtain more accurate and dependable data. A recommendation would be to learn how to utilize an analysis system like SPSS. Following the collection of responses or data from respondents, we must analyze the information and SPSS was used to do so. There are no ideas about which approach to apply to analyze the data and it will take a lot of time to learn how to utilize SPSS. After the data has been analyzed and summarized, the interpretation is crucial. As a result, future researchers are advised to study and comprehend the analysis system that will be employed in their research. all university students should be encouraged to adopt a healthy lifestyle and take care of nutrition so as to avoid dangerous diseases, especially obesity. Finally, the study timeline needs to be added so that researchers have more time to complete the test and be able to add more findings in research especially at this time because of the Covid-19 pandemic. Therefore, the researcher can have more time to complete this study more perfectly and more systematically.

CONCLUSION

This research is designed to study knowledge, awareness, and action toward healthy food intake among higher education institution students. The finding has shown that the two independent variables which are knowledge and awareness were related moderately to healthy food intake among higher education institution students. The researcher has seen the results of the two independent variables which are knowledge and awareness to have a significant relationship

with healthy food intake. The result shows that there was a relationship between knowledge and awareness of healthy food intake among higher education institution students. Additionally, the research questions will be a way to access the knowledge of healthy food intake to explore awareness to determine the level of health. The results of the data indicate that all the independent variables (knowledge and awareness) significantly influence the action toward healthy food intake. In general, knowledge and awareness had a moderate relationship with healthy food intake.

REFERENCES

- Abu-Taieh, A., El Mouatasim, A. K., & Al Hadid, I. H. (2019, August 7). Research design and methodology. In Kassu Jilcha Sileyew (Ed.), *Cyberspace*. IntechOpen. <https://doi.org/10.5772/intechopen.85731>
- Asakura, K., Todoriki, H., & Sasaki, S. (2017). Relationship between nutrition knowledge and dietary intake among primary school children in Japan: Combined effect of children's and their guardians' knowledge. *Journal of Epidemiology*, 27(10), 483–491.
- Canavan, C. R., & Fawzi, W. W. (2019). Addressing knowledge gaps in adolescent nutrition: Toward advancing public health and sustainable development. *Current Developments in Nutrition*, 3(7), nzz062. <https://doi.org/10.1093/cdn/nzz062>
- Caton, S., Chadwick, D., Chapman, M., Turnbull, S., Mitchell, D., & Stansfield, J. (2012). Healthy lifestyles for adults with intellectual disability: Knowledge, barriers, and facilitators. *Journal of Intellectual and Developmental Disability*, 37(3), 248–259. <https://doi.org/10.3109/13668250.2012.704982>
- Celik, B., & Dane, S. (2020). The effects of COVID-19 pandemic outbreak on food consumption preferences and their causes. *Journal of Research in Medical and Dental Science*, 8(3), 169–173.
- Clore, G. L., & Schnall, S. (2005). The influence of affect on attitude. In H. C. Triandis (Ed.), *Subjective culture* (Vol. 18).
- Coulthard, H., Sharps, M., Cunliffe, L., & van den Tol, A. (2021). Eating in the lockdown during the COVID-19 pandemic: Self-reported changes in eating behaviour, and associations with BMI, eating style, coping and health anxiety. *Appetite*, 161, 105082. <https://doi.org/10.1016/j.appet.2021.105082>
- Fila, S. A., & Smith, C. (2006). Applying the theory of planned behavior to healthy eating behaviors in urban Native American youth. *International Journal of Behavioral Nutrition and Physical Activity*, 3, 1–10. <https://doi.org/10.1186/1479-5868-3-11>
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610.
- Meldrum, D. R., Casper, R. F., Diez-Juan, A., Simon, C., Domar, A. D., & Frydman, R. (2016). Aging and the environment affect gamete and embryo potential: Can we intervene? *Fertility and Sterility*, 105(3), 548–559. <https://doi.org/10.1016/j.fertnstert.2016.01.013>
- OUP Academic. (2011, November 16). Determinants of children's eating behavior.
- RE Walker. (2010, April 24). Disparities and access to healthy food in the United States: A review of food deserts literature.
- Samoggia, A., & Riedel, B. (2020). Assessment of nutrition-focused mobile apps' influence on consumers' healthy food behaviour and nutrition knowledge. *Food Research International*, 128, 108766. <https://doi.org/10.1016/j.foodres.2019.108766>
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach* (7th ed.). John Wiley & Sons.

- Story, M. (2022, January 6). Creating healthy food and eating environments: Policy and environmental approaches.
- Trafimow, D., & Finlay, K. A. (1996). The importance of subjective norms for a minority of people: Between-subjects and within-subjects analyses.
- Vettori, V., Lorini, C., Milani, C., & Bonaccorsi, G. (2019). Towards implementing a conceptual framework of food and nutrition literacy: Providing healthy eating for the population. *International Journal of Environmental Research and Public Health*, 16(24), 5041. <https://doi.org/10.3390/ijerph16245041>

Research Article

The Relationship between Emotional Stability and Student Engagement among Universiti Malaysia Kelantan Students

Sharmita Ravindran, Muhamad Izzudin Abd Manaf, Nur Hidayah Mohd Amin Rowa @
Ismail, Siti Nur Naseerah Mohd.Nawi & Mohd Hakam Nazir*

Faculty of Hospitality, Tourism and Wellness, Universiti Malaysia Kelantan
Corresponding email: hakam.n@umk.edu.my

Journal of Hospitality, Tourism &
Wellness Studies
Vol. 2 (1) pp 76-90
© The Author(s) 2025
Submit date: 10 January 2025
Accept date: 11 February 2025
Publish date: 31 March 2025

ABSTRACT

Emotional stability is one of the important indicators of mental health. Positive attitudes and a deep awareness of the benefits of consistent physical activity on one's health may also result from quality engagement. However, on the other hand, student engagement has a negative impact and one of which is emotional instability. The objective of this study is to identify the relationships between optimism, calm, tolerance, autonomy, empathy, and student engagement. This study was conducted using a quantitative research approach. A total of 371 respondents have participated in this study which involved active undergraduate students at Universiti Malaysia Kelantan namely City Campus, Bachok Campus, and Jeli Campus. Furthermore, the most significant factor is optimism which achieved the highest value. Implications and recommendations were provided for future researchers in line with the study.

Keywords: Optimism, Calm, Tolerance, Autonomy, Empathy, Student Engagement

INTRODUCTION

This chapter will discuss the relationship between emotional stability and student engagement among Universiti Malaysia Kelantan students. This chapter begins with an introduction to chapter 1 and then explains the background of the study. Furthermore, chapter 1 also discusses about problem statement and why this research must be conducted. Besides, chapter 1 also explains and discusses the research objective and research question. Next, this chapter will continue with the significance of the study and the definition of the term. Lastly, chapter 1 will end with the summary or conclusion of the topic which is the relationship between emotional stability and student engagement among students in Universiti Malaysia Kelantan.

Previous studies have shown that student engagement is related to performance improvement (Manlunas, 2021). Intrinsically engaged students are motivated to invest in learning, attend

classes, and participate in learning activities. They are curious, ask questions, and enjoy learning challenges. Active and dedicated students are enthusiastic about their studies, and it is very important to make them successful. Good performance will further increase the marketability among employers to hire students. Finally, student engagement was also influenced by emotional stability. Stable emotions will result in a successful and great performance. Students who have an attitude of optimism, and high tolerance are students who have no problem involving themselves in various activities.

The restrictions imposed as a result of the COVID-19 pandemic have created difficulties and hardships in the daily lives of human beings, especially students. One of the important foundations in health that should be considered is the mental as well as emotional well-being of students. Stress is undoubtedly the most significant obstacle to a student's overall performance as students will experience more stress than ever before. Unstable emotions will have a profound effect on oneself as the student will lose focus on his or her involvement as a student. Previous studies have stated that calm students are individuals who are not confronted with high and extreme emotions and passions. Instead, they exhibit calmness and display a stress-free character. Stress in the academic context challenges students in the way they deal with and handle it daily. Each student handles different kinds of stress that were caused by different factors such as personal factors, financial difficulties, and low grades. Emotional stability is also a major factor in developing management skills in various fields for students in higher education. These emotions, if controlled, can be a useful asset in a student's development and engagement.

In this study, researchers use several methods such as data collection procedures, research instruments, and data analysis to obtain information from respondents related to emotional stability and student engagement among students of Universiti Malaysia Kelantan. The sampling snowball method was used to obtain information from respondents from the three UMK campuses, namely City Campus, Bachok Campus, and Jeli Campus. The results of data analysis collected from 371 respondents on the administered survey are discussed in this study. Satisfied Pilot study results from 30 respondents have made the researchers decided to continue the study with the actual study. It was found that UMK students are emotionally calm, and this will further increase student engagement.

Finally, the researcher has discussed and explained the results of the analysis in the past which will be discussed further in the final chapter namely the objectives of the study, research questions, and hypotheses. Since this is the last chapter of the report, implications, limitations, and recommendations for future study are also included. Finally, at the end of this chapter, the researchers will conclude this study. There are five objectives of this research:

1. To identify the relationship between optimism and student engagement among Universiti Malaysia Kelantan students.
2. To determine the relationship between calm and student engagement among Universiti Malaysia Kelantan students.
3. To determine the relationship between tolerance and student engagement among Universiti Malaysia Kelantan students.
4. To identify the relationship between autonomy and student engagement among

Universiti Malaysia Kelantan students.

5. To examine the relationship between empathy and student engagement among Universiti Malaysia Kelantan students.

Significance of the Study

Lecturers/Educators

The results of this study can be used by lecturers to know the relationship between emotional stability and student engagement at Universiti Malaysia Kelantan. Lecturers also play an important role in providing advice and guidance and counselling if students experience any problems. It is to reduce the stress faced by the students. The lecturer is also responsible as a shaper of the noble personality of the students during the teaching period. The lecturer is the mainstay of the teaching and learning process that takes place in the education system. When students can adapt to a pleasant learning environment, they are more likely to accept the knowledge imparted by lecturers. As a result, efficient learning occurs when students enjoy themselves while learning. Lecturers, students, and materials are the three aspects of learning that must be prioritized. There will be successful learning when the three aspects interact with one another. A lecturer's profession entails more than simply imparting knowledge to students.

University Students

Anxiety and terror set prohibit students from carrying out their responsibilities. But when students' emotions are stable, they can stay focused no matter how challenging things may be. University students are able to prevent their emotions by controlling themselves and remain in control. Students can also think and analyse situations better as well as allow students to easily find solutions. Emotional stability can keep university students from drowning in negative thoughts and on the other hand, can help them maintain an optimistic view and optimism for the future. The involvement of students in activities organised by the university is able to shape the personality of students as a whole. This can be highlighted through excellent co-curricular and academic management. Academic management plays a major role in the success of such engagements. The implementation of management is based on the objectives and abilities of students to improve the knowledge, skills, and values learned.

Parents

In the family institution, parents are the closest individuals to the children, and the development of the children is patterned from birth to adulthood. Parental involvement in the discussion, communication, and care was found to have a positive effect on student involvement in various aspects. Parents can increase a child's learning commitment and stimulate their interest by accompanying the child during their study time. Actions taken by parents can stabilize children's emotions and increase student engagement in various aspects such as lessons.

Ministry of Higher Education (MOHE)

Psychological support services from the Ministry of Higher Education are also provided for students to assist in the management of students' emotional and mental health. MOHE can also provide counsellor guidance, mental health care posters, videos, and emotional management tips through social media. MOHE can also provide various interesting activities to take advantage of students' free time. Various competitions such as e-sports, creative videos, casual preaching videos, and creative photography. With various initiatives and assistance from the Ministry of Higher Education as well as the management, students do not have to worry.

LITERATURE REVIEW

Student Engagement

Student engagement means when students are learning or being taught, they show a high level of attention, curiosity, enthusiasm, optimism, and passion, which extends to their motivation to learn and develop in their education (Lane & Smith, 2021). Emotional engagement means concentrating on the magnitude and character of positive and negative responses to teachers, classmates, academics, and school, (Lane & Smith, 2021). Students are more likely to achieve academically, create a deeper feeling of connection at school, and have a more positive sense of social-emotional well-being when students demonstrate high levels of behavioural, emotional, and cognitive engagement (Barkley & Major, 2020).

Emotional Stability

Emotional stability is essential for the growth and development of education and lecturers should educate students on how to manage, maintain and develop their emotions because emotions are present in all activities and are key drivers of cognition and behaviour, (Schonert-Reichl, 2017). Emotional stability is the ability to retain emotional balance in the face of adversity. Emotionally stable people are able to cope with little pressures and strains in everyday life without feeling upset, apprehensive, nervous, tense, or angry (Abdel-Fattah, 2020).

Optimism

Optimism is a positive mental state marked by optimism and confidence in one's ability to succeed and have a bright future. Optimists believe that good things will happen, whilst pessimists believe that bad things will happen. Optimistic attitudes are associated with a variety of advantages, including improved coping abilities, lower stress levels, improved physical health and greater goal tenacity (Jiang, Yue, Lu, Yu, & Zhu, 2016). People with the trait of optimism are always positive about everything that happens. Positive relationships between optimism and physical and mental well-being have been discovered in studies (Eagleton, 2019).

Calm

Calm is a mental state of calmness that is devoid of agitation, excitement, or disruption. Being in a state of serenity, quiet, or peace is also referred to as calm (Adolphs & Anderson, 2018). Calmness is most easily detected during a state of relaxation for the average person, although it may also be found during much more alert and aware states (Huberty et al., 2019). Calmness is a charger for mental intelligence. Staying calm is tough but it matures us. It allows us to consider both the good and bad aspects and select the best option (Heikkilä et al., 2018).

Tolerance

Tolerance is partly considered different. Some people consider that tolerance is an interpersonal virtue that takes into account the current state of society and some people consider that some society is neglected (Aziz, 2020). It discusses that this concept of tolerance is unfair between two parties as powerful groups allow less powerful groups to determine the differences in beliefs and lifestyles (Forst, 2017). It discusses that this concept of tolerance is unfair between two parties as powerful groups allow less powerful groups in determining differences in beliefs and lifestyles (Forst, 2017).

Autonomy

It is widely understood that autonomy is the state in which a person can decide the creation, expression, and execution of thoughts, ideas, and actions for himself or herself (Frischmann, 2018). However, autonomy is also meant as a mixture between human support, personal rights, and responsibilities by looking at a person from a short-term perspective and a long-term perspective (Güldenpfennig, Mayer, Panek, & Fitzpatrick, 2019). According to Lamanna and Byrne (2018), autonomy refers to the internal process of evaluating all possible decisions, goals, and values for the individual.

Empathy

According to Batson (2017), empathy is an important attitude that demonstrates the ability of a person to understand the inner feelings of others by responding in a caring way to the individual. Empathy is defined as a cognitive trait that is understanding someone and conveying something to help someone by involving feelings of concern (Hojat, DeSantis, & Gonnella, 2017). An individual with high-level of empathy uses the information to alleviate the suffering of others and prevent themselves from harmful behaviour while behaviourists with low levels of empathy are unable to understand the notice and cannot use the information to guide their behaviour (Murphy & Lilienfeld, 2019).

Research Hypothesis

Based on the literature review that has been explored, the hypothesis of this study are outlined as follows: -

- H1 There is a relationship between optimism and student engagement among Universiti Malaysia Kelantan students.
- H2 There is a relationship between calm and student engagement among Universiti

Malaysia Kelantan students.

H3 There is a relationship between tolerance and student engagement among Universiti Malaysia Kelantan students.

H4 There is a relationship between autonomy and student engagement among Universiti Malaysia Kelantan students.

H5 There is a relationship between empathy and student engagement among Universiti Malaysia Kelantan students.

Research Framework

A research framework has been developed to investigate the relationship between emotional stability and student engagement among students at University Malaysia Kelantan. The dependent variable is student engagement, while the independent variables include emotional stability, optimism, calm, tolerance, autonomy, and empathy. Figure 1 below shows the research framework used for this study.

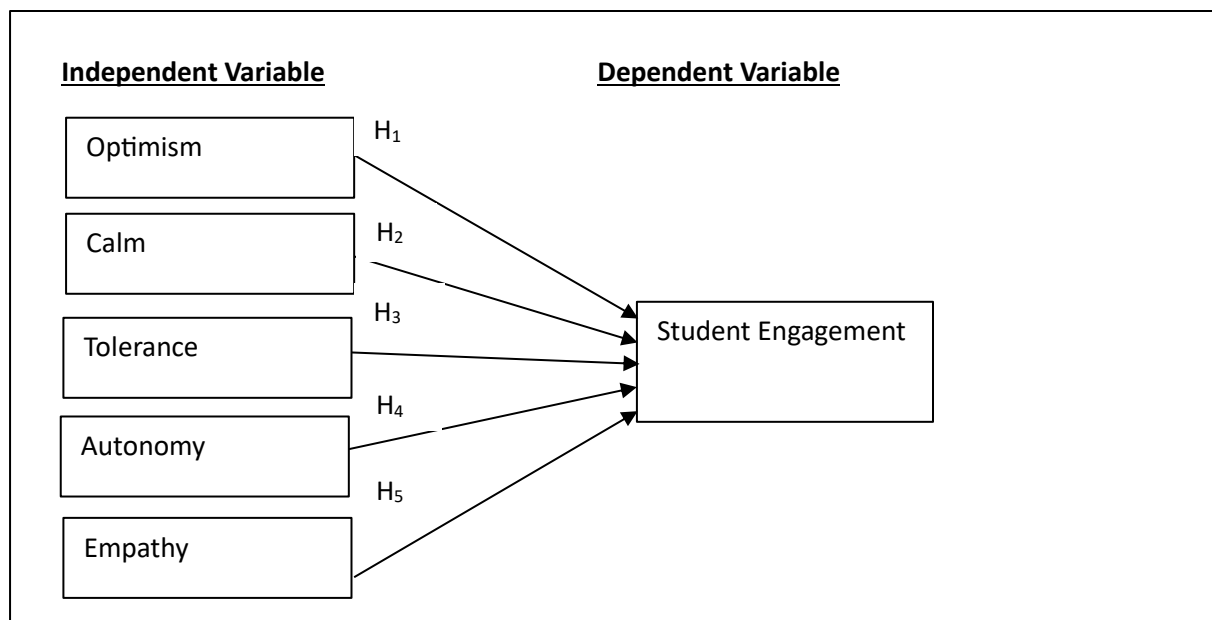


Figure 1: Research Framework

METHODOLOGY

Research Design

This research used a quantitative method to gain data through a set of questionnaires. The questionnaires were designed in bilingual (English and Malay). The quantitative technique was attempting to measure the variables in the study and then look for a relationship between them. The questionnaire consisted of 3 sections, a total of 46 items. The first section which is the demographic profile is consisted of five multiple-choice questions. The second and third sections on independent variables and dependent variables included 41 items with a four-point Likert scale ranging from 1=strongly disagree to 4=strongly agree. The questions were adapted from previous studies titled The Effect of Duration of Social Media Usage on Emotional

Stability in Undergraduate Students. Therefore, the instrument is considered reliable (Setyawan, 2016).

