

A STUDY ON FACTORS INFLUENCING TOURIST BEHAVIOURAL INTENTION IN REDUCING SINGLE-USE PLASTIC-BASED PRODUCTS

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<http://doi.org/10.46754/jbsd.2025.03.005>

Received: 31 July 2024 Revised: 6 November 2024

Accepted: 8 January 2025

Published: 15 March 2025

Abstract: Tourism greatly increases waste generation, mostly by using single-use plastics and taxing waste management systems in destinations. A quantitative study effectively employs the Theory of Planned Behaviour (TPB) to investigate the elements significantly influencing tourists' intentions to minimise single-use plastic products throughout their island stay. The study collected data from 208 samples using purposive sampling and a self-administered questionnaire to find tourists' demographics, attitudes towards sustainable practises, subjective norms, perceived behavioural control, and intentions towards single-use plastic reduction. All hypotheses were examined using multiple regression analysis using the Statistical Packages for the Social Sciences (SPSS) version 25 software. According to the findings, two hypotheses had a positive relationship with the dependent variable, whereas one had a negative relationship. Tourists' intentions to eliminate single-use plastic-based items are heavily impacted by their attitudes and perceived behavioural control variables. However, tourists' subjective norm was an insignificant connection factor impacting behaviour intention. Furthermore, the findings of this study contribute to the promotion of sustainable tourism on Perhentian Island, Terengganu, while also providing direction to industry operators, lawmakers, and local communities in developing responsible tourism. It also emphasises the necessity of minimising single-use plastic products in order to protect the island's natural resources and the state's general environmental sustainability, which corresponds with the United Nations, Sustainable Development Goal (SDG).

Keywords: Tourist behaviour, behavioural intention, single-use plastic, sustainable tourism, island, theory of planned behaviour.

Introduction

Plastic is widely used and treasured in modern life due to its various benefits and adaptability. Its lightweight and sturdy character makes it suited for a wide range of applications, including packaging, electronics, and automobile parts. Furthermore, the low cost of plastic helps both producers and buyers.

However, it is critical to examine the impact of plastic on the environment. Plastic waste takes hundreds of years to disintegrate, causing harm to the ecosystem and species. Despite its benefits, the long-term environmental repercussions of plastic demand careful study and sustainable practises.

According to Plastic Oceans International (2021), single-use plastic accounts for more than half of all plastic garbage created. Single-use plastic is intended for one-time use and is discarded at random after use (Watkins *et al.*, 2017). Plastic bags, plastic cutlery, straws, cigarette butt bottles, plastic cups, and food packagings such as polystyrene and plastic wrappers are examples of marine plastic pollution generated by single-use plastic (Schnurr *et al.*, 2018).

The most significant issue with single-use plastic is that it is not biodegradable. It eventually became landfill debris or flowed

into the ocean (Van *et al.*, 2021). Plastic debris accounts for more than 80% of all marine litter globally, and up to 10 million tons of plastic garbage pollute the ocean (Fava, 2022). Plastic marine contamination has been widely acknowledged as a critical worldwide concern in recent studies (Schnurr *et al.*, 2018). The harmful impact of plastic pollution on marine life costs the global tourism industry around USD 13 billion in lost annual revenue (Borrelle *et al.*, 2018).

On Perhentian Island, a popular tourist destination in Malaysia, plastic pollution poses a significant threat not only to the marine ecosystem but also to the overall tourist experience (Abdullah *et al.*, 2019). The island's economy, heavily reliant on tourism, is endangered by the visible accumulation of plastic waste on its beaches and in surrounding waters. Marine plastic pollution degrades the natural beauty of the island, reducing its appeal to eco-conscious travelers and threatening its long-term viability as a tourism destination (Hamid *et al.*, 2024; Abdullah *et al.*, 2019; Saat, 2017).

Tourist behaviour on Perhentian Island plays a crucial role in the success of initiatives aimed at reducing the consumption of single-use plastic products. Research highlights that littering and the improper disposal of plastics, including single-use items such as water bottles and packaging, significantly contribute to marine pollution in the area (Hamid *et al.*, 2021).