Data Collection

Pilot testing was conducted among 30 students from Universiti Malaysia Kelantan, with students from City Campus, Bachok Campus, and Jeli Campus had participated in the pilot study to test the reliability of the instrument. The fieldwork was then proceeded by distributing questionnaires randomly to 371 target respondents who answered online survey questions via Google Forms. After all the questionnaires were answered by the respondent, the data is collected. This study uses the snowball technique through an online platform which would save the researcher's cost, time, and energy to get the data.

Sampling

This study used non-probability sampling, more specifically purposive sampling as a sampling method to collect the data. The data is a straightforward probability sampling strategy. To obtain the most appropriate sample size for this study, the researchers used Krejcie and Morgan (1970) equation to determine the sample size.

$$n = \frac{x^2 N p (1 - p)}{e^2 (N - 1) + x^2 p (1 - P)}$$

n = sample size

N = population size

e = the degree of accuracy expressed as proportion (0.05)

x^2 = chi-square of degree of freedom 1 and confidence 95% (3.841)

p = proportion of population (if unknown, 0.5)

Table 1: The Number of Students in Universiti Malaysia Kelantan

Campus of Study	Number of Students
City Campus	6471
Bachok Campus	2648
Jeli Campus	2275

Source: Academic Administration Division of Universiti Malaysia Kelantan.

Data Analysis

SPSS version 26.0 was used to analyse the data namely descriptive analysis, reliability analysis, and Pearson correlation analysis. The collected data were analysed by using Statistical Package for the Social Sciences (SPSS) to show the relationships between the dependent variable and the independent variables as a set of statistical processes that helps the researchers in determining the best statistical technique to be used.

FINDINGS

Demographic Analysis

Table 2: Demographic Analysis (n=371)

Characteristics	Frequency (N)	Percentage (%)
Gender		
Male	129	34.8
Female	242	65.2
Age		
19-21 Years Old	90	24.3
22-24 Years Old	243	65.5
25 Years and Above	38	10.2
Race		
Malay	276	74.4
Chinese	26	7.0
Indian	67	18.1
Others	2	0.6
Campus of study		
City Campus	211	56.9
Bachok Campus	100	27.0
Jeli Campus	60	16.2
Faculty of Study		
FKP	79	21.3
FHPK	113	30.5
FPV	12	3.2
JSD	15	4.0
FTKW	62	16.7
FAE	22	5.9
PBI	7	1.9
FIAT	27	7.3
FSB	16	4.3
FBKT	18	4.9

Out of 371 respondents, the majority of the respondents are females, which accounted for 65.2% of the total sample. In terms of the respondents' age, 24.3% of them are 19 to 21 years old, 65.5% are 22 to 24 years old and 10.2% of them are 25 years and above. Meanwhile, in terms of race, the majority are Malay with 74.4%, followed by "others" with 0.6%, Chinese with 7.0%, and Indian with 18.1%. As for the campus of study, out of 371 respondents, 56.9%, 27.0% and 16.2% of the respondents are from City campus, Bachok campus and Jeli campus, respectively. In terms of the faculty involvement, most of the respondents was from FHPK students, followed by FKP and FTKW, 30.5 %, 21.3% and 16.7%, respectively. There was

relatively lower participation from other faculties such as FPV, JSD, FAE, FIAT, FSB AND FBKT (3.2%,4.0%, 5.9%, 7.3%, 4.3% and 4.9%, respectively. PBI students were the least to be involved in this study, 1.9%).

Descriptive Analysis

Table 3: Descriptive Analysis

Variable	Items	Mean Score	Standard Deviation
Optimism	I am satisfied with myself	3.49	0.71
	I consider that obstacles in achieving a goal as positive challenges	3.49	0.56
	I dare to take risk to try new thing	3.39	0.64
	I feel like I always have good luck	3.22	0.85
	I do not need support from others to solve my problem	2.94	1.04
Calm	I am able to study well under pressure	3.33	0.79
	I can still feel calm even when the people around me are panic	3.10	0.88
	I can still feel calm even when I do not do my assignments	2.78	1.06
	I am not worried even if I have a lot of problems in my studies	2.73	1.06
	I have no problem to sleep at night because I am not worried about my future	2.81	1.07
Tolerance	I have a lot of friends	3.39	0.78
	I am ready to sacrifice my vacation time if I need to help a friend who needs my help	3.38	0.63
	I can tolerate if there is a sudden change occurs	3.32	0.67
	I do not easily get upset if I need to drive in congested road situation	3.22	0.80
	I will forgive those who have wronged me	3.40	0.68
Autonomy	In general, I can make my own decision without the help of other people's opinions	3.25	0.76
	I am brave and highly confident	3.29	0.79

	to study alone		
	I enjoy my freedom to express myself	3.44	0.66
	I have no problem in receiving instruction as long as it is clear	3.46	0.65
	I do not blame others when I fail in my studies	3.47	0.59
Empathy	I will give my seat in public transportation to those who are in needs	3.64	0.52
	When an accident happens in front of me, I will immediately help	3.42	0.62
	I am willing to listen to all problems faced by my friend	3.41	0.61
	I will motivate my friends when they feel down	3.49	0.58
	I will not avoid friends who like to ask for my help	3.43	0.61
Student Engagement	I do not get in trouble at university	3.23	0.88
	I pay attention in class	3.32	0.68
	I complete my assignments on time	3.45	0.68
	I like being at university	3.26	0.76
	My online class is a fun place to be	3.26	0.85
	I do not feel bored at university	3.23	0.78
	I check my assignment's mistakes	3.49	0.67
	I do my revision even when I do not have test	3.06	0.91
	I read the revision notes to find out more about the things I do at the university	3.14	0.89

Table 3 shows the mean and standard deviation for 25 statements under five independent variables and 9 statements under the dependent variable based on the survey involving 371 respondents. The highest mean value for optimism was obtained by question 2 with 3.49, where the respondents agreed that “I consider obstacles in achieving a goal as positive challenges”. The lowest mean value belonged to question 5 with 2.94, where the respondents agreed that “I do not need support from others to solve my problem”. Next, the highest mean value for calm was obtained by question 1 with 3.33, where the respondents agreed that “I am able to study well under pressure”. The lowest mean value belongs to question 4 with 2.73, where the respondents agreed that “I am not worried even if I have a lot of problems in my studies”.

Furthermore, the highest mean value for tolerance was obtained by question 5 with 3.40, where the respondents agreed that “I will forgive those who have wronged me”. The lowest mean value belonged to question 4 with 3.22, where the respondents agreed that “I do not easily get upset if I need to drive in congested road situation”. Besides, the highest mean value for autonomy was obtained by question 5 with 3.47, where the respondents agreed that “I do not blame others when I fail in my studies”. The lowest mean value belongs to question 1 with 3.25, where the respondents agreed that “I can make my own decision without the help of other people’s opinions”. Lastly, the highest mean value for empathy was obtained by question 1 with 3.64, where the respondents agreed that “I will give my seat in public transportation to those who are in needs”. The lowest mean value belonged to question 3 with 3.41, where the respondents agreed that “I am willing to listen to all problems faced by my friend”. Next, the highest mean value for the dependent variable was obtained by question 7 with 3.49, where the respondents agreed that “I check my assignment’s mistakes”. The lowest mean value belongs to question 8 with 3.06, where the respondents agreed that “I do my revision even when I do not have a test”.

Mean Score of Emotional Stability and Student Engagement

Table 4: Optimism, Calm, Tolerance, Autonomy, Empathy and Student Engagement among UMK students

Variables	Mean Score (SD)
Optimism	3.31 (0.59)
Calm	2.95 (0.81)
Tolerance	3.34 (0.53)
Autonomy	3.38 (0.52)
Empathy	3.48 (0.46)

Table 4 shows the mean and standard deviation for five independent variables. The mean for optimism, tolerance, autonomy and empathy in emotional stability was the highest among UMK students and the lowest mean for emotional stability among UMK students was calm. The highest mean value for the independent variable was empathy with 3.48 and the lowest mean for the independent variable is calm with 2.95. Factors that lead to high empathy resulting in emotional stability are the influence of good friends and adequate religious upbringing from parents (MB Berryhill, C Harless, P Kean, 2018). The factor that led to low calm results in emotional stability was the use of auxiliary materials. Teaching is very uninteresting for them to stay focused in class (B Flunger, A Mayer, N Umbach, 2019).

Reliability Analysis

Table 5: Reliability Analysis

Variables	Number of Items (N)	Cronbach’s Alpha
Student Engagement	9	0.885
Optimism	5	0.813

Calm	5	0.889
Tolerance	5	0.799
Autonomy	5	0.806
Empathy	5	0.836

Table 5 shows the reliability analysis of the student engagement and five variables. The reliability Cronbach's alpha coefficient value for student engagement also gained (0.885) which indicates that it is questionable. However, the reliability Cronbach's alpha for the independent variable are optimism (0.813), calm (0.889), tolerance (0.799), autonomy (0.806) and empathy (0.836) which scored the highest indicating a very excellent level of reliability. The questionnaires were very trustworthy, and responders understood each item well, as the Cronbach's alpha charge for the variable was greater than 0.7. As a result, the investigation can continue.

Pearson Correlation Analysis

Table 6: Pearson Correlation Analysis

Independent Variables	P-Value	r-Value
Optimism	0.74	0.74
Calm	0.65	0.64
Tolerance	0.71	0.73
Autonomy	0.71	0.72
Empathy	0.55	0.60

Table 6 shows the Pearson Correlation analysis of student engagement and five variables. The Pearson Correlation for independent variables were optimism (0.74), calm (0.65), tolerance (0.71), autonomy (0.71) and empathy are (0.55). According to the results, the significant value of optimism, calm, tolerance, autonomy, and empathy was above 0.05 and the p-value was under 0.05. Thus, the alternative hypothesis is accepted, and the null hypothesis is refused. It shows there is a significant relationship between optimism, calm, tolerance, autonomy, empathy, and student engagement among students in Universiti Malaysia Kelantan. Thus, all the hypotheses (H1, H2, H3, H4 and H5) stated are accepted.

DISCUSSIONS

According to the results obtained, the emotional stability of UMK students is very good. The values of emotional stability such as optimism, empathy, tolerance, and autonomy from UMK students are exceptional. Meanwhile, the calm value obtained is low. This may be because UMK students are always stressed or restless when on campus. This may also be due to the attitude of UMK students who like to do last-minute assignments. As a result, student engagement will be affected.

This timely study answered five research objectives. Referring to the results of the study, the Emotional Stability of UMK students is in good condition because they are highly confident,

enthusiastic in any involvement, positive thinking, always improve themselves in assignments, and are calm in facing the challenges throughout the learning process. This emotional stability will have a positive effect on the academic performance of UMK students. The results of this study revealed that various factors can contribute to the excellent academic performance of UMK students. In most studies, students with high levels of emotional stability were preferred because they had more control over their emotions while learning. Due to deadlines, personal issues, and stress, students with low emotional stability may be more easily side-lined from their studies. Emotions are physical and instinctual, causing immediate physical responses to threats, rewards, and everything in between. Pupil dilation (eye-tracking), skin conductance (EDA/GSR), brain activity (EEG, fMRI), heart rate (ECG), and facial expression can all be used to objectively measure biological responses (R McDermott, 2019).

Moreover, if students experience this emotional instability, it is often associated with mental health problems because students involved will experience fatigue, depression, stress, chronic anxiety, and a lower quality of life. Emotional instability can also affect the academic performance of UMK students. Indirectly, the academic performance of UMK students is deteriorating due to lack of sleep, stress on assignments, and many more. Based on a previous study from Ahrberg et al. (2012) sleep quality is important because it can affect academic performance. Stress, chronic anxiety, and lack of sleep quality can negatively impact student engagement.

RECOMMENDATIONS

The recommendation is that when students have enough time and money, future researchers may be able to collect data on different campuses based on the differences in the courses registered. This is because future research will be able to collect data from all campuses and use the resources available at universities to acquire information and analyse it efficiently. Because the amount of stress experienced changes depending on the type of learning that has been recorded. Data collection is important at university because it provides insight on where to invest time, money, and resources, evaluate the use of campus buildings, services, and facilities, monitor the success of classes and other campus programs, manage, and collect student applications and others (P Sahu, 2020).

CONCLUSION

In conclusion, this study has been conducted to discover the emotional stability and student engagement among Universiti Malaysia Kelantan students. Five independent variables, namely optimism, calm, tolerance, autonomy, and empathy have been chosen to examine their relationships with the dependent variable, which is the student engagement among Universiti Malaysia Kelantan students. The mean for optimism, tolerance, autonomy and empathy in emotional stability is the highest among UMK students and the lowest mean for emotional stability among UMK students is calm. The highest mean value for independent variable is empathy with 3.48 and the lowest mean for independent variable is calm with 2.95. The reliability Cronbach's alpha for independent variables are optimism (0.813), calm (0.889), tolerance (0.799), autonomy (0.806) and empathy (0.836) scored the highest which indicates a very excellent level of reliability. The significant value of optimism, calm, tolerance, autonomy

and empathy is above 0.05 and p-value is under 0.05. Thus, alternative hypotheses is accepted and the null hypothesis is refused. It shows that there is a significant relationship between optimism, calm, tolerance, autonomy, empathy and student engagement among students in Universiti Malaysia Kelantan.

REFERENCES

- Abdel-Fattah, H. (2020). Emotional intelligence and emotional stability in crises. *Journal of Psychiatry and Psychiatric Disorders*, **4**, 56–62.
- Adolphs, R. A. (2018). *The neuroscience of emotion: A new synthesis*. Princeton University Press.
- Ahrberg, K. (2012). The interaction between sleep quality and academic performance. [Institution/Publisher missing].
- Annistry, M. A. (2020). The effect of duration of social media usage on emotional stability in undergraduate students. In *The 2nd Tarumanagara International Conference on the Applications of Social Sciences and Humanities (TICASH 2020)* (pp. 1110–1116). Atlantis Press. <https://doi.org/10.2991/assehr.k.201209.178>
- Aziz, E. A. (2020). Toleransi berprinsip menurut kerangka Maqasid Shari'ah dalam interaksi masyarakat pelbagai kaum dan agama di Malaysia. *Jurnal Dunia Pengurusan*, **2**(2), 19–26.
- Barkley, E. F. (2020). *Student engagement techniques: A handbook for college faculty* (2nd ed.). Jossey-Bass.
- Batson, C. D. (2017). The empathy–altruism hypothesis: What and so what. In E. M. Seppälä, E. Simon-Thomas, S. L. Brown, M. C. Worline, C. D. Cameron, & J. R. Doty (Eds.), *The Oxford handbook of compassion science* (pp. 27–40). Oxford University Press.
- Berryhill, M. B., Halliwell, C. H., & Gannon, R. L. (2018). Cohesive-flexible family functioning and mental health: Examining gender differences and the mediation effects of positive family communication and self-compassion. *Journal of Child and Family Studies*, **27**, 1062–1072.
- Flunger, B., & Meyer, A. (2019). Beneficial for some or for everyone? Exploring the effects of an autonomy-supportive intervention in the real-life classroom. *Contemporary Educational Psychology*, **59**, 101784.
- Forst, R. (2017). Toleration and its paradoxes: A tribute to John Horton. *Philosophia*, **45**, 415–424. <https://doi.org/10.1007/s11406-017-9931-4>
- Frischmann, B., & Selinger, E. (2018). *Re-engineering humanity*. Cambridge University Press.
- Güldenpfennig, F., & Prilla, M. (2019). An autonomy-perspective on the design of assistive technology experiences of people with multiple sclerosis. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (pp. 1–14). <https://doi.org/10.1145/3290605.3300756>
- Heikkilä, P., & Heikkilä, H. (2018). Quantified factory worker—Expert evaluation and ethical considerations of wearable self-tracking devices. In *Proceedings of the 22nd International Academic Mindtrek Conference* (pp. 50–57). <https://doi.org/10.1145/3275116.3275134>
- Hojat, M., & Gonnella, J. S. (2017). Patient perceptions of clinician's empathy: Measurement and psychometrics. *Journal of Patient Experience*, **4**(2), 78–83. <https://doi.org/10.1177/2374373517699265>

- Huberty, J., Green, J., Glissmann, C., Larkey, L., Puzia, M., & Lee, C. (2019). Efficacy of the mindfulness meditation mobile app “Calm” to reduce stress among college students: Randomized controlled trial. *JMIR mHealth and uHealth*, 7(6), e14273. <https://doi.org/10.2196/14273>
- Irene, V., & Manlunas, B. V. (2021). Investigating students' emotional stability as a predictor of stress management while engaging in flexible online learning during COVID-19. [Journal/Publisher info missing].
- Jiang, F., Yue, X., Lu, S., Yu, G., & Zhu, Y. (2016). How belief in a just world benefits mental health: The effects of optimism and gratitude. *Social Indicators Research*, 126(1), 411–423. <https://doi.org/10.1007/s11205-015-0887-2>
- Lamanna, C. L., & Byrne, E. (2018). Should artificial intelligence augment medical decision making? The case for an autonomy algorithm. *AMA Journal of Ethics*, 20(9), 902–910. <https://doi.org/10.1001/amajethics.2018.902>
- Lane, R. D. (2021). *Levels of emotional awareness: Theory and measurement of a socio-emotional skill* (2nd ed.). Oxford University Press.
- McDermott-Roe, C. (2019). Investigation of a dilated cardiomyopathy-associated variant in BAG3 using genome edited iPSC-derived cardiomyocytes. [Journal or thesis information missing].
- Murphy, B. A., Lilienfeld, S. O., & Skeem, J. L. (2019). Are self-report cognitive empathy ratings valid proxies for cognitive empathy ability? Negligible meta-analytic relations with behavioral task performance. *Psychological Assessment*, 31(8), 1062–1074. <https://doi.org/10.1037/pas0000739>
- Sahu, P. (2020). Closure of universities due to coronavirus disease 2019 (COVID-19): Impact on education and mental health of students and academic staff. *Cureus*, 12(4), e7541. <https://doi.org/10.7759/cureus.7541>
- Schonert-Reichl, K. A. (2017). Social and emotional learning and teachers. In E. M. Seppälä et al. (Eds.), *The Oxford handbook of compassion science* (pp. 137–155). Oxford University Press.
- Setyawan, M. (2016). Hubungan antara durasi penggunaan media sosial dengan kestabilan emosi pada pengguna media sosial usia dewasa awal. [Undergraduate thesis, Sanata Dharma University].