Given the environmental sensitivity of marine parks like Perhentian Island, promoting behavioural changes in tourists—through awareness campaigns and incentivizing alternatives such as reusable products—could mitigate plastic waste. Encouraging eco-friendly practices not only helps preserve the island's natural beauty but also aligns with

global sustainability efforts (Nasir & Yusof, 2021).

By reducing single-use plastic pollution, Perhentian Island can ensure that its natural environment continues to attract visitors, enhancing tourism sustainability and contributing to both ecological and economic resilience.

There is a substantial knowledge gap in Malaysia on tourist behaviour and the impact of single-use plastics on marine litter. The finding indicates both poor trash management on the side of tourists and the importance of environmental concerns (Kamaruddin, 2020).

Despite growing concern about environmental issues related to single-use plastic-based products and growing interest in sustainable tourism practises, there is a need to investigate waste management to reduce the impact of plastic waste on tourism destinations and to preserve the island's appeal as a tourist destination (Saat, 2017).

It is critical to maintain the island's allure as a tourist attraction. If left unchecked, plastic pollution could severely diminish the quality of the tourism experience on Perhentian Island, deterring future visitors and damaging the local economy.

Thus, the study examined at how attitude, subjective norm, and perceived behaviour control are associated to behaviour intention when it comes to minimising single-use plastic-based items among tourists on Terengganu's Perhentian Island.

Literature Review

The Single-Use Plastic Bag

Many governments across the world have enacted stringent rules governing plastic products and environmental legislation in order to decrease marine pollution caused by plastic. Several states and municipalities in the United

States have passed rules prohibiting the use of single-use plastic products. These regulations include bans on the use of plastic bags, straws, and utensils. For example, in 2014, California became the first state in the United States to restrict single-use plastic bags, making it the nation's pioneer in this field (California Senate Bill 270, 2014).

Meanwhile, the European Union (EU) passed the Single-Use Plastics Directive in 2019, which limits the use of single-use plastic products such as cotton swabs, straws, and cutlery (Syberg *et al.*, 2021).

Several prior studies have found that prohibiting single-use plastics can be an effective way to reduce the amount of pollution generated by plastic. For example, Pereira (2019) observed that California's plastic bag ban reduced the quantity of trash generated by plastic bags in the state's waterways by 72%.

Kolcon (2021) came to a similar conclusion, demonstrating that limiting plastic bags in Kenya resulted in a 40% drop in plastic bag consumption compared to before the ban. Kenya now has the strictest plastic bag ban in the world. Anyone convicted making or selling plastic shopping bags faces penalties of up to \$40,000 and up to four years in imprisonment; and single-use plastic bags are punished by a \$500 fine or a year in imprisonment (Kolcon, 2021).

Furthermore, prior to the establishment of the national import ban on plastic garbage, China was the country that imported the most waste plastic from other nations than any other. To help minimise global imported garbage, China made public its determination to restrict the import of 24 distinct types of solid rubbish, including plastic garbage (Wang *et al.*, 2022).

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solid rubbish, including plastic garbage (Wang *et al.*, 2022).

The Association of Southeast Asian Nations (ASEAN) has devised a regional framework for ASEAN-wide action against marine garbage. ASEAN member states signed the ASEAN Framework of Action on Marine Debris in 2019. This agreement intends to limit the amount of rubbish produced by single-use plastic waste goods. It contains pledges to minimise plastic waste, enhance waste management, and encourage sustainable production and consumption (Putri & Hudaya, 2022).

Following this, the Malaysian government launched a new programme titled Roadmap Towards Zero Single-Use Plastics 2018-2030 (MESTECC, 2019). The policy is a guided plan aimed at reducing the use and consumption of single-use plastics in Malaysia (Van *et al.*, 2021).

The policy serves as a guideline for reducing the usage and consumption of single-use plastics in Malaysia. Malaysia's Ministry of Housing and Local Government has announced that it wants to put limitations on the use of single-use plastic products in food and beverage outlets beginning in 2020 (Cheng, 2022). Malaysia's government has recognised the environmental damage caused by single-use plastics and has begun to take pre-emptive measures to address the problem. This is a critical step in ensuring the country's long-term survival and protecting natural resources.

Theory of Planned Behaviour in the Perspective of Single-Use Plastic Products

Icek Azjen, a Polish social psychologist, developed the Theory of Planned Behaviour (TPB) in 1991 to investigate the physiological determinants of human behaviour, expanding

on the Theory of Reasoned Action (TRA) by including another variable, perceived behavioural control (Ajzen, 1991). Three independent variables are considered to influence intention: Attitude, subjective norm, and perceived behaviour control (Ajzen, 1991).

To understand and affect the usage of plastics that are only used once, the theory of planned behaviour (TPB) was employed. Individuals' attitudes towards single-use plastic products might be positive or negative. To reduce their use, efforts may be made to shift attitudes by emphasising the negative environmental effects of single-use plastics and emphasising positive alternatives such as reusable and sustainable materials. Subjective norms are societal pressures or expectations associated with the usage of single-use plastic items.

By supporting community activities, encouraging peer influence, and emphasising good role models who actively avoid using such items, strategies might focus on building a societal norm against the use of single-use plastics. The capacity to regulate or affect one's own behaviour is referred to as perceived behavioural control. To minimise the use of single-use plastics, efforts may be made to improve perceived control by teaching individuals about available alternatives, making sustainable solutions easily accessible, and promoting behaviour change through information, tools, and resources (Yuhani *et al.*, 2019; Van *et al.*, 2021, Mohamed & Ming, 2021; Florence & Siti, 2022).

The TPB's goal is to establish a theoretical framework for systematically identifying influential aspects in social conduct (Asmuni *et al.*, 2021). Several earlier research (Yuhani *et al.*, 2019; Van *et al.*, 2021, Mohamed & Ming, 2021; Florence & Siti, 2022) used TPB to investigate the factors impacting single-use plastics reduction

behavioural intention in Malaysia. Yuhani (2019) did research at International Islamic University Malaysia (IIUM) on the factors impacting the Zero Single-Use Plastic Programme. The study focused on the campaign's awareness, perception, attitude, preparedness, and behaviour among university students, academics, and other administrative employees. Van (2021) then did a similar topic investigation for a total of 341 sample residents of Batu Pahat, Johor. Except for environmental knowledge and law and regulation, the study discovered a positive association between attitude, social pressure, and perceived behavioural traits.

Then, Mohamed and Ming's (2021) study discovered that if Malaysian university students are taught the appropriate mentality, plastic waste may be reduced. The same theme was used in research in Jelutong a year later. There are critical elements impacting Penang citizens' intentions to reduce their use of single-use plastic garbage (Florence & Siti, 2022).

According to the study, Jelutong inhabitants' attitudes and subjective norms are substantially associated to lowering single-use plastic product usage. Meanwhile, perceived behavioural control, environmental knowledge, and rules and regulations are not significantly connected to the desire to reduce plastic consumption. The TPB served as the basis hypothesis for all of these studies.

Using the Theory of Planned Behaviour (TPB), this study analyses the relationship between tourists' attitudes, subjective norms, and perceived behavioural control towards behavioural intention in decreasing single-use plastic-based products on Perhentian Island, Terengganu. Tourism industry, communities, and lawmakers in Terengganu may work together to reduce the use of single-use plastic

products and promote sustainable alternatives by adopting the theory of planned behaviour and executing these interventions.

Tourists' Attitude of Single-Use Plastic Products

The first independent variable in TPB is attitude, which is defined as an individual's level of acceptance or disapproval of a certain conduct (Ajzen, 1991). It is a psychological construct that represents a person's assessment or belief about a certain item, concept, or scenario.

Individual attitudes have a large influence on their behaviour and decision-making (Jamalludin *et al.*, 2022). Understanding the elements that influence attitudes is essential for predicting and promoting desired conduct. Another important factor impacting tourists' intention to reduce their usage of single-use plastic is their attitude towards single-use plastic.

According to Raab *et al.* (2020), tourists that have a positive attitude towards single-use plastic reduction are more likely to reduce their consumption, help the environment, and engage in environmentally beneficial activities.