Research Article

Effect of Sleep Deprivation on Academic Performance Among Wellness Students at Universiti Malaysia Kelantan

Siti Farhannis Binti Mohd Nor, Yashotharini A/P Ramasamy, Nurul Izzati Binti Che Nen,
Nurlidya Athirah Binti Kamarudin & Mohd Hafzal Bin Abdul Halim*

Faculty of Hospitality, Tourism and Wellness, University Malaysia Kelantan
Corresponding email: hafzal@umk.edu.my

Journal of Hospitality, Tourism &
Wellness Studies
Vol. 2 (1) pp 91-103
© The Author(s) 2025
Submit date: 10 January 2025
Accept date: 11 February 2025
Publish date: 31 March 2025

ABSTRACT

Many factors contribute to sleep deprivation including assignment responsibilities, tutorials, quizzes, and tests. University students are more prone to experience sleep deprivation. As a result, understanding the effects of sleep deprivation on academic performance is critical. This study aims to identify the effect of sleep deprivation on mental health, physical health, and social life that significantly impact students' academic performance. This study was conducted using a quantitative research approach to determine the effect of sleep deprivation on academic performance among UMK, Kampus Kota 3rd Year Wellness, and FHPK students. A total of 118 respondents have participated in this study. Based on data analysis and findings, sleep deprivation is the highest mean value followed by mental health, physical health and, lastly, social life.

Keywords: Sleep Deprivation, Academic Performance, Mental Health, Physical Health & Social Life.

INTRODUCTION

Sleep deprivation can be defined based on the duration of sleep and the total time a person uses to sleep. Nowadays, sleep deprivation is the most common issue among university students in Malaysia. This issue also happened in many international countries such as China, Taiwan, Hong Kong, Thailand, India, and Pakistan (Aznan, S.R, 2020). Recently, a high tendency of sleep deprivation has been seen among about 1017 undergraduate students in Malaysia. There were nearly evenly balanced percentages of females (51.0%) and males (49.0%), and the frequency of sleep deprivation was 58.1% (Low, W.Y 2021). Sleep deprivation is essential in every person's daily activity. Sleep lets individuals become more conscious of their

surroundings and allows them to use their thoughts to the most incredible ability. Unfortunately, sleep deprivation can affect their behaviour and thinking functions in several aspects. The sleeping matter among university students is often irregular in both duration and timing, with suffering from significant sleep deficiency 1-5. According to university students' statements, they have a worse value of sleep, contradictory sleep timetables, and sleep deprivation than the standard population.

According to Yusuf Patrick et al. (2016), sleep deprivation is common among university students who live in an environment that encourages less sleep due to academic stress. According to the same report, architecture students obtain an average of 5.7 hours of sleep per night and suffer sleepless evenings due to late-night academic work. Although the causes and effects of sleep deprivation on academic performance are not discussed in this study, the results indicate the causes and consequences of sleep deprivation on academic performance. This study investigates how sleep deprivation affects academic performance among Wellness students in Year 3 at Universiti Malaysia Kelantan, Kampus Kota. There are three objectives of this research:

1. To investigate the level of sleep deprivation in physical health and academic performance among Wellness students in year 3.
2. To investigate sleep deprivation in mental health and academic performance among Wellness students in year 3.
3. To investigate the level of sleep deprivation in social life and academic performance among Wellness students in year 3.

Significance of the study

This study would help researchers to better understand sleep deprivation among university students. The researcher tries to discover the effect of sleeping deprivation on academic performance among Wellness students, Year 3 in Universiti Malaysia Kelantan, Kampus Kota. Therefore, in the future university students can refer to this study to learn about the effects of sleeping deprivation, they can then manage their time and sleep quality. This study also provides university students with knowledge about the significant sleeping impacts deprivation on physical, mental, mental health, and social life. The benefit of this study is that students can lower their risk for serious mental health problems, like stress and depression, think more clearly and do better in academics. Another benefit of this study is that Kementerian Pendidikan Tinggi (KPT), Counseling Unit and Hal Ehwal Pelajar Akademik Universiti Malaysia Kelantan (HEPA UMK) can reduce the percentage of students who have mental health, physical health and each other caused by sleep deprivation. Parents will also feel happy when seeing their child is healthy and has no sleep deprivation problems. The result of this study can also give awareness about sleep deprivation.

LITERATURE REVIEW

Mental Health

The three components of mental health are stress, depression, and anxiety. Mental health refers to a person's capacity to adapt to everyday obstacles, work successfully and productively, and contribute to their community (Silvana, Andreas, Marianne, Julian, and Norman, 2015). However, the biological events that occur when an organism undergoes a challenge, as well as the attempt to restore homeostatic levels, have been investigated by researchers (Barton, 1997). One of the most crucial variables affecting students' academic performance is stress (Salam et al., 2014). Depression is one of the most common mental disorders and a leading cause of disability and lower life satisfaction among the elderly (Skoog, 2011). Depression is defined by core symptoms of emotional reactivity, inverted vegetative symptoms such as increased hunger or weight gain, hypersomnia, leaden paralysis, and a long-term pattern of severe rejection sensitivity (Berman et al., 1998). One of the most significant elements of psychoanalytic is anxiety. It has a significant impact on both the development of personality and the dynamics of personality functioning.

Physical Health

It is a "genetic exercise" to maintain physical health. A person's ability (physical preparation) has undergone suitable alterations to the external environment and changing conditions of living activities throughout their life in the process of morphological and functional adaptation (physical development) (Leberdinsky et al., 2017). Insomnia, circadian rhythm and obstructive sleep apnea are three components of physical health. Sleep deprivation is thought to be influenced by three variables. Insomnia has been shown to have a significant impact on sleep deprivation. This statement holds regardless of one's level of health. One of the essential components in sleep regulation is the circadian rhythm, an endogenous rhythm that regulates a wide range of physiological functions. According to Kim & Duffy (2018), to be maintained synchronized with external clock time, the circadian system of the average adult must be reset approximately 10 minutes earlier each day, and if it is not, the circadian system may become out of sync with external clock time. Obstructive sleep apnea (OSA) leads to oxygen desaturation, sympathetic activity, and recurrent arousals due to the upper airway repeatedly collapsing during sleep. According to several studies, OSA is correlated with a high frequency of illness and death and hypertension, cardiovascular disease, insulin resistance, diabetes mellitus, and neurocognitive impairment. (Geoffroy, Micoulad Franch, et al., 2019).

Social Life

Social life is part of a person's time spent interacting in enjoyable activities with others. Sleep deprivation causes problems in everyday life, such as strained relationships, poor academic performance, and changes in behaviour. Inadequate sleep diminishes attentiveness and energy levels during the day, making it more difficult for students to adapt to academic and extracurricular schedules. According to the study, sleep deprivation is common among university students who live in a culture that encourages less sleep due to the pressures of

academic tasks and social activities. (Patrick. Y, 2017). This section will explore the research from the theoretical models presented previously. When people do not have enough sleep, they get viral loneliness and social rejection, spreading like a virus. According to a study, sleep-deprived people, according to studies, feel lonelier and unwilling to interact with others, avoiding human interaction in the same manner that people with social anxiety do. According to research, students who are sleep deprived are more likely to fall asleep in class or skip lessons (CHEN, W., 2019). Sleep deprivation can also lead to changes in behaviour. According to a study available in the journal Nature Communications, sleep-deprived individuals felt lonelier and not as much of friendly with others. Well-rested persons who witnessed sleep-deprived people thought they were more lonely and less socially attractive.

Sleep Deprivation

Academic performance is influenced by sleep. Previous research has linked shorter sleep duration and worse sleep quality to lower GPA. Novel sleep measurements have been developed. The possibility of a student staying awake or asleep simultaneously each day is measured by sleep consistency. Students who sleep more consistently perform better academically. Better results are related to morning circadian preferences and earlier classes (Shelley, 2020). One of the most commonly used measures in sleep research is sleeping quality. There are a variety of verified sleep quality questionnaires available, with the Pittsburg Sleep Quality Index being one of the most popular. Multiple studies have shown an association between poor sleep quality and decreased academic performance among almost all subsets of students. The researchers stated in their research that the consequences of sleeping deprivation poor academic performance among students. Sleep qualities influence learning and consequent academic performance. The students with the option of sacrificing some sleep time to enable them to meet up with these academic activities. The result of this study is in keeping with the findings of other studies, which noted that their students were sleep-deprived and that poor sleep durations significantly affected the academic performance of students (Esom. E, 2021).

Research Framework

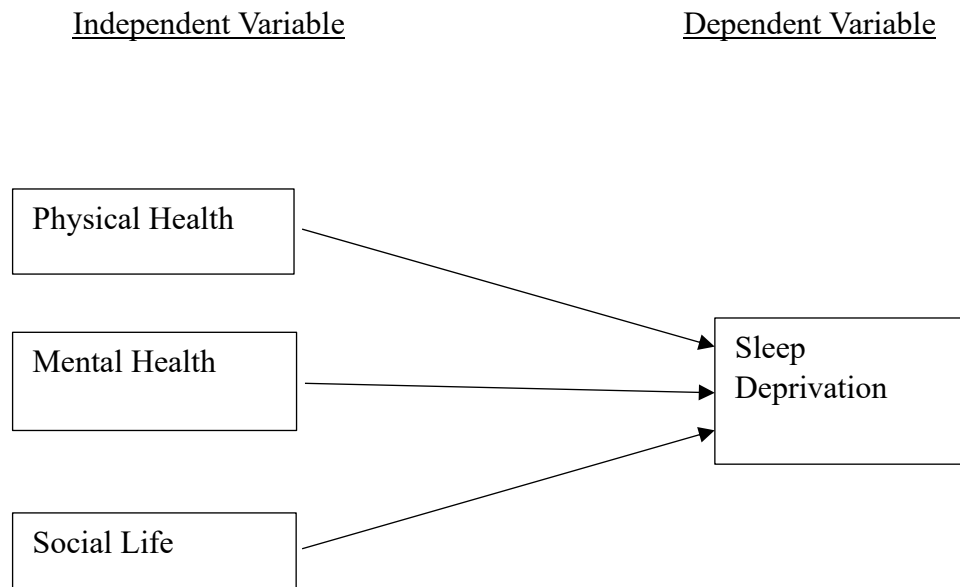


Figure 1: Research Framework

Figure 1 shows the dependent variable (DV) and independent variable (IV) of this research. The independent variables are the effects of sleeping deprivation on academic performance among Wellness students, Year 3, Universiti Malaysia Kelantan, Kampus Kota. Additionally, the dependent variable (DV) is the factor that influences academic performance, which is sleeping deprivation. Three independent variables (IV) were identified in this study: physical health, mental health, and social life.

METHODOLOGY

Research Design

This study used a quantitative method via statistics through large-scale survey research to collect information by distributing questionnaires through Google Form. The questionnaires were designed in bilingual languages, Malay and English, to make it easier for respondents to respond. The questionnaires use a five-point Likert scale.

Data Collection

In this research study, primary and secondary data are suitable approaches for gathering the data. Primary data focused on the questionnaires. These questionnaires were distributed to the

third-year Wellness students at Universiti Malaysia Kelantan, Kampus Kota. The researcher explained this questionnaire through social media such as WhatsApp to let respondents clearly understand the question after agreeing to answer the questionnaire. The respondents were given an online questionnaire over WhatsApp that needed them to fill out a Google Form. The online questionnaires were prepared for 118 third-year wellness students at Universiti Malaysia Kelantan, Kampus Kota. The questionnaires were provided to respondents for a set amount of time to complete, and data was collected once all respondents had finished them.

Sampling

The sampling method used in this study was non-probability sampling method. The convenience sampling method was used to select the respondents. The convenience sampling technique refers to selecting people who are easily accessible and eager to participate in the survey. Samples of volunteer subjects should be placed here. It's employed in various fields where specimen representativeness is not a significant concern (Kish, 2005). This sampling technique is easy to do and does not use any costs required for our research. In achieving a reliable and valid sample for this study, the researchers used the equation from Krejcie & Morgan (1970) to determine the sample size.

Data Analysis

Three types of data analyses were used in this study, namely frequency analysis, descriptive analysis, Pearson Correlation Efficient and reliability analysis (Cronbach Alpha). The collected data were analysed using Statistical Package for the Social Sciences (SPSS) to show the relationships between the dependent and independent variables as a set of statistical processes approximated by regression analysis.

FINDINGS

Demographic Analysis

The questionnaires were distributed to 3rd Year Wellness students of Universiti Malaysia Kelantan, Kampus Kota. A total of 118 questionnaires were distributed to the respondents. The questionnaires begin with demographic details of the targeted respondents, such as age, gender, marital status, race, religion, duration of sleeping, and how often the respondents feel sleep-deprived were collected for research purposes. The sociodemographic characteristics of the respondents are shown in Table 1 below.

Table 1: Demographic Analysis of respondents

No	Sociodemographic Characteristics	Frequency (n)	Percentage (%)
1	Age	118	100
	18-21 years old	22	18.6
	22-25 years old	96	81.4
2	Gender	118	100
	Female	101	85.6
	Male	17	14.4
3	Marital status	118	100
	Single	110	93.2
	Married	8	6.8
4	Race	118	100
	Malay	101	85.6
	Chinese	7	5.9
	Indian	6	5.1
	Others	4	3.4
5	Religion	118	100
	Islam	101	85.6
	Buddha	9	7.6
	Hindu	5	4.2
	Others	3	2.5
6	Duration of Sleeping	118	100
	1-3 hours	27	22.9
	4-6 hours	33	28.0
	7-9 hours	53	44.9
	10 hours & above	5	4.2
7	How often do you sleep-deprived?	118	100
	Never	8	6.8
	Seldom	3	2.5
	Occasionally	26	22.0
	Frequently	44	37.3
	Almost always	37	31.4

Table 1 shows the demographic analysis of respondents. The research focuses on 3rd Year Wellness students of Universiti Malaysia Kelantan, Kampus Kota and the majority of respondents are 22-25 years old (81.4%), female (85.6%), single (93.2%), Malay (85.6%), Islam (85.6%), 7-9 hours of sleeping (44.9%) and occasionally feel sleep-deprived (37.3%).

Descriptive Analysis

Table 2: Descriptive Analysis

Variable	N	Mean	Standard Deviation
Sleep Deprivation	118	35.07	3.563
Mental Health	118	33.75	3.124
Physical Health	118	29.80	4.388
Social Life	118	29.47	4.895

Table 2 shows the mean for the dependent variable, sleep deprivation, and independent variables, mental health, physical health, and social life, selected from respondents. Sleep deprivation is the highest mean and standard value which is (35.07) (3.563), followed by mental health (33.75, 3.124), physical health (29.80, 4.388), and lastly, social life (29.47, 4.895).

Reliability Analysis

The internal consistency or reliability among a few items, measurements or ratings is measured using Cronbach's Alpha. It is an appreciable instrument to guess the reliability of responses from the questionnaires and show the instrument's constancy. Cronbach's Alpha values diverge from a null character to one where a more significant value gives signs that the element measured in corresponding proportions. In contrast, Cronbach's alpha values, which are close to zero, indicate the elements are not evaluating the corresponding ratios.

Table 3: Descriptive Analysis

Variable	N	Number of Items	Cronbach's Alpha
Sleep Deprivation	118	8	0.858
Mental Health	118	8	0.828
Physical Health	118	8	0.859
Social Life	118	8	0.883

Table 3 shows the result of the reliability coefficient alpha based on the dependent variable and each independent variable. The dependent variable, sleep deprivation, has a Cronbach's Alpha value of 0.858. The first independent variable, Mental Health, with eight questions, shows

Cronbach's Alpha value of 0.828. The second independent variable, physical health, which contains eight questions, shows Cronbach's Alpha value of 0.859, reliable and reasonable. The third independent variable, social life, with eight questions in the questionnaire, has Cronbach's Alpha value of 0.883, which has good internal consistency. The results of all variables have a high correlation, and according to (Douglas & Thomas, 2016), the current practice indicates that a more significant reliability coefficient is preferred.

Pearson Correlation Analysis

Table 4: Descriptive Analysis of Respondents

Correlation		Sleep Deprivation	Mental Health	Physical Health	Social Life
Sleep Deprivation	Pearson Correlation	1	0.828	0.836	0.838
	Sig. (2-tailed)		.000	.000	.000
	N	118	118	118	118v
Mental Health	Pearson Correlation	.828	1	.850	.780
	Sig. (2-tailed)	.000		.000	.000
	N	118	118	118	118
Physical Health	Pearson Correlation	.836	.850	1	.798
	Sig. (2-tailed)	.000	.000		.000
	N	118	118	118	118
Social Life	Pearson Correlation	.838	.780	.798	1
	Sig. (2-tailed)	.000	.000	.000	
	N	118	118	118	118

**. Correlation is significant at the 0.01 level (2- tailed).

DISCUSSIONS AND RECOMMENDATIONS

There is a significant relationship between mental health and sleep deprivation among third-year Wellness students at Universiti Malaysia Kelantan, Kampus Kota. The Pearson Correlation test result shows a significant relationship between mental health and sleep deprivation among third-year Wellness students at Universiti Malaysia Kelantan, Kampus Kota. The findings showed a strong correlation coefficient of 0.828, while the p-value is 0.000. According to the result of the questionnaires, most of the respondents stated feel nervous when delivering the class presentation. It is proven that factors that can lead to lower academic achievement, mental health concerns, and a negative impact on healthcare system performance are hypothesized to influence the association between sleep deprivation and academic performance (Correa, Mayor & Lasalvia et al., 2018). Students can easily have mental health problems because they have a lot of things to do as a student. This unhealthy attitude will negatively affect the student's health and academic performance. This eventually results in the students having poor sleep quality and insufficient sleep, which is linked to depression among university students. They are more vulnerable to sleeping disorders, negatively influencing their academic performance. Sleep deprivation and poor sleep quality are becoming more common among university students. (Li et al., 2020). There is a significant relationship that mental health causes effects on students due to lack of sleep deprivation.

The results show a significant relationship between physical health and sleep deprivation among third-year Wellness students at Universiti Malaysia Kelantan, Kampus Kota. The findings show a strong correlation coefficient of 0.836, while the p-value is 0.000. This means that sleep deprivation at a higher level can affect students' physical health. Those characteristics may impact a university student's feelings, immune system functioning, and substance usage, among other things (Harmilton, 2016). According to the respondent in the questionnaires, a sign respondent stated was a lack of sleep. The composition of sleep tends to vary depending on the time of day and the sleep period (Laura, K., 2017). Despite that, sleep deprivation was indicated by the majority of respondents to cause headaches. This been proven from the previous study that sleep is a crucial component of a human's health as well as a well-being state, as it is a necessity for learning, practising, and maintaining physical and mental health (Jajali, R., Khazaei, H., & Paveh et al., 2020). Insomnia symptoms include an inability to get asleep, stay asleep, wake up early, or sleep in a characteristic affecting manner at any given time, without any chronicity or daytime impairment requirements (Bathgat, 2018).

There is a significant relationship between social life and sleep deprivation among third-year Wellness students at Universiti Malaysia Kelantan, Kampus Kota. The Pearson Correlation test result shows a significant relationship between social life and sleep deprivation among third-year Wellness students at Universiti Malaysia Kelantan, Kampus Kota. The findings show a strong correlation coefficient of 0.838, while the p-value is 0.000. This means sleep deprivation is inversely proportional to the number of hours of sleep a person gets, and it can have a significant negative influence on one's general health and quality of life (Rose & Samanan, 2017). Most students are lacking in sleep, impairing their ability to regulate behaviour and emotion, increasing the likelihood of anxiety, depression, impulsivity, and a diminished ability

to respond effectively to social pressures (Sadeh et al., 2017). This is proven by a statement when we are being sleep-deprived, and we are more prone to overreact to situations that would typically not bother us. As a result, there may be more tension and less satisfying relationships (Jennifer L.M, 2018).