Also, Yuhani (2019) highlights that the key determinant influencing an individual's support for the Zero Single-Use Plastic Campaign at the International Islamic University Malaysia (IIUM) is their mindset.

Following that, it was further supported by Florence and Siti (2022), where attitudes had a positive association with lowering the amount of single-use plastic products in Jelutong, Penang. Linh (2019), Aslam (2019), and Firdaus (2019) all reached the same conclusion in their research.

Tourists' Subjective Norms of Single-Use Plastic Products

As the second variable, Ajzen (1991) defines subjective norms as "the perceived social pressure to engage or not engage in a behaviour". This term highlights the importance of social influence in shaping an individual's conduct.

Numerous researches have been conducted to study the impact of subjective norms on tourists' intentions to limit their usage of single-use plastics. Kim and Hall (2019) observed that tourists' beliefs of injunctive and descriptive social norms impacted their intention to minimise their usage of single-use plastic considerably.

The study discovered that tourists who perceived reducing their use of single-use plastic as socially desirable (injunctive norm) and observed other people reducing their use of single-use plastic (descriptive norm) had a greater intention to reduce their use of single-use plastic.

In a second study, Wang and Zhang (2020) revealed that tourists' beliefs of social norms greatly affected their conduct towards single-use plastic reduction. The study found that travellers who saw other tourists engaging in sustainable conduct (descriptive norm) were more likely to engage in sustainable activity themselves.

The influence of subjective norms on the desire to reduce the use of single-use plastics varies according to the degree of the norm. Tourists who experienced high social pressure from their family and friends (strong subjective norms) to minimise their use of single-use plastic had a larger intention to do so than those who perceived light social pressure, according to Panwanitdumrong and Chen (2021).

Tourists' Perceived Behaviour Control of Single-Use Plastic Products

According to Ajzen (1991), perceived behavioural control refers to “the perceived ease or difficulty of performing the behaviour, along with the belief that one has the necessary resources and opportunities to carry it out”. This concept highlights an individual's belief in their ability to execute a specific behaviour, as well as the resources and opportunities available to them. Numerous studies have examined the impact of perceived behavioural control on the intention to reduce single-use plastic use.

Vina and Mayangsari (2020) found that perceived behavioural control significantly predicted tourists' intentions to reduce their consumption of single-use plastics. Their study showed that tourists who felt they had control over their plastic usage were more likely to aim to reduce it.

Similarly, Florence and Siti (2022) reported that perceived self-efficacy, a key component of perceived behavioural control, strongly influenced consumers' intentions to cut down on single-use plastic. Tourists who believed they had the necessary skills and capabilities to limit their plastic use were more likely to express the intention to do so.

This evidence underscores the role of perceived self-efficacy in shaping tourists' desire to reduce plastic consumption. Although researchers generally agree on the importance of perceived behavioural control in influencing tourists' attitudes and behaviours toward reducing single-use plastics, the interaction between perceived behavioural control and other factors remains a contested area of research.

Some studies suggest that perceived behavioural control is the most critical factor in shaping behaviour (Vina & Mayangsari, 2020).

Research Framework and Hypotheses

Figure 1 shows the research framework of the study.

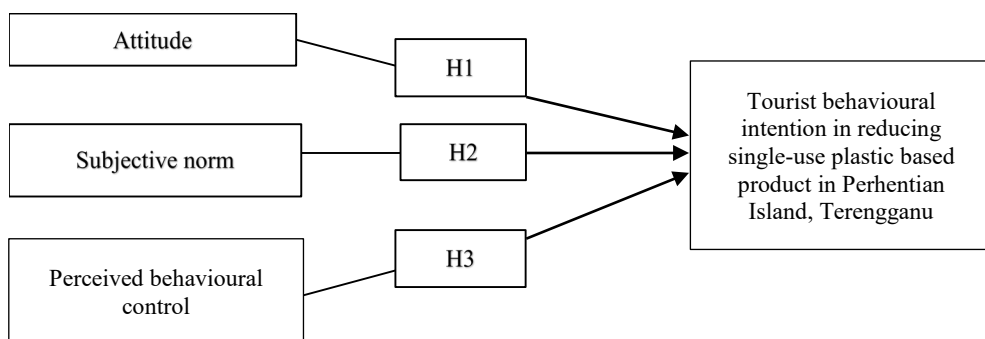


Figure 1: Research framework

Based on a thorough examination of the existing literature and a detailed evaluation of the theory's fundamental principles, the following hypotheses have been developed:

- Hypothesis 1 (H₁) : Tourists' attitude has a positive relationship with single-use plastic-based product reduction behavioural intention in Perhentian Island, Terengganu.
- Hypothesis 2 (H₂) : Tourists' subjective norm has a positive relationship with single-use plastic-based product reduction behavioural intention in Perhentian Island, Terengganu.
- Hypothesis 3 (H₃) : Tourists' perceived behavioural control has a positive relationship with single-use plastic-based product reduction behavioural intention in Perhentian Island, Terengganu

Research Methodology

This study utilised a quantitative research approach through the distribution of questionnaires. Perhentian Island was chosen as an ideal site due to its popularity as a tourist destination in Malaysia, which faces significant environmental challenges from tourism, particularly plastic waste.

As an ecologically sensitive marine park, the island suffers from substantial marine pollution, largely caused by improper plastic waste disposal by tourists, making it a crucial case for examining single-use plastic reduction (Hamid *et al.*, 2021).

The decision to focus on Perhentian Island is further reinforced by its designation as a marine park, making it highly relevant for studies on sustainable tourism and environmental conservation. Its unique combination of high tourist influx and environmental vulnerability creates an ideal context for investigating the interplay between tourist behaviour and sustainability practices. The influx of tourists exacerbates waste management issues, highlighting broader sustainability challenges faced by coastal destinations. Efforts to reduce single-use plastic consumption on the island align with the United Nations' Sustainable Development Goal 14, aimed at marine conservation,

reinforcing the global agenda for sustainable tourism development (United Nations, 2020).

The island's popularity provides a valuable sample for studying tourist behaviour, and applying the Theory of Planned Behaviour (TPB) enables an evaluation of how attitudes, subjective norms, and perceived behavioural control influence intentions to reduce plastic use (Ajzen, 1991).

The TPB framework was selected due to its robust capacity to predict behavioural intentions in environmental and tourism contexts (Rahmafitria & Kaswanto, 2024), providing an evidence-based approach to understand tourists' motivations and decision-making processes.

These three variables; attitude, subjective norm, and perceived behavioural control are particularly relevant as they encompass internal and external factors that influence behavioural intentions, making them suitable for assessing interventions aimed at reducing single-use plastic consumption (Assarian *et al.*, 2024).

These insights are critical for developing policies that promote eco-friendly practices and contribute to sustainable tourism on Perhentian Island.

Data was gathered using a non-probability approach with purposive sampling, which selects respondents based on a specific subject or phenomenon (Hair *et al.*, 2016). Purposive sampling was employed because it allows for the selection of participants who meet specific criteria that are crucial to the study's objectives, ensuring the relevance and accuracy of the data collected (Saleh *et al.*, 2014; Aziz *et al.*, 2018).

This method is particularly suitable for studies where the research population has unique characteristics that are critical to understanding the phenomenon being examined, such as tourist behaviour in an environmentally sensitive location like Perhentian Island.

The respondents met the following criteria: (i) Malaysian, (ii) intention to return to Perhentian Island, and (iii) had visited Perhentian Island during the study period. These criteria were selected as tourists who express an intention to revisit a destination often reflect positive experiences and satisfaction.

Understanding the factors that influence Malaysian tourists' intention to return is vital for making informed decisions in sustainable tourism management. Local authorities and businesses can use these insights to improve infrastructure, services, and environmental conservation efforts, enhancing the visitor experience while supporting the island's long-term economic and cultural sustainability. Focusing on the intention of Malaysian tourists to return also supports broader efforts to promote responsible tourism.

The decision to focus exclusively on Malaysian tourists stems from the need to gain a deeper understanding of local perspectives and behaviours regarding the reduction of single-use plastic consumption in the context of sustainable tourism on Perhentian Island. As

domestic tourists are likely to have repeated exposure to local environmental issues and policies, they provide valuable insights that are critical for tailoring sustainable tourism interventions to the cultural and contextual realities of Malaysia.

As Malaysian tourists are familiar with the island's unique environmental and cultural dynamics, they offer essential insights into the development of sustainable tourism practices tailored to the region.

Additionally, this study examines the factors influencing tourists' intentions to revisit, which are critical for shaping strategies that can enhance local infrastructure and promote responsible tourism. Focusing on Malaysian tourists aligns with the nation's sustainability objectives and provides valuable data for stakeholders seeking to improve environmental policies and achieve long-term sustainability goals (Mohamad & Mohamed, 2018; Nasir & Yusof, 2021; Van *et al.*, 2021).

Bougie and Sekaran (2019) highlight that multivariate research methods, such as multiple regression analysis, necessitate a sample size that is several times the number of variables—ideally 10 times the number of variables. Hair *et al.* (2016) emphasise that determining an appropriate sample size can be particularly challenging when the population is large; they recommend a sample size between 100 and 200 respondents for robust analysis.

In this study, a questionnaire was developed based on prior research (Van *et al.*, 2021; Yuhani *et al.*, 2019; Mohamed & Ming, 2021), consisting of 28 items, including three independent variables and one dependent variable.

To ensure the validity of the instrument, a pilot study involving 35 respondents was conducted, during which face validity was established. This process confirmed that the

items were both appropriate and aligned with the research objectives, as demonstrated in previous studies (Badawi *et al.*, 2024; Lim, 2024).

The questions were rated on a five-point Likert scale, which was selected for its simplicity and effectiveness in capturing response variability without overwhelming participants. This scale has been widely used in behavioural studies related to green environments, further validating its applicability in this context (Essiz & Mandrik, 2022; Chai-Arayalert & Kajornkasirat, 2024).

Survey questionnaires were distributed face-to-face to visitors at various locations, such as resorts, restaurants, and beaches, during data collection, which took place between 4th May and 21st May 2023. Data was gathered at key sites on Pulau Perhentian Kecil and Pulau Perhentian Besar. Participants could either complete a paper survey or use a QR code to access an online form via Google Forms.

To encourage participation, respondents received an eco-friendly tote bag. The response rate was 97.65%, with 213 responses (87 on paper and 126 online). Purposive sampling was used to ensure the appropriateness of respondents, focusing on Malaysian tourists intending to revisit the island. Three non-Malaysian respondents and two who did not intend to return were excluded, leaving 208 valid responses for further analysis.

Data Analysis

Throughout the statistical study, IBM SPSS 25 version 25 was used. The Cronbach's alpha coefficient was used to establish how closely connected the variables were to one another as

a group so that the amount of internal consistency could be evaluated. A multiple linear regression analysis was performed to see whether there was a significant link between all characteristics associated to behavioural intention to reduce single-use plastic consumption. Nationality and intention to return to Perhentian Island were established as two screening questions for this study in order to choose the most appropriate respondents.

Demographic Profile of Respondents

The demographic profile of the respondents was summarised in the analysis. Table 1 shows the frequency distributions of the study's respondent demographics, and indicates that respondents were fairly equally divided, with 52.9% (n = 110) male and 47.1% (n = 98) female.

However, it is clear that the most majority of respondents were men. In terms of age, respondents between the ages of 18 and 29 made up 51% of the total (n = 106). The 30 to 39 age group made up 36.5% (n = 76) of the respondents, while the 40 to 49 and more than 50 years old age groups made up 10.1% (n = 21) and 2.4% (n = 5), respectively. Respondents represented a wide spectrum of educational backgrounds. School-level education and diploma holders accounted for around 28.8% (n = 60) and 27.9 percent (n = 58) of the respondents, respectively. A bachelor's degree or above was held by 38% (n = 79) of respondents, while a master's or doctorate degree was held by 5.3% (n = 11). The research also revealed that 100% of respondents are Malaysians and will return to Perhentian Island in the future, with a total valid sample of 208 respondents.