The first recommendation is to distribute the questionnaire physically or face to face to collect the data. This is much easier because the researcher can persuade the respondents to give their time to answer the questionnaires provided. The second recommendation is that the questions asked must use language or questions that are easier to understand. This is because the researcher had examined a small number of respondents who did not understand the questions and chose not to answer the questions. The following recommendation is to reduce the number of respondents for the target population. The researcher takes a long time to find respondents because of the relatively large number. The target population must be changed from FHPK third-year students to SAW or SAH either SAP, which is smaller than the total number of the third-year students.

CONCLUSION

The research is about the effects of sleeping deprivation on academic performance among the third year of Wellness students in Universiti Malaysia Kelantan, Kampus Kota. Mental health, physical health, and social life are the independent variable. These variables influenced the dependent variable, which was sleep deprivation. There is a significant relationship between the three independent variables and the independent variable. The recapitulation of the findings showed the strongest correlation would be the social life, followed by the physical health, and the lowest correlation will be the mental health ($0.838 > 0.836 > 0.828$). It also shows the p-value of three independent variables is 0.000. A few research articles in this part make the result more reliable and stronger. All the hypotheses, which are H1, H2, and H3 stated, are accepted.

REFERENCES

- Alsaggaf, M. A., Wali, S. O., Merdad, R. A., & Merdad, L. A. (2016). Sleep quantity, quality, and insomnia symptoms of medical students during clinical years: Relationship with stress and academic performance. *Saudi Medical Journal*, 37(2), 173–182.
- Bathgate, C. J., & Fernandez-Mendoza, J. (2018). Insomnia, short sleep duration, and high blood pressure: Recent evidence and future directions for preventing and managing hypertension. *Current Hypertension Reports*, 20(6), 52. <https://doi.org/10.1007/s11906-018-0856-3>
- Berman, R. M., Narasimhan, M., & Charney, D. S. (1997). Treatment-refractory depression: Definitions and characteristics. *Depression and Anxiety*, 5(4), 154–164.
- Beattie, L., Kyle, S. D., Espie, C. A., & Biello, S. M. (2015). Social interactions, emotion and sleep: A systematic review and research agenda. *Sleep Medicine Reviews*, 24, 83–100.
- Burman, D. (2017). Sleep disorders: Circadian rhythm sleep-wake disorders. *FP Essentials*, 460, 33–36.
- Chen, W. L., & Chen, J. H. (2019). Consequences of inadequate sleep during the college years: Sleep deprivation, grade point average, and college graduation. *Preventive Medicine*, 124, 23–28.
- Corbin, C. B., Pangrazi, R. P., & Franks, B. D. (2000). Definitions: Health, fitness, and physical activity. *President's Council on Physical Fitness and Sports Research Digest*, 3(9), 1–8.
- Elagra, M. I., Rayyan, M. R., Alnemer, O. A., Alshehri, M. S., Alsaffar, N. S., Al-Habib, R. S., & Almosajen, Z. A. (2016). Sleep quality among dental students and its association with academic performance. *Journal of International Society of Preventive & Community Dentistry*, 6(4), 296–301.
- Grady, F., & Roberts, L. W. (2017). Sleep-deprived and overwhelmed: Sleep behaviours of medical students in the USA. *Academic Psychiatry*, 41(5), 661–663.
- Hanson, J. A., & Huecker, M. R. (2020). Sleep deprivation. In *StatPearls*. StatPearls Publishing. <https://www.ncbi.nlm.nih.gov/books/NBK547676/>
- Happell, B., Ewart, S. B., Platania-Phung, C., Bocking, J., Scholz, B., & Stanton, R. (2016). What physical health means to me: Perspectives of people with mental illness. *Issues in Mental Health Nursing*, 37(12), 934–941.
- Hershner, S. (2020). Sleep and academic performance: Measuring the impact of sleep. *Current Opinion in Behavioral Sciences*, 33, 51–56.
- Jalali, R., Khazaei, H., Paveh, B. K., Hayrani, Z., & Menati, L. (2020). The effect of sleep quality on students' academic achievement. *Advances in Medical Education and Practice*, 11, 497–503.
- Luqman, R., Ghous, M., Nawaz, J., Ali, A., Kanwal, M., & Yaqoob, I. (2020). Factors associated with sleep deprivation and their impact on academic performance of hostelites of twin cities of Pakistan. *Sleep*, 65(89), 11–18.
- Maheshwari, G., & Shaukat, F. (2019). Impact of poor sleep quality on the academic performance of medical students. *Cureus*, 11(4), e4357. <https://doi.org/10.7759/cureus.4357>
- Manwell, L. A., Barbic, S. P., Roberts, K., Durisko, Z., Lee, C., Ware, E., & McKenzie, K. (2015). What is mental health? Evidence towards a new definition from a mixed methods multidisciplinary international survey. *BMJ Open*, 5(6), e007079. <https://doi.org/10.1136/bmjopen-2014-007079>
- Mehl, M. R., & Pennebaker, J. W. (2003). The sounds of social life: A psychometric analysis of students' daily social environments and natural conversations. *Journal of Personality and Social Psychology*, 84(4), 857–870.

- Naito, R., Yun Low, W., & Wan Yuen, C. (2021). Sleep deprivation and its associated factors among undergraduate students in Malaysia. *Asia Pacific Journal of Public Health*, 33(7–8), 747–755. <https://doi.org/10.1177/10105395211019930>
- Parker, R. S., & Parker, P. (2017). The impact of sleep deprivation in military surgical teams: A systematic review. *BMJ Military Health*, 163(3), 158–163.
- Patrick, Y., Lee, A., Raha, O., Pillai, K., Gupta, S., Sethi, S., ... & Moss, J. (2017). Effects of sleep deprivation on cognitive and physical performance in university students. *Sleep and Biological Rhythms*, 15(3), 217–225.
- Perotta, B., Arantes-Costa, F. M., Enns, S. C., Figueiro-Filho, E. A., Paro, H. B., Santos, I. S., ... & Tempiski, P. Z. (2021). Sleepiness, sleep deprivation, quality of life, mental symptoms, and perception of academic environment in medical students. *BMC Medical Education*, 21, 111. <https://doi.org/10.1186/s12909-021-02520-1>
- Raley, H., Naber, J., Cross, S., & Perlow, M. (2016). The impact of duration of sleep on academic performance in university students. *Madridge Journal of Nursing*, 1(1), 11–14.
- Riemann, D., Krone, L. B., Wulff, K., & Nissen, C. (2020). Sleep, insomnia, and depression. *Neuropsychopharmacology*, 45(1), 74–89.
- Abrams, R. M. (2015). Sleep deprivation. *Journal of Sleep Deprivation*, 42, 493–506. [Note: Journal title appears unclear—please verify]
- Schmitt, K., Holsboer-Trachsler, E., & Eckert, A. (2016). BDNF in sleep, insomnia, and sleep deprivation. *Annals of Medicine*, 48(1–2), 42–51.
- Serin, Y., & Tek, N. A. (2019). Effect of circadian rhythm on metabolic processes and the regulation of energy balance. *Annals of Nutrition and Metabolism*, 74(4), 322–330.
- Shen, B. J., Tan, J. J. L., Xu, Y., & Tay, H. Y. (2021). Poor sleep quality predicts the decline in physical health functioning in patients with coronary heart disease and moderating role of social support. *Behavioural Medicine*, 1–17. <https://doi.org/10.1080/08964289.2021.1882165>
- Sjöberg, L., Karlsson, B., Atti, A. R., Skoog, I., Fratiglioni, L., & Wang, H. X. (2017). Prevalence of depression: Comparisons of different depression definitions in population-based samples of older adults. *Journal of Affective Disorders*, 221, 123–131.
- Średniawa, A., Drwiła, D., Krotos, A., Wojtaś, D., Kostecka, N., & Tomasik, T. (2019). Insomnia and the level of stress among students in Krakow, Poland. *Trends in Psychiatry and Psychotherapy*, 41, 60–68.
- Topal, I. (2019). The effect of sleep quality on academic performance. *Annals of Medical Research*, 26(8), 1578–1581.
- Vingilis, E., Wade, T. J., & Adlaf, E. (1998). What factors predict students' self-rated physical health? *Journal of Adolescence*, 21(1), 83–97.
- Yassin, A., Al-Mistarehi, A. H., Beni Yonis, O., Aleshawi, A. J., Momany, S. M., & Khassawneh, B. Y. (2020). Prevalence of sleep disorders among medical students and their association with poor academic performance: A cross-sectional study. *Annals of Medicine and Surgery*, 58, 124–129. <https://doi.org/10.1016/j.amsu.2020.08.063>

Research Article

Exploring the Consumer Behavior of Organic Food Consumption: A Qualitative Study in Macao

See Wan Yan*, Weng Si Lei (Clara) & Mei Na Wong

Faculty of Innovative Hospitality Management, Macao University of Tourism, Colina de Mong-Há, Macao, China

Corresponding email: serene@utm.edu.mo

Journal of Hospitality, Tourism & Wellness Studies

Vol. 2 (1) pp 104-123

© The Author(s) 2025

Submit date: 14 January 2025

Accept date: 15 February 2025

Publish date: 31 March 2025

ABSTRACT

In recent years, worldwide demand for health and nutritious foods grew remarkably with the increase of health-conscious consumers. Harmful effects caused by the use of chemical pesticides in agriculture further motivate consumers to shift their focus towards organic foods. In the present study, we aimed to explore the consumption behaviour of Macao consumers towards organic foods. A qualitative explorative design was employed using face-to-face semi-structured in-depth interview among 43 customers (25 females and 18 males) of a local health-oriented café in Macao. Price, credibility, health concern, and accessibility were the most important considerations when purchasing organic foods. Despite the belief that healthy eating is essential, older consumers were reluctant to invest in organic foods. In contrast, younger consumers were interested in consuming organic foods to fulfil their curiosities, while being a parent was the primary motive to purchase. However, work preoccupation was the main barrier restricting their healthy eating habits. More importantly, although Macao consumers were highly attracted to food delivery apps to reduce time and physical effort, its usage indeed hamper the consumption of organic foods due to the limited availability. This original study offers practical implications to existing organic food businesses by investigating the consumption behaviour of Macao consumers towards organic foods. Findings also facilitate organic food manufacturers to achieve wider market penetration and to better meet the needs and demands of health-conscious consumers in Macao.

Keywords: Organic food, Consumer attitude, Purchase intent, Consumer behaviour, Macao

INTRODUCTION

Non-communicable diseases (NCDs) account for 74% of global deaths, making them the leading cause of mortality. With urbanization on the rise, the incidence of chronic diseases is increasing among the growing global population. This has led to a heightened demand for

healthy, safe, and sustainable food products, such as organic foods. Organic foods are produced without chemical fertilizers, synthetic pesticides, veterinary drugs, preservatives, irradiation, or genetically modified organisms. Organic agriculture promotes biodiversity, biological cycles, and soil health, aligning with environmental and social sustainability goals (FAO, n.d.). The global organic food market has been expanding steadily, with sales reaching USD \$147.8 billion in 2021. Asia alone accounted for over USD \$14.6 billion in organic retail sales, with China leading the way with 2.75 million hectares dedicated to organic agriculture (Willer et al., 2023). Asia is home to almost half of the world's organic producers, highlighting its potential to meet the growing population's needs. In 2022, the organic sector in Asia showed promising growth, rebounding from the impact of the COVID-19 pandemic.

Over the past decade, several papers have been published on the drivers and barriers to organic food consumption in China (Thøgersen et al., 2015; Xie et al., 2015; Cao et al., 2021; Liu et al., 2021), Japan (Tandon et al., 2021; Itawani et al., 2023; Sampa et al., 2024), Taiwan (Teng & Lu, 2016; Chang & Chen, 2022) and other countries (Sriwaranun et al., 2015; Lian, 2017; Nguyen et al., 2019; Kushwah et al., 2019; Pangaribuan et al., 2020; Wijaya et al., 2022) within the Asian region. However, a comprehensive study has not been done in Macao, and our study aims to fill this research gap. While official statistics on the size and value of Macao's organic food market are currently unavailable, the demand for organic products is steadily increasing, evidenced by the emergence of more organic food businesses in the region.

The Macao Health Bureau (2017) reported an increase in overweight and obesity rates among Macao residents, with 25.5% being overweight and 5.1% being obese in 2016, compared to 22.4% and 3.9% in 2006, respectively. The COVID-19 pandemic highlighted the importance of a nutritious diet and physical activity for health and well-being, leading to a rise in the sales of organic foods (Macao Daily News, 2020). Research by The Macao Association of Vegetarian Culture (2021) found that 1.3% of residents are vegetarian, and over 30% are inclined towards a vegetarian diet, primarily for personal health reasons (55%), followed by personal values (10%) and religious beliefs (8%). These findings indicate a growing health consciousness and preference for organic foods among consumers in Macao. In line with this trend, the food and beverage industries in Macao are also emphasizing health and organic concepts. To gain a better understanding of Macao consumers' purchasing behaviour towards organic foods, it is crucial to examine their perceptions, purchase intent, and attitudes, as well as identify the main motivators and barriers. Therefore, this study aims to investigate Macao consumers' attitudes, purchase intent, and behaviours towards organic foods, while exploring the key factors that influence their attitudes and barriers to purchasing organic foods in Macao.

Through this study, we aimed to answer a few research questions. First, what are the main motives of Macao consumers when purchasing organic foods? Consumers in most developed countries have broader food choices than in past decades. They value food quality and are increasingly concerned about nutritional values, health, and food safety (Gil et al., 2000). In recent years, convenience, genetically modified, organic, ethnic, and functional foods are denominated as novel foods. They compete with traditional foods and are welcomed by the active younger generation in the modern economy (Manuela et al., 2013).

Consumers consider organic foods to be better than conventional foods, often associating them with positive outcomes on safety, health, environmental sustainability, and animal welfare. Gender, age, income, and education level influence the intention of consumers to purchase organic foods. Wee et al. (2014) contended that women are more likely to consume organic foods than men. Women might provide increased attention to food selection because they are primarily responsible for meal planning and food shopping within a household. Wee et al. (2014) also mentioned that older consumers are likely to buy organic foods due to their increased awareness of health issues while the younger generations are willing to pay relatively more for organic foods for the benefits of good health and longer life expectancy (Yu et al., 2014). In addition, consumers with higher incomes and higher education levels have a substantial interest in organic products than non-organic consumers (O'Donovan & McCarthy, 2002; Pal, 2012; Wee et al., 2014). These factors are crucial determinants of consumers' attitude towards organic foods. Therefore, the second research question is, what are the attitude, purchase intent, and behaviour of Macao consumers towards organic foods?

Despite the belief that organic foods are considered healthier than conventional foods (Radman, 2005), there are certain barriers that restrain consumers from purchasing organic foods. Lang & Conroy (2021) stated that 'organic food is a credence good', that is, consumers couldn't verify its quality even after purchase and consumption. Therefore, consumer trust in organic food is crucial to its consumption (Giampietri et al., 2018). Some consumers doubt whether organic food has no pesticide residues and are suspicious of the superiority of organic to conventional food (Chen, 2009; Lang & Conroy, 2021). Żakowska-Biemans (2011) asserted that premium price and lack of availability further decrease consumer interest in purchasing organic foods as convenience is an important factor which drives organic food choice and purchase among consumers (Chen, 2007). Hence, the third research question is, what are the barriers to purchasing organic foods among Macao consumers?

From a theoretical point of view, this study is valuable as the findings will contribute new knowledge to the existing research gap as there are very limited studies on organic food industry in Asia (Abdullah et al., 2022; Dangi et al., 2020; Kantamaturapoj & Marshall, 2020; Nguyen et al., 2019). In particular, there is a paucity of studies related to organic food consumption behaviour in Macao. This will offer great significance to existing literature and provide scholars with a more comprehensive and multi-dimensional understanding of research on organic food choice and consumption behaviour. From a practical point of view, this study presents better understanding of consumers' behaviour for organic food manufacturers and marketers in order to develop precise approaches to meet their target markets' needs and demands. Ultimately, these valuable insights not only promote the growth of organic food businesses, but also drive implementation of healthy eating trends among consumers.

THEORETICAL BACKGROUND

Employing the Health Belief Model in Organic Food Consumption Research

The Health Belief Model (HBM), a well-established psychological framework, has been extensively applied to understand and predict health behaviours. It was initially developed in the 1950s by a group of social psychologists at the U.S. Public Health Service, including Hochbaum, Rosenstock, and Kegels. However, the foundational work on the HBM from this period was not published in the form of a single, consolidated academic paper or book. Instead, the model evolved over time through various studies and reports conducted by these and other researchers. The HBM provides a comprehensive lens to examine why individuals make certain health-related decisions (Rosenstock, 1974). Core constructs of the model, including perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy, offer a structured approach to dissecting the multifaceted nature of health behaviour decision-making. In this study, we examine the organic food consumption behaviour of oriental customers through the lens of HBM and attempt to examine it.

Qualitative Studies in Food Consumption

In the realm of food consumption, particularly organic food, quantitative studies (Alagarsamy & Mehroliia, 2023; Yazdanpanah et al., 2015) have leveraged the HBM to ascertain key factors influencing consumer choices; for instance, research utilized the HBM to unravel the complexities behind organic food purchasing behaviours, identifying perceived health benefits and environmental concerns as significant motivators (Aertsens et al., 2009). Similarly, studies have highlighted perceived barriers such as cost and availability as crucial determinants in the decision-making process regarding organic food (Hughner et al., 2007). Likewise, a study by Soodan & Rana (2019) indicated that perceived severity and perceived susceptibility were the two primary factors demonstrating a significant positive influence on the intention to consume organic food. A more recent study utilized the HBM to illustrate how perceptions of health benefits and risks impacted the shift toward organic foods, especially during the COVID-19 pandemic when health consciousness was at its peak (Masih et al., 2025). Despite the rich insights provided by these quantitative studies, there remains a need for in-depth qualitative exploration. Qualitative research can uncover the nuanced reasoning and personal experiences underpinning the statistical trends observed in quantitative data. It provides an avenue to delve into the lived experiences of consumers, offering a granular understanding of how the HBM constructs manifest in real-world contexts. Aligned with this need, the current study aims to expand on the quantitative findings using a qualitative approach grounded in the HBM. By developing interview questions inspired by the HBM and informed by existing quantitative research, this study seeks to explore the underlying explanations for behaviours and attitudes towards organic food consumption. It intends to offer a richer, more contextual understanding of the factors influencing these behaviours, beyond what can be gleaned from quantitative data alone. This research is poised to make a significant contribution to the field of organic food consumption. By integrating the theoretical underpinnings of the HBM with qualitative methodologies, it aims to provide new insights into consumer motivations and barriers, thereby informing more effective strategies for promoting organic food consumption. This approach also demonstrates the value of bridging quantitative findings with qualitative explorations to

achieve a more holistic understanding of consumer behaviours in the field of health and nutrition.

METHODOLOGY

Research Design and Sampling Strategy

Qualitative explorative studies, such as those advocated by Denzin & Lincoln (2011), are particularly advantageous for understanding organic food consumption. This approach allows for in-depth insights into consumer behaviours and motivations, revealing the nuanced and personal factors influencing their choices (Denzin & Lincoln, 2011). Unlike quantitative methods, qualitative research delves into the subjective experiences of individuals, offering a rich, detailed understanding of the social and cultural contexts that shape organic food purchasing decisions (Denzin et al., 2023). This depth of exploration is crucial for comprehensively understanding complex consumer behaviours. Purposeful sampling (Palys, 2008) is a strategic approach employed in qualitative research to select information-rich cases that offer in-depth insights relevant to the study. In recruiting interviewees for a study focused on understanding behaviours and preferences, such as in the context of organic food consumption, this sampling strategy is particularly effective. By aiming for a balanced gender representation and a broad spectrum of ages, the sampling strategy ensures a diverse and comprehensive range of perspectives. This diversity is crucial in capturing the varied influences and motivations across different demographic segments. The resultant sample, being well-rounded, allows the study to more accurately reflect the complexities and nuances of the subject matter at hand. The profile of key informants (Marshall & Rossman, 2014), as presented in Table 1, would detail the demographic characteristics such as age, gender, and other relevant factors, ensuring transparency in the sampling process and aiding in the validation of the research findings.

Participants and Study Location

While purposeful sampling may overlook diverse perspective resulting in a limited understanding in the broader context, the authors decided to select a specific café to conduct the interview as the health-themed café was a strategic choice to engage key informants who could provide valuable insights. This café's unique selling point of natural and healthy foods attracts customers who likely align with the topic of organic food consumption. In addition, although purposeful sampling is resource intensive requiring significant time and effort in identifying and recruiting specific participants who meet the criteria, a diverse range of participants were able to be selected from the health-themed café ensuring equal representation across gender, age, occupation, and dietary preferences. The café's focus on homemade bakery products and additive-free coffee aligns with the organic food concept, making its patrons ideal candidates for the study. Recognizing this compatibility, the researcher obtained approval to conduct on-site interviews.

To ensure accurate and comfortable expression of views, the interviews were conducted in Cantonese, the participants' native language. Each interviewee was informed about the study's purpose and assured of data confidentiality. They had the freedom to withdraw from the interview at any time. Participants were identified by numbers instead of names to ensure privacy and provided consent for voice recording. The interviews, lasting approximately 30-45 minutes on average, were audio-recorded, transcribed, and translated into English for analysis.

Interview Questions

The development of the semi-structured interview questions was methodically carried out, drawing upon the expertise and insights from previous research in the field. The list of interview guiding questions was divided into two parts. The first part focused on gathering demographic information such as gender, age, marital and education statuses, household income, occupation, and type of diet. This approach aligns with Chen (2007) and Jordan & Elnagheeb (1991), who emphasize the importance of understanding the demographic background of consumers to better interpret their choices and behaviours.

The second part of the questions delved into factors influencing attitude, purchase intent, and consumer behaviour towards organic foods. This section was informed by the findings of Manuela et al. (2013) and Miles & Frewer (2001), who investigated the various dimensions influencing organic food consumption. Tandon et al. (2021) also provided valuable insights into contemporary consumer behaviours, which were crucial in framing these questions.

Before finalizing the interview questions, a pilot test was conducted by the authors along with several customers of the café, ensuring the clarity and relevance of the questions. The final version of the questions was made available in both English and traditional Chinese to accommodate the linguistic preferences of the interviewees. This meticulous process of question formulation, guided by established literature in the field (Harrell & Bradley, 2009), ensured that the interviews would yield comprehensive and valuable data relevant to the study's objectives.

Data Collection and Analysis

A qualitative data analysis approach was utilized in this study, adhering to the steps of data reduction, data display, verification, and drawing conclusions, as delineated by Huberman & Miles (2002). The process began with the transcription of the audio files from the interviews. The initial coding phase, or open coding, was conducted through inductive coding, following the methodologies set forth by Gioia et al. (2013) and Strauss (1987). The authors independently coded the data, subsequently comparing and aligning the codes to ensure consistency. An inter-rater reliability of 85% was achieved, confirming a high level of coding consistency, prior to advancing to the next phase of analysis. The NVivo 11 software package facilitated the coding process.

After the initial phase of coding, a comprehensive list of codes was established. The second round of coding encompassed both deductive examination of literature and inductive analytical coding. This stage involved data reduction as per Huberman & Miles (2002). The Gioia methodology (Gioia et al., 2013) was employed for further data analysis, resulting in the formation of a structured data format, as illustrated in Figure 1. This format entailed categorizing interview phrases into first-order concepts, which were then synthesized into second-order themes. These themes were subsequently refined into aggregated dimensions, thereby constructing the study's data structure.

In the third stage of analysis, comparative analysis, as recommended by Pettigrew & Whipp (1991), was used to scrutinize the underlying factors and phenomena related to the observed effects. The data structure (Figure 1) supported an iterative analytical process, allowing for continuous interaction between the emerging data, themes, concepts, and dimensions (Gioia et al., 2013). This stage also included detailed comparisons across interviews to identify similarities and differences. In the findings section, a selection of representative quotations was used to exemplify the study's results, providing an in-depth and contextually rich interpretation of the findings.

FINDINGS

A total of 43 participants comprised of 58% females (25) and 42% males (18) consented to participate and completed the interview. Most of the interviewees were non-vegetarian while a few were flexitarian or lacto-ovo-vegetarian (Table 1).

First Dimension: Perceptions and Motives to Consume Organic Foods

Positive Perceptions and Motives

Health Benefits: A predominant motive for consuming organic foods is the perceived health benefits. Studies by Smith-Spangler et al. (2012) have explored how consumers often believe organic products are healthier, citing fewer pesticides and chemicals. This aligns with the notion that organic foods may offer a safer and more natural alternative to conventional food products. Excerpt of two interviewees illustrated their positive perceptions of organic products:

Interviewee 7: 'The major reason is that when you hear 'organic', the connection is directly linked to 'healthy'. If I am eating too much greasy food and I want to give myself something healthier to eat, then I would choose something organic'.

Interviewee 14: '...because it claims to be healthy, without impurities. It seems healthier and good for the body. So that I would buy'.

Environmental Friendliness: The environmental impact of food production is increasingly a consideration for consumers. Research by Schösler et al. (2012) highlights that environmentally conscious consumers often choose organic foods due to their lower ecological footprint and sustainable farming practices. Interviewees show awareness of how organic farming impact the environment and appreciate its benefits to not just the environment but human bodies as illustrated below:

Interviewee 2: 'From my understanding, organic food should be pesticide-free or chemical-free, and often requires a longer production cycle'.

Interviewee 13: 'For me, organic foods... maybe their methods of raising animals may not use things such as antibiotics, or they may not use excessive chemicals to get them to grow. The same methods apply to plant growth, much less application of pesticide or fertilizers to accelerate growth'.

Negative Perceptions and Challenges

Taste Concerns: Despite the perceived benefits, some consumers remain sceptical about the taste of organic foods. A study by Hughner et al. (2007) found that taste is a significant factor in food choice, and some consumers believe organic products may lack the flavour intensity of non-organic foods. Interviewees expressed their experience of organic food flavour below:

Interviewee 33: 'I found most of the organic food (packaged food products) are tasteless'.

Interviewee 41: 'Whatever package food products with the label of organic, for example, biscuits and chips, I am very unlikely to purchase because of their taste... which I found too light'.

Cost Issues: The higher cost of organic foods is a well-documented barrier. Janssen & Hamm (2011) discusses how the premium pricing of organic products can make them less accessible to a broader audience, particularly affecting lower-income consumers. Similar comments are revealed from the interviewees as below:

Interviewee 3: 'I would not buy if it was too expensive. Also, something that I think is healthy food but expensive. I'm not sure I would buy it'.

Interviewee 28: 'The price of organic food is at least 15% more than non-organic ones. It is more, like double the price if it is meat. I found it too pricy'.

Food Labelling Control: Concerns about the authenticity and regulation of organic labels are prominent. Pearson et al. (2011) address consumer scepticism regarding the accuracy of organic labelling and whether products truly meet organic standards. Many interviewees shared the same concerns as revealed below:

Interviewee 16: 'It is hard to tell whether the product is organic or not. It cannot be seen by the naked eye. Because there has been food that is inconsistent with the organic standard'.

Interviewee 30: 'I just realize that the price tag goes up at least 20% when it comes with the food label of "Organic" or "USDA" certified. Sometimes, I think about the certification process and wonder how credible it is'.

Limited Knowledge: A lack of comprehensive knowledge about organic food is another challenge. A study by Aertsens et al. (2009) indicates that limited understanding of what constitutes organic food can lead to consumer hesitancy and confusion, impacting purchasing decisions.

Interviewee 21: 'I think organic refers to no pesticide, hormones, and all other funny chemicals during farming veggies, staples and raising livestock. Isn't it?'

Interviewee 37: 'To be honest, I don't know exactly how it works when it is labelled organic item...I think they (organic products) are better for the body'.

In conclusion, while health and environmental considerations are strong motivators for the consumption of organic foods, these are offset by concerns related to taste, cost, labelling, and knowledge gaps. This first dimension of analysis, enriched with research findings, underscores the need for a multifaceted approach to address these issues and effectively cater to consumer needs in the organic food market.

Second Dimension: Organic Food Consumption Behaviour and the Third Dimension: Lifestyle

The second dimension, organic food consumption behaviour, reflects the practical aspects of how consumers engage with organic products, encompassing accessibility, choice, and the use of technology. Meanwhile, the third dimension reveals how lifestyle impose barrier to consume organic products and subsequently increase the usage of food delivery apps. The results of second and third dimensions will be presented together due to the pattern of food delivery apps usage are prominently revealed in both dimensions.

Accessibility and Limited Choices

Interviewees reported challenges in accessing organic foods, with limited choices in the city. This echoes the findings of Smith & Paladino (2010), who discuss how the availability of organic products can significantly influence consumer behaviour. While online purchases offer a solution, they are typically restricted to non-perishable items, as highlighted by Guptill & Wilkins (2002), emphasizing the logistics challenges in organic food retail. These are also reflected from interviewees' expressions in purchasing organic food as below:

Interviewee 11: '...only the large-scale supermarket sells organic food'.

Interviewee 28: 'I normally shop online and have them shipped from overseas'.

Barrier to Consumption

Short Lunch Breaks and Workplace Facilities: The impact of short lunch breaks and lack of facilities for cooking or reheating food at workplaces is a significant barrier observed in the East. This contrasts with some Western workplaces where there might be more emphasis on work-life balance and employee wellness, as indicated by Jabs & Devine (2006). The high-paced work culture in many Eastern cities often leads to prioritizing work over meal times.

Interviewee 17: 'Quite often, I use my lunch time to check out the operations and I will spend like 15 minutes in my office for a sandwich or something. I seldom have an hour-long lunch break'.

Interviewee 25: 'There is only a noodle shop near my office. I normally order food delivery or just go to the noodle shop for a noodle. Lunch is always not healthy for me...'.

Limited Healthy Food Options: The availability of healthy, organic food options in the immediate environment plays a crucial role. Story et al. (2008) highlighted the influence of the food environment on eating behaviours in Western urban settings, but this issue takes on different nuances in the East, where traditional food choices and availability might differ significantly.

Time Constraints Post-Work: Cultural differences in work-life balance also influence post-work activities, including meal preparation. In many Eastern cultures, as supported by the study of Jabs et al. (2007), long working hours and commutes can limit the time and energy for cooking at home, a challenge that might be less pronounced in some Western societies.

In conclusion, while there are universal themes in the lifestyle influences on organic food consumption, the cultural context of East versus West brings unique dimensions to these challenges and behaviours. Understanding these cultural nuances is essential for a holistic view of consumer behaviour in different geographical settings and can guide more culturally sensitive strategies for promoting organic food consumption.

Use of Food Delivery Apps

The widespread use of food delivery apps has transformed consumer eating habits, as indicated by previous studies (Eu & Sameeha, 2021; Tribhuvan, 2020). However, these apps often offer limited healthy options, aligning with the concerns expressed by interviewees about hygiene and healthiness. The research by Neff et al. (2009) sheds light on how these apps tend to favour convenience over health, presenting a challenge for health-conscious consumers. The utilization of food delivery apps, a common practice in both East and West, shows varying implications due to cultural differences. In Western contexts, as discussed by Neff et al. (2009), these apps often prioritize convenience over health. However, in Eastern cultures, where food plays a central role in social and family life, the balance between convenience and dietary preferences might manifest differently. The cultural emphasis on traditional and wholesome meals in many Eastern societies might influence the types of food ordered and the expectations from these services. Similar observation was reflected from interviewees when they expressed the usage of food delivery apps:

Interviewee 10: 'I think it depends on the location where I work... before I worked in Cotai (a local area which is considered a bit remote), the food delivery apps were very useful for me; however, I don't think there are many healthy choices (organic meals) available'.

Interviewee 26: 'I am not aware that there are healthy food choices from food delivery app. I see mostly greasy food'.

Work Life and Environmental Constraints: The impact of a busy work life and workplace environments, such as workplace location, restrictions on cooking, plays a crucial role in dietary choices. Research by Devine et al. (2006) has shown how work environments significantly influence eating habits, with time constraints and available facilities dictating food choices.

Interviewee 20: 'The trouble with using a food delivery app is the minimum charge. If I only want to eat salad, but others (colleagues who placing order together) don't want to, you can't force them to eat it. In contrast, I follow their choice and order food that colleagues like instead'.

Interviewee 18: 'Because I want to get out of the working environment, to go for a walk. If I order food delivery to the office, it means I have to stay at the office for the whole day'.

Availability of Healthy Options: Despite these challenges, some interviewees noted the availability of healthy options via food delivery apps, along with nutritional information. This finding is supported by the work of Bates et al. (2020) and Eu & Sameeha (2021), who highlight a growing trend in food delivery services to cater to health-conscious consumers, acknowledging the demand for healthier, well-informed food choices.

Interviewee 5: 'It's very convenient, because food delivery apps have so many choices. I also found salad and some healthy choices'.

Interviewee 15: 'I think it's quite good. Because you can also look at the nutrition values, like calories and fibre for each item (as provided by the app)'.

Hygiene Concerns: Many interviewees expressed concerns on the food preparation and transportation process. In particular, the hot and humid weather of Asia in the summer add burden to the hygiene issue during food delivery. Interviewees expressed various concerns as excerpt below illustrates:

Interviewee 8: 'Honestly, if you want me to buy salad online, I don't believe a restaurant would wash vegetables completely, since I don't really know how the shop operates'.

Interviewee 19: 'Food transportation from stop 1 to stop 10—you don't know what happens during the period, what is the storage temperature of the food. Does the food handler wear gloves for packing, or who touched their nose and directly touched the food?'.

In conclusion, these two dimensions uncover the complex interplay between consumer behaviour, availability of options, technology, and lifestyle factors in the context of organic food consumption. The challenges and opportunities identified through the interviews, supported by recent research, provide valuable insights into how consumers navigate the organic food landscape amid their daily constraints and preferences.

Fourth Dimension: Demographic Influences

The fourth dimension of the analysis, focusing on demographic influences, sheds light on significant cultural aspects related to diet and cooking style that affect organic food consumption. In addition, family size, gender and age also impose influence on organic food consumption.

Diet and Cooking Style

Preference for Cooked Vegetables: In many Asian cultures, there is a pronounced preference for cooked vegetables over raw salads (Izzah et al., 2012; Lipoeto et al., 2013; Rennie & Wise, 2010). This preference is indicative of broader culinary trends in Asia, where cooked dishes are more prevalent than raw vegetable salads, commonly associated with organic foods in Western diets.

Interviewee 27: 'I cook all my food (cook on fire), I seldom eat anything raw, including vegetables'.

Interviewee 38: 'Probably it is a habit, I just don't feel right if the food is not cooked on fire before I eat. Organic vegetables will be a waste if I buy and use, coz I will boil them and eat'.

Perceptions of Organic Foods in Cooking: The belief that the benefits of organic foods diminish once cooked is a unique perception highlighted in the study. This aligns with findings by Chan & Lau (2000), who discuss how cooking methods and food preparation practices influence perceptions of green and organic products in Asian contexts. Interviewees expressed their cooking with organic food as below:

Interviewee 23: 'Whenever I like to eat salad (no need to cook on fire), I will certainly look for organic vegetables. I think they are fresh and free from pesticide'.

Interviewee 41: 'When I boil vegetables, I think all the good vitamins and minerals will be gone too, so there is no need to buy organic... everything is gone after boiling, right?!'.

Cultural Dietary Preferences and Organic Food: The intersection of traditional dietary preferences with the perception of organic foods is further elaborated in works like Pieroni & Price (2006), which delve into traditional food practices and their relation to contemporary health and organic food trends in various cultures.

Interviewee 2: 'I would buy conventional vegetables when they need to be cooked. If I want to make a salad, I would like to select organic, because that is directly eating it'.

Demographic (family size, gender and age) Influences

Female Consumers with Young Children: The study indicates that female consumers, especially those with young children, prefer organic food, paralleling Cairns et al. (2013) and Caso et al. (2024) findings on mothers prioritizing organic choices for family health.

Interviewee 20: 'Because I want to give the best [good food] to my baby to eat, organic food seems healthier and carries less pesticide, so I buy it. Baby cannot eat food that contains pesticides'.

Interviewee 13: '...because people said that eating too many chickens that contain hormones would cause problems on the body. I'm not very clear, but I want to try whether there is a difference... it's because of family and my curiosity'.

Age Group Preferences: Differing preferences across age groups, with younger consumers showing more curiosity towards organic foods, reflect trends observed in Western studies by Hughner et al. (2007) and Gracia & De Magistris (2008), despite cultural differences in dietary habits. Younger interviewees expressed interest to try out organic products as below:

Interviewee 29: 'I like this trend of organic food. I feel safe and good to buy and consume organic products, like veggie, fruit and even snacks'.

Interviewee 43: 'I heard so much about organic from different media and KOL (Key Opinion Leaders), whenever I get the chance to try organic, I am eager to try and experience the difference between organic and normal food'.

Nevertheless, interviewees who are more mature, aged between 40 and above do not show much interest nor curiosity in trying out organic products. They show doubt about the value and benefits of organic products.

Interviewee 33: 'I am curious about organic food at the beginning, but I won't spend, like what... 20-50% more on the price tag for organic food, which I think it is not worth the money'.

Interviewee 37: 'I think this word organic is just some kind of marketing gimmick... try to earn more money from consumers. I seldom buy any of these so-called organic products'.