Table 1: Demographic profile of respondents

Demographic Variables	Categories	Frequencies	Percentages (%)
Gender	Male	110	52.9
	Female	98	47.1
Age	18 - 29	106	51
	30 - 39	76	36.5
	40 - 49	21	10.1
	50 - above	5	2.4
Education	School	60	28.8
	Diploma	58	27.9
	Degree	79	38
	Master/PhD	11	5.3
Nationality	Malaysian	208	100
Perhentian Island Revisit Intention	Yes	208	100

Reliability and Validity Analysis

A scale reliability analysis was performed using Cronbach’s alpha to determine internal consistency using SPSS software. It was done to guarantee that the respondents understood all the questions asked in the research instruments. The Cronbach’s alpha values for attitude, subjective norm, perceived behaviour control and are 0.949, 0.881, 0.907, and 0.945, respectively. Hair *et al.* (2019) state that Cronbach’s alpha value above 0.7 is acceptable.

Meanwhile, the median value for attitude is 1.286, and the subjective norm is 2.000, perceived behaviour is 0.549 and reduction intention is 1.571. As for skewness and kurtosis, all the variables show positive

skewness where the data distribution is slightly skewed to the right. Subjective norm skewness is the lowest, 0.951. The highest skewness is the attitude, 2.133.

Besides that, the skewness value for perceived behavioural control and reduction intention are 1.688 and 2.012. Meanwhile, the Kaiser-Meyer-Olkin (KMO) value is measured the suitability and sampling adequacy of data analysis (Pallant, 2020), and a value above 0.7 indicates good sampling adequacy.

All the variables show results above 0.7 (attitude = 0.815, subjective norm = 0.816, perceived behaviour control = 0.904, reduction intention = 0.868). Table 2 shows the reliability and validity of the study.

Table 2: Reliability and validity results

	Attitude	Subjective Norm	Perceived Behaviour Control	Reduction Intention
Cronbach’s Alpha	0.949	0.881	0.907	0.945
Median	1.286	2.000	0.549	1.571
Skewness	2.133	0.951	1.688	2.012
Kurtosis	4.804	1.379	4.044	4.718
KMO	0.815	0.816	0.904	0.868

Multiple Regression Analysis

This study employs multiple regression analysis to examine the relationship between a dependent variable – tourists' behavioural intention, and three independent variables – attitudes, subjective norms, and perceived behavioural control, among tourists visiting Perhentian Island. It helps researchers comprehend the link between changes in

between changes in independent factors and changes in the study's dependent variable (Hair *et al.*, 2019).

Table 3 shows that R is 0.888 and R² is 0.788. Thus, the three tourists' behaviour characteristics explain 78.8% of the variance in intention to minimise single-use plastics. Other variables accounted for the remaining 21.2%.

Table 3: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.888 a	0.788	0.785	0.38684

a. Predictors: (constant), attitude, subjective norms, and perceived behavioural control.

Table 4 displays the results of a multiple regression analysis that looked at the relevance of each independent variable in relation to the dependent variable. It examines the column of standardised coefficients (Beta), *t*, Sig., and collinearity statistic (VIF) to see if each

statistic (VIF) to see if each independent variable is significant with the dependent variable. The VIF value should not be larger than 10, and the *p*-value should not be greater than 0.05, in order to prove the significance between the independent and dependent variables (Pallant, 2020).

Table 4: Multiple regression analysis

Model	Unstandardised Coefficient		Standardised Coefficient	<i>t</i>	Sig.	Correlation	Collinearity Statistics	
	Beta	SE B	Beta			Part	Tolerance	VIF
(constant)	-.072	0.077		-0.945	0.346			
Attitude	0.241	0.053	0.249	4.511	0.000	0.145	0.341	2.933
Subjective norms	0.080	0.63	0.706	1.280	0.202	0.041	0.295	3.386
Perceived behaviour control	0.644	0.070	0.611	9.192	0.000	0.235	0.235	4.256

Following an examination of the data in Table 4, it is obvious that all independent variables have a tolerance value of at least 0.10. This shows that the variables' multicollinearity assumption is not violated, which is corroborated by the variation inflation factor (VIF).