Incorporating these cultural and demographic insights provides a more nuanced understanding of how traditional dietary practices and perceptions shape organic food consumption. This understanding is crucial for developing strategies that are culturally sensitive and effective in promoting organic food within diverse demographic groups.

DISCUSSIONS

The rich data obtained from the 43 interviews offers a comprehensive understanding of the phenomenon being studied. We make an effort to illustrate the findings through the utilization of a model, represented as Figure 2 - the Ecology of Organic Food Consumption in Asia, to present our findings.

The Ecology of Organic Food Consumption in Asia Model

The Ecology of Organic Food Consumption in Asia model as depicts in Figure 2, offers a comprehensive framework, aligning with the notion of integrated behavioural models highlighted in studies like those by Fishbein & Ajzen (2011). It encapsulates both macro factors (Lifestyle and Demographic Influence) and micro-level elements (Perceptions and Motives, Organic Food Consumption Behaviour), echoing the multi-level approach advocated in health behaviour research (Glanz & Bishop, 2010).

Macro Factors: Lifestyle and Demographic Influence

At the macro level, the model aligns with findings by Story et al. (2008) that emphasize the influence of lifestyle and environment on food choices. It also incorporates key demographic factors, a vital element in consumer behaviour research across diverse cultural settings, as highlighted by Hughner et al. (2007). An intriguing aspect of the demographic influence observed in this study relates to age and gender. The data reveals a distinct trend where younger interviewees, particularly those below 40, exhibit more curiosity and a greater willingness to try organic food. This trend contrasts with older interviewees, aged 40 and above, who show less inclination towards experimenting with organic food options. Furthermore, female interviewees demonstrate a more pronounced interest in consuming organic food, aligning with global trends in health-conscious consumer behaviour. These demographic insights, alongside cultural dietary variations such as the Asian preference for cooked vegetables underscore the complexity and multifaceted nature of food consumption behaviours.

Micro Factors: Personal Perceptions and Consumption Behaviours

The micro-level analysis is rooted in the principles of the Health Belief Model (Rosenstock, 1974), focusing on individual perceptions and motives. This aspect aligns with the work of Aertsens et al. (2009), who examined how personal health beliefs and environmental concerns influence organic food purchasing decisions.

Insights from interview data reveal nuances in technology use and consumption barriers, akin to the barriers discussed in the consumer behaviour studies by Jabs & Devine (2006). The use of food delivery apps and the challenges they present in making healthy food choices reflect the evolving nature of food consumption in urban settings, a topic explored by Neff et al. (2009).

This model's focus on the Asian context addresses the gap noted in Western-centric research, providing a much-needed perspective in the field of organic food consumption studies. The model responds to calls for more geographically diverse research in the field of consumer behaviour, as highlighted by Chan & Lau (2000) and Pieroni & Price (2006).

Theoretical Contributions of the Ecology Model

The "Ecology of Organic Food Consumption in Asia" model represents a significant theoretical advancement in the field of consumer behaviour. By integrating both macro and micro-level factors, it extends the traditional application of the HBM beyond individual health behaviours to encompass broader societal and cultural influences. This approach resonates with the multi-level theoretical perspectives advocated by Glanz & Bishop (2010), offering a more holistic understanding of consumer decisions in the context of organic food consumption. Traditionally, the HBM has been utilized to understand health-related actions primarily at an individual level, focusing on perceptions and self-efficacy (Rosenstock, 1974). The Ecology model innovatively expands this scope to include external environmental and demographic factors, aligning with the modern understanding of health behaviour as a product of complex interactions between personal beliefs and external environments, as discussed in the work of Fishbein & Ajzen (2011).

Bridging Cultural Contexts in Behavioural Theories

A crucial theoretical contribution of this model is its contextual adaptation of predominantly Western-centric behavioural theories to the Asian cultural setting. It addresses a gap highlighted by researchers like Chan & Lau (2000), who note the need for culturally sensitive applications of consumer behaviour theories. By tailoring the HBM to incorporate factors such as traditional dietary practices and urban lifestyle influences specific to Asia, the model offers a blueprint for adapting behavioural theories to diverse cultural contexts.

IMPLICATIONS

This model has significant implications for both research and practice in global health and consumer behaviour. It demonstrates the importance of incorporating cultural nuances into theoretical frameworks, thus enhancing the applicability and effectiveness of health promotion strategies across different populations. Practitioners and policymakers can use this model to design interventions that are more aligned with the specific needs and contexts of Asian consumers, as suggested by the application-focused research in public health (Schösler et al., 2012).

Future Research

The Ecology of Organic Food Consumption in Asia model sets a new direction for future research. It invites scholars to explore the integration of cultural context in behavioural theories, particularly in non-Western settings. By providing a comprehensive framework that accounts for a wide range of influences on consumer behaviour, the model encourages a more inclusive and globally relevant approach to consumer behaviour research, addressing calls for broader methodological diversity in the field (Gracia & De Magistris, 2008).

CONCLUSION

Macao consumers were motivated by health promotion, environmental concerns, and curiosity towards the consumption of organic foods but were discouraged by their price, credibility, and accessibility. This was especially true among the older generations, male consumers, or working adults where consumption of organic foods were less common. With the transformation of social and dietary trends of the younger generations, food delivery apps have become more widespread and preferable, thus, organic foods should be made easily available by food merchants to cater for the needs of health-conscious consumers. This potentially creates a positive impact on organic food businesses in Macao while improving the dietary intakes and overall health of Macao populations. Therefore, it is suggested that the Macao government and related organizations continue to promote organic food consumption via health promotion campaigns to enhance knowledge and trust towards organic foods, while the organic food businesses should increase products availability and accessibility. Future studies are warranted to investigate the marketing mix strategies of organic foods based on the findings of the present study.

Conflict of Interest

The authors confirm that they have no conflicts of interest with respect to the work described in this paper.

REFERENCES

- Abdullah, Z., Putri, K., Raza, S. H., & Istiyanto, S. B. (2022). Contrariwise obesity through organic food consumption in Malaysia: A signaling theory perspective. *BMC Public Health*, 22, 1–18.
- Aertsens, J., Verbeke, W., Mondelaers, K., & Van Huylenbroeck, G. (2009). Personal determinants of organic food consumption: A review. *British Food Journal*, 111, 1140–1167.
- Alagarsamy, S., & Mehroliya, S. (2023). Predicting intention to buy organic food during the COVID-19 pandemic: A multi-group analysis based on the health belief model. *Journal of International Food & Agribusiness Marketing*, 35, 508–534.
- Bates, S., Reeve, B., & Trevena, H. (2020). A narrative review of online food delivery in Australia: Challenges and opportunities for public health nutrition policy. *Public Health Nutrition*, 26(1), 262–272.
- Cairns, K., Johnston, J., & Mackendrick, N. (2013). Feeding the ‘organic child’: Mothering through ethical consumption. *Journal of Consumer Culture*, 13, 97–118.
- Cao, D., Zheng, Y., Liu, C., Yao, X., & Chen, S. (2021). Consumption values, anxiety and organic food purchasing behaviour considering the moderating role of sustainable consumption attitude. *British Food Journal*, 124(11), 3540–3562.
- Caso, G., Annunziata, A., & Vecchio, R. (2024). Indulgent, practical or balanced? Exploring mothers’ food choices for their children in low-and middle-income households. *Food Quality and Preference*, 113, 105080.
- Chan, R. Y., & Lau, L. B. (2000). Antecedents of green purchases: A survey in China. *Journal of Consumer Marketing*, 17, 338–357.
- Chang, M.-Y., & Chen, H.-S. (2022). Consumer attitudes and purchase intentions in relation to animal welfare-friendly products: Evidence from Taiwan. *Nutrients*, 14(21), 4571.

- Chen, M.-F. (2007). Consumer attitudes and purchase intentions in relation to organic foods in Taiwan: Moderating effects of food-related personality traits. *Food Quality and Preference*, 18, 1008–1021.
- Chen, M.-F. (2009). Attitude toward organic foods among Taiwanese as related to health consciousness, environmental attitudes, and the mediating effects of a healthy lifestyle. *British Food Journal*, 111, 165–178.
- Dangi, N., Narula, S. A., & Gupta, S. K. (2020). Influences on purchase intentions of organic food consumers in an emerging economy. *Journal of Asia Business Studies*, 14, 599–620.
- Denzin, N. K., & Lincoln, Y. S. (2011). *The Sage handbook of qualitative research*. New York, NY: Sage.
- Denzin, N. K., Lincoln, Y. S., Giardina, M. D., & Cannella, G. S. (2023). *The Sage handbook of qualitative research*. New York, NY: Sage.
- Devine, C. M., Jastran, M., Jabs, J., Wethington, E., Farell, T. J., & Bisogni, C. A. (2006). “A lot of sacrifices:” Work–family spillover and the food choice coping strategies of low-wage employed parents. *Social Science & Medicine*, 63, 2591–2603.
- Eu, E. Z. R., & Sameeha, M. J. (2021). Consumers' perceptions of healthy food availability in online food delivery applications (OFD apps) and its association with food choices among public university students in Malaysia. *Frontiers in Nutrition*, 8, 674427.
- FAO. (n.d.). *Organic agriculture: What are the environmental benefits of organic agriculture?* <https://www.fao.org>
- Fishbein, M., & Ajzen, I. (2011). *Predicting and changing behavior: The reasoned action approach*. Taylor & Francis.
- Giampietri, E., Verneau, F., Del Giudice, T., Carfora, V., & Finco, A. (2018). A Theory of Planned Behaviour perspective for investigating the role of trust in consumer purchasing decision related to short food supply chains. *Food Quality and Preference*, 64, 160–166.
- Gil, J. M., Gracia, A., & Sanchez, M. (2000). Market segmentation and willingness to pay for organic products in Spain. *The International Food and Agribusiness Management Review*, 3, 207–226.
- Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods*, 16, 15–31.
- Glanz, K., & Bishop, D. B. (2010). The role of behavioral science theory in development and implementation of public health interventions. *Annual Review of Public Health*, 31, 399–418.
- Gracia, A., & De Magistris, T. (2008). The demand for organic foods in the South of Italy: A discrete choice model. *Food Policy*, 33, 386–396.
- Guptill, A., & Wilkins, J. L. (2002). Buying into the food system: Trends in food retailing in the US and implications for local foods. *Agriculture and Human Values*, 19, 39–51.
- Harrell, M. C., & Bradley, M. A. (2009). *Data collection methods: Semi-structured interviews and focus groups*. Rand National Defense Research Institute.
- Huberman, A. M., & Miles, M. B. (2002). *The qualitative researcher's companion*. Thousand Oaks, CA: Sage.
- Hughner, R. S., McDonagh, P., Prothero, A., Shultz, C. J., & Stanton, J. (2007). Who are organic food consumers? A compilation and review of why people purchase organic food. *Journal of Consumer Behaviour: An International Research Review*, 6, 94–110.

- Izzah, A. N., Aminah, A., Pauzi, A. M., Lee, Y., Wan Rozita, W., & Fatimah, D. S. (2012). Patterns of fruit and vegetable consumption among adults of different ethnicities in Selangor, Malaysia. *International Food Research Journal*, 19.
- Iwatani, S., Honda, H., Otaki, Y., & Ueda, K. (2023). Effect of asking questions and providing knowledge on attitudes toward organic foods among Japanese consumers. *Frontiers in Psychology*, 14, 1274446.
- Jabs, J., & Devine, C. M. (2006). Time scarcity and food choices: An overview. *Appetite*, 47, 196–204.
- Jabs, J., Devine, C. M., Bisogni, C. A., Farrell, T. J., Jastran, M., & Wethington, E. (2007). Trying to find the quickest way: Employed mothers' constructions of time for food. *Journal of Nutrition Education and Behavior*, 39, 18–25.
- Janssen, M., & Hamm, U. (2011). Consumer perception of different organic certification schemes in five European countries. *Organic Agriculture*, 1, 31–43.
- Jordan, J. L., & Elnagheeb, A. H. (1991). Public perceptions of food safety. *Journal of Food Distribution Research*, 22, 13–22.
- Kantamaturapoj, K., & Marshall, A. (2020). Providing organic food to urban consumers: Case studies of supermarkets in Bangkok and metropolitan area. *Heliyon*, 6, e04479.
- Kushwah, S., Dhir, A., & Sagar, M. (2019). Understanding consumer resistance to the consumption of organic food: A study of ethical consumption, purchasing, and choice behaviour. *Food Quality and Preference*, 77, 1–14.
- Lang, B., & Conroy, D. M. (2021). Are trust and consumption values important for buyers of organic food? A comparison of regular buyers, occasional buyers, and non-buyers. *Appetite*, 161, 105123.
- Lian, S. B. (2017). What motivates consumers to purchase organic food in Malaysia. *Asian Social Science*, 13(9), 100–109.
- Lipoeto, N. I., Lin, K. G., & Angeles-Agdeppa, I. (2013). Food consumption patterns and nutrition transition in South-East Asia. *Public Health Nutrition*, 16, 1637–1643.
- Liu, C., Zheng, Y., & Cao, D. (2021). Similarity effect and purchase behavior of organic food under the mediating role of perceived values in the context of COVID-19. *Frontiers in Psychology*, 12, 4470.
- Macao Daily News. (2020, April 26). Vegetable merchants seek changes in the epidemic situation and seize business opportunities. *Macao Daily News*, A02. https://xiangyu-macau.oss-cn-hongkong.aliyuncs.com/app/szb/pc/content/202004/26/content_41431.html
- Macao Health Bureau. (2017). *Principal indicators of the “Macao Health Survey 2016” and recommendations to residents*. https://www.ssm.gov.mo/docs/12955/12955_36d9df25551f4132a0cb522e16d7e70f_000.pdf
- Manuela, V.-Z., Manuel, P.-R., Eva, M. M.-A., & José, T.-R. F. (2013). The influence of the term ‘organic’ on organic food purchasing behavior. *Procedia - Social and Behavioral Sciences*, 81, 660–671.
- Marshall, C., & Rossman, G. B. (2014). *Designing qualitative research*. Sage.
- Masih, J., Sharma, S. C., Saini, N., & Yadav, D. K. (2025). From preference to priority: The surge in demand for organic foods. *Economic Sciences*, 21(1), 90–105.
- Miles, S., & Frewer, L. J. (2001). Investigating specific concerns about different food hazards. *Food Quality and Preference*, 12, 47–61.
- Neff, R. A., Palmer, A. M., McKenzie, S. E., & Lawrence, R. S. (2009). Food systems and public health disparities. *Journal of Hunger & Environmental Nutrition*, 4, 282–314.

- Nguyen, T. T. M., Phan, T. H., Nguyen, H. L., Dang, T. K. T., & Nguyen, N. D. (2019). Antecedents of purchase intention toward organic food in an Asian emerging market: A study of urban Vietnamese consumers. *Sustainability*, 11, 4773.
- O'Donovan, P., & McCarthy, M. (2002). Irish consumer preference for organic meat. *British Food Journal*, 104, 353–370.
- Pal, Z. (2012). The impact of subjective and objective knowledge on attitudes towards organic food consumption. *Marketing From Information to Decision*, 344–357.
- Palys, T. (2008). Purposive sampling. In L. M. Given (Ed.), *The Sage encyclopedia of qualitative research methods* (Vol. 2, pp. 697–698). Sage.
- Pangaribuan, C., Wijaya, D., Antari, K., Sherisa, L., & Putra, C. (2020). Consuming organic instant noodle: Exploring environmental concern, health consciousness, and moral norm (Evidence from Indonesian consumers). *International Journal of Advanced Science and Technology*, 25, 6912–6927.
- Pearson, D., Henryks, J., & Jones, H. (2011). Organic food: What we know (and do not know) about consumers. *Renewable Agriculture and Food Systems*, 26, 171–177.
- Pettigrew, A. M., & Whipp, R. (1991). *Managing change for competitive success*. Wiley-Blackwell.
- Pieroni, A., & Price, L. (2006). *Eating and healing: Traditional food as medicine*. CRC Press.
- Radman, M. (2005). Consumer consumption and perception of organic products in Croatia. *British Food Journal*, 107, 263–273.
- Rennie, C., & Wise, A. (2010). Preferences for steaming of vegetables. *Journal of Human Nutrition and Dietetics*, 23, 108–110.
- Rosenstock, I. M. (1974). The health belief model and preventive health behavior. *Health Education Monographs*, 2, 354–386.
- Sampa, M. B., Nomura, H., Yabe, M., Abdul Aziz, N. H., & Aziz, N. A. A. (2024). Structural equation model for exploring the key drivers of consumer behavior towards environmentally conscious organic food purchasing in Japan. *Sustainability*, 16(7), 2862.
- Schösler, H., De Boer, J., & Boersema, J. J. (2012). Can we cut out the meat of the dish? Constructing consumer-oriented pathways towards meat substitution. *Appetite*, 58, 39–47.
- Smith-Spangler, C., Brandeau, M. L., Hunter, G. E., Bavinger, J. C., Pearson, M., Eschbach, P. J., Sundaram, V., Liu, H., Schirmer, P., & Stave, C. (2012). Are organic foods safer or healthier than conventional alternatives? A systematic review. *Annals of Internal Medicine*, 157, 348–366.
- Smith, S., & Paladino, A. (2010). Eating clean and green? Investigating consumer motivations towards the purchase of organic food. *Australasian Marketing Journal*, 18, 93–104.
- Soodan, V., & Rana, A. (2019). A study on university students' health behavior with special reference to organic food in Punjab. *Our Heritage*, 67, 751–758.
- Sriwaranun, Y., Gan, C., Lee, M., & Cohen, D. A. (2015). Consumers' willingness to pay for organic products in Thailand. *International Journal of Social Economics*, 42(5), 480–510.
- Story, M., Kaphingst, K. M., Robinson-O'Brien, R., & Glanz, K. (2008). Creating healthy food and eating environments: Policy and environmental approaches. *Annual Review of Public Health*, 29, 253–272.
- Strauss, A. L. (1987). *Qualitative analysis for social scientists*. Cambridge University Press.

- Tandon, A., Jabeen, F., Talwar, S., Sakashita, M., & Dhir, A. (2021). Facilitators and inhibitors of organic food buying behavior. *Food Quality and Preference*, 88, 104077.
- Teng, C. C., & Lu, C. H. (2016). Organic food consumption in Taiwan: Motives, involvement, and purchase intention under the moderating role of uncertainty. *Appetite*, 105, 95–105.
- The Macao Association of Vegetarian Culture. (2021). *First Macau vegetarian population and market research report*. <http://www.acvmacau.org/#>
- Thøgersen, J., De Barcellos, M. D., Perin, M. G., & Zhou, Y. (2015). Consumer buying motives and attitudes towards organic food in two emerging markets: China and Brazil. *International Marketing Review*, 32(3/4), 389–413.
- Tribhuvan, A. (2020). A study on consumers perception on food apps. *International Journal of Advance Research and Innovative Ideas in Education*, 6, 208–243.
- Wee, C. S., Ariff, M. S. B. M., Zakuan, N., Tajudin, M. N. M., Ismail, K., & Ishak, N. (2014). Consumers perception, purchase intention and actual purchase behavior of organic food products. *Review of Integrative Business and Economics Research*, 3, 378.
- Wijaya, T., Utama, A., Mustikasari, A., Sholikhah, Z., & Sinnappan, P. (2022). Motives and barriers of organic food consumption behaviour: A comparative study between Indonesia and Malaysia. *International Journal of Green Economics*, 16(1), 1–17.
- Willer, H., Schlatter, B., & Trávníček, J. (2023). *The world of organic agriculture: Statistics and emerging trends 2023*. Research Institute of Organic Agriculture FiBL and IFOAM - Organics International. <http://www.organic-world.net/yearbook/yearbook-2023.html>
- Xie, B., Wang, L., Yang, H., Wang, Y., & Zhang, M. (2015). Consumer perceptions and attitudes of organic food products in eastern China. *British Food Journal*, 117(3), 1105–1121.
- Yazdanpanah, M., Forouzani, M., & Hojjati, M. (2015). Willingness of Iranian young adults to eat organic foods: Application of the Health Belief Model. *Food Quality and Preference*, 41, 75–83.
- Yu, X., Gao, Z., & Zeng, Y. (2014). Willingness to pay for the “Green Food” in China. *Food Policy*, 45, 80–87.
- Żakowska-Biemans, S. (2011). Polish consumer food choices and beliefs about organic food. *British Food Journal*, 113, 122–137.

Table 1: Demographic characteristics of all participants (n = 43)

Participant Number	Gender	Age Range (years)	Education Level	Marital Status	Occupation	Household Income (MOP/month)	Type of Diet
1	Female	18-28	Master's	Single	Sales	15,001-30,000	Non-vegetarian
2	Female	29-39	Bachelor's	Single	Teacher	15,001-30,000	Non-vegetarian
3	Female	18-28	Bachelor's	Single	Pâtissier	5,001-15,000	Non-vegetarian
4	Female	29-39	Master's	Single	Media workforce	35,001-40,000	Flexitarian
5	Female	40-50	High School	Married	Housewife	15,001-30,000	Non-vegetarian
6	Female	51-60	High School	Married	Housewife	50,001 or above	Non-vegetarian
7	Female	18-28	Bachelor's	Single	Clerical worker	45,001-50,000	Non-vegetarian
8	Female	29-39	Bachelor's	Single	Clerical worker	15,001-30,000	Non-vegetarian
9	Female	29-39	Bachelor's	Single	Clerical worker	15,001-30,000	Non-vegetarian
10	Female	40-50	Bachelor's	Single	Clerical worker	30,001-35,000	Non-vegetarian
11	Female	61-70	High School	Married	Clerical worker	30,001-35,000	Flexitarian
12	Female	18-28	Bachelor's	Single	Barista	5,001-15,000	Lacto-ovo-vegetarian
13	Male	29-39	Master's	Single	Teacher	45,001-50,000	Non-vegetarian
14	Male	29-39	Bachelor's	Single	Teacher	35,001-40,000	Non-vegetarian
15	Male	18-28	Bachelor's	Single	Student	30,001-35,000	Non-vegetarian
16	Male	51-60	High School	Married	Pâtissier	35,001-40,000	Non-vegetarian
17	Male	40-50	High School	Married	Operation director	45,001-50,000	Non-vegetarian
18	Male	29-39	Master's	Single	Clerical worker	15,001-30,000	Non-vegetarian
19	Male	51-60	Master's	Married	Civil servant	50,001 or above	Flexitarian
20	Male	29-39	High School	Married	Accountant	50,001 or above	Non-vegetarian
21	Female	51-60	Bachelor's	Married	Housewife	50,001 or above	Flexitarian
22	Female	51-60	Bachelor's	Married	Civil servant	50,001 or above	Flexitarian
23	Female	40-50	Bachelor's	Married	Civil servant	50,001 or above	Flexitarian
24	Female	40-50	Bachelor's	Married	Civil servant	50,001 or above	Flexitarian
25	Female	40-50	Bachelor's	Married	Clerical worker	50,001 or above	Flexitarian
26	Female	40-50	Doctorate	Married	Business owner	50,001 or above	Flexitarian
27	Female	40-50	Bachelor's	Divorced	Business owner	50,001 or above	Flexitarian
28	Female	40-50	Master's	Single	Business owner	50,001 or above	Flexitarian
29	Female	29-39	Master's	Single	Clerical worker	50,001 or above	Vegetarian
30	Female	40-50	Bachelor's	Married	Medical technician	50,001 or above	Vegetarian
31	Female	40-50	Doctorate	Married	Teacher	50,001 or above	Lacto-ovo-vegetarian
32	Female	29-39	Master's	Single	Clerical worker	15,001-30,000	Flexitarian

33	Female	51-60	Bachelor's	Married	Retired	50,001 or above	Flexitarian
34	Male	51-60	Bachelor's	Married	IT technician	50,001 or above	Flexitarian
35	Male	61-70	Bachelor's	Married	Retired	50,001 or above	Flexitarian
36	Male	51-60	Master's	Married	Clerical worker	50,001 or above	Flexitarian
37	Male	61-70	Bachelor's	Married	Medical technician	50,001 or above	Vegetarian
38	Male	51-60	Bachelor's	Married	Retired	50,001 or above	Flexitarian
39	Male	51-60	Bachelor's	Married	Civil servant	50,001 or above	Flexitarian
40	Male	51-60	Bachelor's	Married	Business owner	50,001 or above	Flexitarian
41	Male	51-60	Bachelor's	Married	Baker	50,001 or above	Flexitarian
42	Male	61-70	Bachelor's	Divorced	Retired	30,001-35,000	Flexitarian
43	Male	18-28	High School	Single	Student	30,001-35,000	Flexitarian

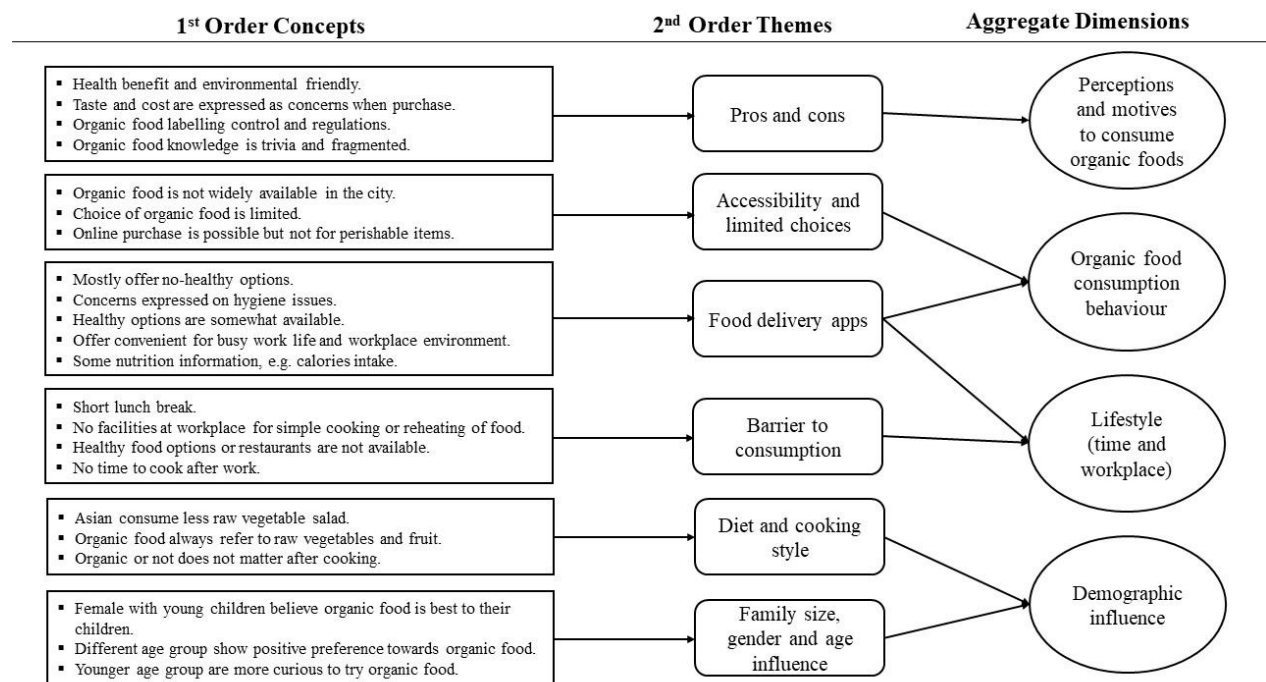


Figure 1: Data Structure

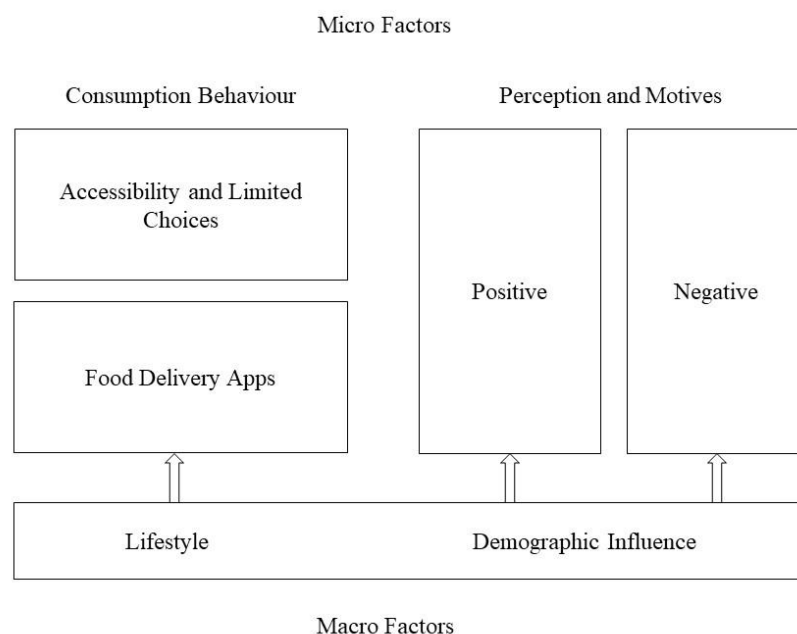


Figure 2: The Ecology of Organic Food Consumption in Asia

Research Article

Factors Influencing the Intention to Use Mobile Health Applications Among Young Adults in Malaysia

Mariamamah Valli A/P Nadeson, Muhammad Idham Bin Mohd Kamal, Aimi Nadiah Binti
Mohd Zamri and Siti Norzamani Binti Awang Ya & Nurul Hafizah Binti Mohd Yasin*

*Faculty of Hospitality, Tourism and Wellness, University Malaysia Kelantan
Corresponding email: hafizah.my@umk.edu.my*

Journal of Hospitality, Tourism &
Wellness Studies
Vol. 2 (1) pp 127-140
© The Author(s) 2025
Submit date: 10 January 2025
Accept date: 11 February 2025
Publish date: 31 March 2025

ABSTRACT

Mobile health applications are the confluence of wireless technologies in mobile and computing device health statistics systems. This study explains the factors of effort expectancy, performance expectancy, social influence, facilitating conditions and health consciousness that influence young adults' intention in Malaysia to use mobile health applications. A cross-sectional design was used to collect quantitative data from 312 Malaysian respondents, and the data was collected via an online survey. The relationships between the factors to use mobile health applications were investigated in this study. All the factors positively affected the relationship between the intention to use mobile health applications. The findings revealed that health consciousness greatly impacted the intentions to use mobile health applications. Other theories can be applied to guide future studies to discover more factors that influence young adults to use mobile health applications.

Keywords: Mobile Health Applications, Effort Expectancy, Performance Expectancy, Social Influence, Facilitating Conditions

INTRODUCTION

M-health refers to healthcare mobile application facilitated by the convergence of wireless technology in mobile and computing device health statistics systems, as well as different networks consisting of Bluetooth and mobile networks. The main objective of the M-health application is to improve well-being outcomes through dynamic self-administration and contribute to medical services. The quick spread of the coronavirus disease (COVID-19) as well as the severity of the sickness in a significant number of individuals have demanded exceptional public health measures. To solve the issue, health institutions throughout the world

are fighting against the clock, adopting extraordinary steps. There are several alternatives for health professionals to discover, treat and monitor COVID-19 patients effectively and efficiently, as well as to prevent the disease from spreading further (Echeverría et al., 2020). Therefore, this study is aimed to assess the factors that influence the adoption of mobile health applications among young adults in Malaysia. The outcomes of this study are useful for the researchers to understand the relationship between determinants and behavioural intentions.

There are five objectives of this research:

1. To identify the relationship between performance expectancy and intention to use mobile health applications among young adults in Malaysia.
2. To examine the relationship between effort expectancy and intention to use mobile health applications among young adults in Malaysia.
3. To identify the relationship between social influence and intention to use mobile health applications among young adults in Malaysia.
4. To identify the relationship between facilitating conditions and intention to use mobile health applications among young adults in Malaysia.
5. To identify the relationship between health consciousness and intention to use mobile health applications among young adults in Malaysia.

Signification of the Study

Society

Chronic disease prevalence is steadily increasing in developing countries, as is the burden of communicable diseases. The use of mobile technologies such as cellular phones to assist public health and clinical care, or "mobile" health, or M-health, holds promise in responding to both types of disease burdens. In 2018, over half of all smartphone users have at least one mobile health app on their devices. Mobile health applications have been proven to increase medication adherence for patients with chronic diseases, monitor eating behaviours for diabetic patients, and encourage the gathering of blood pressure measurements for hypertensive patients, according to a series of studies (Lu et al., 2018).

Government

By offering a clear argument for the necessity of designing and implementing mobile health technology and applications for the general population, this research has the potential to have a considerable impact on government and healthcare policy (Pai & Alathur, 2019). Literature in this subject is insufficient in articulating the value of mobile phone-based healthcare solutions for health services and serious disease outbreaks, particularly in Malaysia.

Researchers

The creative application of emerging mobile and wearable health information and sensing technologies (M-health) has the potential to lower healthcare costs and improve well-being in a variety of ways (Birkhoff & Moriarty, 2020). These apps are being developed in a range of fields, but more research is needed to fully understand the benefits and drawbacks of using mobile technologies to improve health outcomes. The proof regarding M-health's efficacy is currently lacking. Even though these technologies are enticing and appear to be harmless, more research is needed to determine when, where and for whom M-health devices, applications and systems are effective (Brinkhoff & Moriarty, 2020).

Young Adult

The adult Certified Health Executive population is a highly attractive group in which to initiate M-health initiatives due to their relatively young age, affinity with mobile devices, chronic conditions necessitating lifelong surveillance and the general need to reduce the burden of disease. The additional monitoring of clinical parameters (e.g. heart rate, blood pressure, weight, etc.) might enable physicians and specialised nurses to improve the early recognition of clinical deterioration and to deliver sophisticated patient-tailored care remotely, e.g. titration of diuretics and antiarrhythmic agents (Schuurin et al., 2016).

LITERATURE REVIEW

Intention to use M- health application

The intention to use the M-health application model of health service utilization is one of the most extensively used models for improving the understanding of why people use health services and promoting equitable access to healthcare (Andersen & Newman, 2005). Even though this approach is commonly utilized in the general healthcare industry, it has never been applied in a mobile health study because mobile health is a healthcare innovation, applying this paradigm to it could help design a more comprehensive mobile health adoption model.

Effort Expectancy

According to Venkatesh et al. (2003), effort expectancy defines as the accuracy and ease with which a system can be used. The premise behind effort expectation is that there are relationships between the amount of effort put in at work, the achievements achieved because of that effort and the rewards received because of that effort (Ghalandari et al. 2012). Adults' attempts to utilize the M-health app via gadget technology such as smartphones are expected to make it simpler for these groups to see their level of health regularly. In studies examining M-health applications in the context of Unified Theory of Acceptance and Use of Technology, also discovered that effort expectancy has a positive relationship on intentions to use M-Health apps (Alam, Hu, & Barua, 2018).

Performance Expectancy

Performance expectancy is an important concept that influences the adoption and eventual use of information systems. Indicators such as perceived usefulness, intrinsic and extrinsic

motivation, job-fit, relative advantage and information technology outcome expectancies all play a role in determining performance expectancy (Wu et al., 2012).

According to Bora Semiz and Semiz, (2021), performance expectancy has a considerable impact on users' use of mobile apps. However, past study from (Hoque and Sorwar, 2017), performance expectancy creates a positive relationship between the consumer intentions to use M-Health because it can affect consumers significantly in terms of mobile applications usage.

Social Influence

Social influence can be defined as the process by which the presence or actions of others modify an individual's attitudes, beliefs or behaviours. Social influence is also defined as the extent to which an individual believes a person should use new systems and new technologies (Venkatesh et al., 2003). The four areas of social influence are compliance, compliance and adherence, and minority influence which are used in a study. In this study, social influence was used to support users around consumers among young adults using the M-health app. Social influence was employed to encourage customers to use M-health applications from those around them (Alam, Hu, & Barua, 2018).

Facilitating Conditions

The measure to which society believes infrastructure can be utilized to adopt new technologies is referred to as the facilitating condition. In UTAUT, facilitating refers to how satisfied an individual feels that the authoritative and specialized foundations needed to utilize the proposed framework are set up (Ghalandari, 2012). Based on the context of this study, the facilitating conditions have a direct impact on the use of M-health apps that can help push adults toward a healthy lifestyle. In addition, Dwivedi et al., (2016) also discovered that facilitating conditions had an impact on M-health application uptake. According to Alam, Hoque, Hu, & Barua (2020), their studies presented the facilitating conditions have a positive effect on the intentions of consumers to use M-health applications

Health Consciousness

Health consciousness has been defined and conceptualized as the willingness to take health actions (Hsu, Chang, & Lin, 2016). According to Nagaraj (2021), this concept has been modified as a wellness-oriented lifestyle that describes the extent to which individuals care about healthy lifestyle practices such as nutritious food intake, physical exercise and their living environment. The degree to which health concerns are interwoven into a person's regular activities is consistently characterized as health awareness. (Jayanti & Burns, 1998). Health consciousness is the most significant predictor to adopting health apps, while M-Health literacy and health information orientation did not directly influence the adoption of M-Health apps.

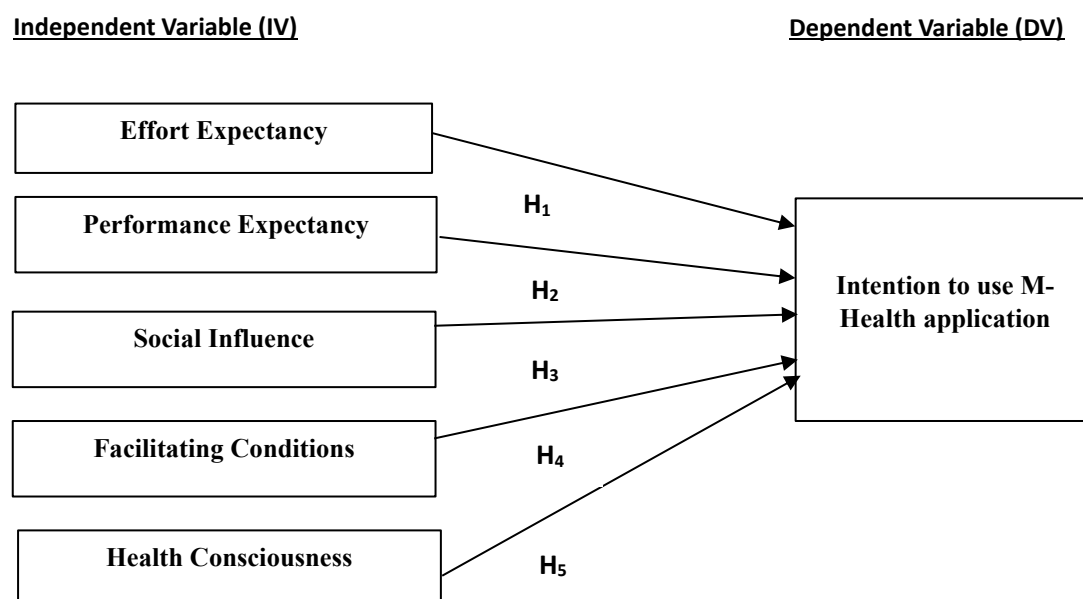
Research Hypotheses

The literature review highlighted that independent variables like effort expectancy, performance expectancy, social influence, facilitating conditions and health consciousness do affect the intention to use M-health application. Therefore, the study planned to 312 respondents will examine the level of effect among these variables. Based on the literature discussed, the hypotheses of this study were summarized in the following manner:

- H1 There is a positive relationship between effort expectancy and intention to use the M-health application
- H2 There is a positive relationship between performance expectancy and intention to use M-health applications
- H3 There is a positive relationship between social influence and intention to use the M-health application
- H4 There is a positive relationship between facilitating conditions and intention to use the M-health application
- H5 There is a positive relationship between health consciousness and intention to use the M-health application

Research Framework

A research framework is illustrated as shown in Figure 1 to investigate the connection between the effort expectancy, performance expectancy, social influence, facilitating conditions and health consciousness to intention to use M-health application. The independent variables are effort expectancy, performance expectancy, social influence, facilitating conditions and health consciousness. The dependent variable is the intention to use M-health application.



METHODOLOGY

Research Design

As a result, rather than a causal design, a correlational research design will be used in this study. This study employed a cross-sectional survey method to collect information concerning the exposure to the intention to use mobile health applications. In this study, it was important to gather data relating to M-health and to collect detailed information about the adoption of mobile health applications among young adults in Malaysia.

Data Collection

Google form was used to develop the online questionnaire. The weblink for the online questionnaire was then distributed via social media platforms, such as Facebook, and WhatsApp and through personal contacts of the researchers. 320 respondents have participated in this study.

Sampling

Owing to the sampling frame's unavailability, the non-probability technique was used in this study using purposive sampling. The researcher selected Malaysian adults who are above 18 years old, and who are expected to understand the concept of "M-health application". The purposive sampling technique was suitable for this study because the respondents must fulfil certain criteria to be screened as respondents. A non-probability sampling techniques are suitable for studying theoretical impact based on conceptual frameworks (Hulland et al., 2017; Hayat, Ngah, Hashim, Dahri, Malik, & Rahayu, 2019).

Data Analysis

The data in this study will be evaluated using the Smart PLS 3 for analysis of the partial least square structural equation modelling (PLS-SEM) technique. When numerous constructs are unobservable, SEM is a valuable tool in the behavioural and social sciences. SEM assists researchers in determining the one-dimensionality, dependability and validity of each concept. As a result, PLS-SEM was utilized for data analysis in this study to answer the research questions and objectives.

FINDINGS

Table 1: Frequency Analysis (n=312)

Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	156	50.0
Female	156	50.0
Age		
18-22 years	140	44.9
23-27 years	142	45.5
28-32 years	30	9.6
Race		
Malay	161	51.6
Chinese	86	27.6
Indian	52	16.7
Others	13	4.2
Highest Education		
SPM	40	12.8
Diploma	78	25.0
Degree	179	57.4
Master's degree	11	3.5
Doctoral	4	1.3
Residential		
Urban	144	46.2
Suburban	67	21.5
Rural	101	32.4
Religion		
Muslim	160	51.3
Buddha	49	15.7
Hindu	86	27.6
Christian	12	3.8
Others	5	1.6

Most respondents were young adults in Malaysia where the number of respondents is the same female (50%), and the remaining respondents (50%) were male. Regarding their age, the age of the respondents varied between 23 and 27 years has the largest number of respondents (45.5%), aged between 18 and 22 years (44.9%) and last of them aged from 28 and 32 years (9.6%). As for the respondents' ethnicity, most were Malay (51.6%) compared to Chinese (27.6%), Indian (16.7%), and others (4.2%). In terms of education, more than half of the respondents held a degree (57.4%) while (25%) being diploma. Only (1.3%) of respondents were doctoral. Only (12.8%) of SPM and master (3.5%). In terms of Residential area, more than half of the respondents held an urban (46.2%), with (21.5%) being suburban. Only (32.4%) of respondents were rural. Lastly, the descriptive analysis revealed that most of the respondents Religion, most were Muslim (51.3%) compared to Buddha (15.7%), Hindu (27.6%), Christian (3.8 %) and others (1.6%).

Result of Descriptive Analysis

The mean scores and standard deviations of the variable are shown in Table 2. The factors are considered low if the mean score is from 1.00 to 1.99 and high if the mean score is from 2.00 to 4.00. Table 2 shows result of descriptive analysis.

Table 2: Descriptive Analysis

Variables	Items	Mean Score (M)	Standard Deviation (SD)
Effort Expectancy	Learning how to use mobile health applications is easy for me.	4.08	1.128
	My interaction with mobile health applications is clear and understandable.	4.03	1.137
	It is easy for me to become skilful at using mobile health applications.	4.01	1.125
Performance Expectancy	The mobile health application is useful to support critical aspects of my healthcare.	3.90	1.232
	The use of the mobile health application will enhance the effectiveness in managing my healthcare.	4.00	1.102
	Using the mobile health application will improve my productivity.	3.88	1.186
	Overall, the mobile health application will be useful in managing my healthcare.	3.98	1.105
Social Influence	I am interested in trying to use the mobile health application when influenced by close acquaintances.	3.85	1.261
	I am easily influenced to try using the latest mobile health application.	3.81	1.161
	I followed to use this mobile health application from a social media influencer.	3.81	1.216
Facilitating Conditions	I have the resources necessary to use mobile health application.	3.90	1.192
	I know necessary to use the mobile health application.	3.84	1.110
	The mobile health application is compatible with other technologies I use.	3.86	1.156
Health Consciousness	Using the mobile health application is appropriate for my current situation.	3.96	1.149
	Using the mobile health application is convenient for me in all parts of my life.	4.00	1.073
	I believe that using this mobile health application is a good fit for the way I manage my health.	3.95	1.110

Intention	I intend to use a mobile health application to consult health issues when needed in the future.	3.99	1.173
	I plan to use a mobile health application to consult health issues when needed in the future.	3.93	1.153
	I am willing to tell others about the good aspects of the mobile health application.	3.94	1.183
	I would recommend this mobile health application to others.	3.98	1.144
	I will tell my family and friends about my good experiences using the mobile health application.	3.91	1.208

This study included 312 respondents and examined the mean and standard deviation on descriptive analysis for the dependent variable, Intention to use M-health application, and independent variables, effort expectancy, performance expectancy, social influence, facilitating conditions and one extra constructs, health consciousness of the questionnaire.

The mean score obtained from a descriptive analysis is shown in Table 2. To summarize, the highest mean score for an independent variable, effort expectancy (4.0406 ± 1.02964), followed by performance expectancy, (3.9399 ± 1.04125), social influence (3.8237 ± 1.07884), facilitating conditions (3.8675 ± 1.03679), and health consciousness (3.9712 ± 1.00919). Thus, the mean score of the dependent variable is intention (3.9500 ± 1.04451).

Result of Convergent Reliability

Table 3: Convergent Reliability

Constructs	Items	Loadings	AVE	CR
Effort Expectancy	EE 1	0.912	0.830	0.936
	EE 2	0.913		
	EE 3	0.908		
Performance Expectancy	PE1	0.877	0.812	0.945
	PE2	0.926		
	PE3	0.910		
	PE4	0.889		
Social Influence	SI1	0.885	0.794	0.921
	SI2	0.886		
	SI3	0.903		
Facilitating Conditions	FC1	0.891	0.809	0.927

	FC2	0.903		
	FC3	0.904		
Health Consciousness	HC1	0.902	0.826	0.934
	HC2	0.914		
	HC3	0.910		
Intention To Use M-Health Application	MH1	0.893	0.794	0.951
	MH2	0.897		
	MH3	0.897		
	MH4	0.879		
	MH5	0.890		

The measurement model can be confirmed valid and reliable if the loading is higher than 0.5, the average variance extracted (AVE) is higher than 0.5, and the composite reliability is higher than 0.7, respectively (Hair et al., 2017). Table 3 clearly illustrates that all the requirements to establish convergent validity have been fulfilled; hence, the study concludes that convergent validity was not a problematic issue for the study. The summary of convergent validity for the measurement model was summarized

Result of Discriminant Validity

Table 4: Discriminant Validity

	1	2	3	4	5	6	7
1. Effort Expectancy	0.793						
2.Facilitating Conditions	0.725	0.899					
3.Health Consciousness	0.714	0.837	0.818				
4.Intention to Use M-Health Application	0.733	0.839	0.848	0.891			
5.Performance Expectancy	0.812	0.821	0.816	0.818	0.789		
6.Social Influence	0.733	0.811	0.791	0.792	0.820	0.891	

In terms of the Hybrid Technology Multi Thread criterion, the values should not be more than 0.9 (Franke and Sarstedt, 2019). Table 4 demonstrated the discriminant validity established from the HTMT criterion, given that all values are less than 0.9 are established. It can be concluded that the respondents understood that the given constructs are distinct. These validity tests have shown that the measurement items are valid and reliable.

Result of Direct Hypothesis

Table 5: Direct Hypothesis

	Relationship	Std Beta	Std error	P value	Confidence LL	Interval UL	VIF	Decision
H1	Effort Expectancy	0.079	0.050	0.058	0.000	0.167	3.093	Not Supported
H2	Performance Expectancy	0.153	0.073	0.018	0.021	0.271	3.298	Supported
H3	Social Influence	0.108	0.078	0.081	-0.018	0.248	3.934	Not Supported
H4	Facilitating Condition	0.273	0.080	0.000	0.142	0.399	3.244	Supported
H5	Health Consciousness	0.352	0.081	0.000	0.204	0.475	3.202	Supported

Table 5 shows the structural model for collinearity issues should be checked by examining the variance inflation factor values of all sets of predictor constructs in the structural model (Hair et al., 2017). As shown in Table 5 all values for the VIF of each sample construct are smaller than 3.3, as advocated by Diamantopoulos and Siguaw (2006). The present analysis confirms that collinearity was not a problem and can progress to the testing of hypotheses.

The research hypotheses may be supported if the beta values are in accordance with the hypothesis's direction, t-values, and p-value. In terms of confidence interval, which is lower level (LL) and upper level (UL), it should not straddle or overlap at zero between the LL and UL (Hair et al., 2018). In the present analysis, a bootstrapping approach with resampling of 5,000 was used, in which the findings for the direct effect show that five hypothesized relationships were supported, and one hypothesized relationship was not supported. Table 5 below shows that the first hypothesis, effort expectancy was not related to intention ($\beta = -0.079$, $t = 0.050$, $LL = 0.000$, $UL = 0.167$, $p < 0.058$). The second hypothesis, performance expectancy was positively related to intention ($\beta = 0.153$, $t = 2.102$, $LL = 0.021$, $UL = 0.271$, $p < 0.018$). Next, third hypothesis, social influence was not related to intention ($\beta = 0.108$, $t = 1.398$, $LL = -0.018$, $UL = 0.248$, $p < 0.081$). This is followed by the fourth hypothesis, facilitating condition was positively related to intention ($\beta = 0.273$, $t = 1.080$, $LL = 0.142$, $UL = 0.399$, $p < 0.000$). Lastly, the fifth hypothesis, health consciousness was positively related to intention ($\beta = 0.352$, $t = 4.332$, $LL = 0.204$, $UL = 0.475$, $p < 0.000$). Table 5 below indicates that fourth direct hypotheses developed for the model were significant; thus H2, H4, and H5 were accepted, and two hypothesis was not supported; thus, H1 and H3 were rejected.

DISCUSSIONS & RECOMMENDATIONS

The purpose of this study was to identify the factors on the intention to use M-health applications among young adults in Malaysia; effort expectancy, performance expectancy, social influence, facilitating conditions, and health consciousness. The results of this study

indicate that there is a significant relationship between the independent and dependent variables. The findings of this study show that each variable is a strong predictor of intention to use M-health applications among Malaysian young adults. Correspondingly, the fourth direct hypotheses developed for the model was significant; thus H2, H4, and H5 are accepted, and two hypotheses were not supported; thus, H1 and H3 are rejected.

The recommendation is future research should expand the geographic coverage of the study concerning the population and distribution of the questionnaire. The current study only focused on the registered use of mobile health applications among young adults in Peninsular Malaysia. Moreover, the second recommendation is most of the respondents in this study are Malaysian young adults only aged from 18 to 32 years. Third, future research could extend the work of this study by using other study designs, such as an experimental study with an intervention tool to examine the causal relationships between the predictors and intention.

Besides that, future research could use multiple informants to enhance the validity of the research findings as well. Furthermore, it suggested for future study to explore the effect of other psychological capital regarding personal resources such as optimism and hope as a moderating role in strengthening the positive relationship intention to use M-health application. Finally, future work should examine whether adding other factors related to the intention to use mobile health will increase young adults' interest in M-health and in turn improve the advanced model of the research framework.

CONCLUSION

The study tested a model that included five key dimensions in effort expectancy, performance expectancy, social influence, facilitating conditions and health consciousness to achieve this goal. The proposed model developed in this study yielded useful results, such as the observation that effort expectation is positively related to intention and performance expectancy is similarly related to the intention. Social influence, on the other hand, was found to have a beneficial impact on intention. Facilitating conditions, on the other hand, were found to have a favourable impact on intention. However, it was discovered that health consciousness is favourably related to intention. The results showed that most of the hypotheses examined had a high statistical significance. Based on the statistical findings of this investigation, it can be inferred that the model developed in this study has more predictive ability than the baseline model.

REFERENCES

- Alam, M. Z., Hoque, M. R., Hu, W., & Barua, Z. (2020). Factors influencing the adoption of mHealth services in a developing country: A patient-centric study. *International Journal of Information Management*, 50, 128–143.
- Alam, M. Z., Hu, W., & Barua, Z. (2018). Using the UTAUT model to determine factors affecting acceptance and use of mobile health (mHealth) services in Bangladesh. *Journal of Studies in Social Sciences*, 17(2), 137–172.
- Andersen, R., & Newman, J. F. (2005). Societal and individual determinants of medical care utilization in the United States. *The Milbank Quarterly*, 83, 1–28.

- Birkhoff, S. D., & Moriarty, H. (2020). Challenges in mobile health app research: Strategies for interprofessional researchers. *Journal of Interprofessional Education & Practice*, 19, 100325.
- Dwivedi, Y. K., Shareef, M. A., Simintiras, A. C., Lal, B., & Weerakkody, V. (2016). A generalized adoption model for services: A cross-country comparison of mobile health (m-health). *Government Information Quarterly*, 33(1), 174–187.
- Echeverría, P., Bergas, M. A. M., Puig, J., Isnard, M., Massot, M., Vedia, C., ... & Negredo, E. (2020). COVIDApp as an innovative strategy for the management and follow-up of COVID-19 cases in long-term care facilities in Catalonia: An implementation study. *JMIR Public Health and Surveillance*, 6(3), e21163.
- Franke, G., & Sarstedt, M. (2019). Heuristics versus statistics in discriminant validity testing: A comparison of four procedures. *Internet Research*.
- Ghalandari, K. (2012). The effect of performance expectancy, effort expectancy, social influence and facilitating conditions on acceptance of e-banking services in Iran: The moderating role of age and gender. *Middle East Journal of Scientific Research*, 12(6), 801–807.
- Hair, J., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management & Data Systems*.
- Hayat, O., Ngah, R., Hashim, S. Z. M., Dahri, M. H., Malik, R. F., & Rahayu, Y. (2019). Device discovery in D2D communication: A survey. *IEEE Access*, 7, 131114–131134.
- Hoque, R., & Sorwar, G. (2017). Understanding factors influencing the adoption of mHealth by the elderly: An extension of the UTAUT model. *International Journal of Medical Informatics*, 101, 75–84.
- Hsu, S. Y., Chang, C. C., & Lin, T. T. (2016). An analysis of purchase intentions toward organic food on health consciousness and food safety with/under structural equation modeling. *British Food Journal*. <https://doi.org/10.1108/BFJ-11-2014-0376>
- Hulland, J., Baumgartner, H., & Smith, K. M. (2017). Marketing survey research best practices: Evidence and recommendations from a review of JAMS articles. *Journal of the Academy of Marketing Science*, 1–17. <https://doi.org/10.1007/s11747-017-0532-y>
- Jayanti, R. K., & Burns, A. C. (1998). The antecedents of preventive health care behavior: An empirical study. *Journal of the Academy of Marketing Science*, 26(1), 6–15.
- Lu, C., Hu, Y., Xie, J., Fu, Q., Leigh, I., Governor, S., & Wang, G. (2018). The use of mobile health applications to improve patient experience: Cross-sectional study in Chinese public hospitals. *JMIR mHealth and uHealth*, 6(5), e9145.
- Nagaraj, S. (2021). Role of consumer health consciousness, food safety & attitude on organic food purchase in emerging market: A serial mediation model. *Journal of Retailing and Consumer Services*, 59, 102423.
- Pai, R. R., & Alathur, S. (2019). Determinants of individuals' intention to use mobile health: Insights from India. *Transforming Government: People, Process and Policy*.
- Schuuring, M. J., Backx, A. P., Zwart, R., Veelenturf, A. H., Robbers-Visser, D., Groenink, M., ... & Bouma, B. J. (2016). Mobile health in adults with congenital heart disease: Current use and future needs. *Netherlands Heart Journal*, 24(11), 647–652.
- Semiz, B. B., & Semiz, T. (2021). Examining consumer use of mobile health applications by the extended UTAUT model. *Business & Management Studies: An International Journal*, 9(1), 267–281.

- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478.
- Wu, M., Yu, P., & Weng, Y. (2012). A study on user behavior for I Pass by UTAUT: Using Taiwan's MRT as an example. *Asia Pacific Management Review*, 17(1), 91–111.
- Xiao, N., Sharman, R., Rao, H. R., & Upadhyaya, S. (2014). Factors influencing online health information search: An empirical analysis of a national cancer-related survey. *Decision Support Systems*, 57, 417–427.