Furthermore, respondents' anticipated behaviour intention to minimise single-use plastic is equivalent to $-0.72 + 0.241$ (attitude)

$+ 0.080$ (subjective norm) $+ 0.644$ (perceived behaviour control).

According to the results of multiple regression analysis, two variables, namely attitude ($p = 0.000$, $p \leq 0.05$) and perceived behaviour control ($p = 0.000$, $p \leq 0.05$), statistically contribute to the prediction and provide empirical support to hypothesis 1 and 3, respectively.

Furthermore, as $p = 0.202$, $p \geq 0.05$, the second variable, subjective norm, had no significant influence on tourist behaviour intention to limit single-use plastic product use on Perhentian Island. Therefore, hypothesis 2 is not supported.

Discussion of the Findings

The aim of this research was to explore tourists' intentions to eliminate single-use plastic items while visiting Perhentian Island, with a focus on three key variables: Attitude, subjective norms, and perceived behavioural control.

The findings reveal a significant influence of both attitudes and perceived behavioural control on tourists' behavioural intentions, whereas subjective norms did not have a meaningful impact.

The study shows that attitudes toward single-use plastics—particularly tourists' beliefs about the environmental harm caused by these items and the importance of preserving Perhentian Island's natural beauty—play a critical role in shaping their behavioural intentions. Tourists who view single-use plastics as harmful to the environment are more inclined to reduce their usage.

This aligns with existing research by Florence and Siti (2022), which found that customers' negative attitudes toward single-use plastic products strongly influence their intention to use alternatives. Furthermore, Van *et al.* (2021) highlighted mindset as the most significant factor in shaping individuals' intentions to reduce plastic waste, reinforcing the importance of attitude in pro-environmental behaviours.

In addition to attitudes, perceived behavioural control—the belief in one's ability to engage in a particular behaviour—was also found to significantly impact tourists'

intentions to reduce single-use plastics. Tourists who feel confident in their ability to avoid single-use plastics are more likely to act on this intention. This finding is consistent with Van *et al.* (2021), who observed that perceived behavioural control positively affected the reduction of plastic items among customers in Malaysia.

Similar outcomes were found in other studies, such as Yuhani *et al.* (2019), Linh *et al.* (2019), and Mohamed and Ming (2021), which emphasised the strong influence of perceived control over individual environmental actions.

Interestingly, the study found that subjective norms did not have a significant impact on tourists' intentions to reduce plastic use ($p = 0.202$, $p \geq 0.05$). This means that tourists were not strongly influenced by perceived social pressures or societal expectations when deciding whether to reduce their use of single-use plastics.

This result contrasts with several prior studies (Yuhani *et al.*, 2019; Firdaus, 2020; Florence & Siti, 2022), where subjective norms were found to significantly influence environmental behaviour.

The divergence in findings may be attributed to the unique social context of Perhentian Island. In some settings, social pressure plays a dominant role in influencing individual behaviour; however, this study suggests that such societal or peer influence is muted on the island. One possible explanation is that single-use plastics may still be widely accepted in the local social norms of Perhentian Island, reducing the pressure on individuals to conform to more environmentally friendly behaviours.

This observation is supported by Aslam (2019), who found that subjective norms did not significantly affect the reduction of plastic bag use in Pakistan, where plastic use remains

a societal norm. In this context, personal beliefs (attitudes) and the perceived ease of adopting sustainable behaviour (perceived behavioural control) play a more prominent role than social pressures.

The lack of influence of subjective norms in this study suggests that campaigns aimed at reducing plastic usage in Perhentian Island should focus more on enhancing individuals' personal responsibility and boosting their perceived ability to control their use of single-use plastics.

Relying solely on promoting social approval or peer endorsement may not be sufficient to drive behavioural change. Strengthening personal attitudes toward the environmental benefits of reducing plastic and providing individuals with the means to easily switch to alternatives could yield better results.

The observed difference in the influence of subjective norms compared to previous research may also reflect contextual differences between Perhentian Island and other regions. For instance, studies like Van *et al.* (2021) and Yuhani *et al.* (2019) took place in settings where societal pressures regarding environmental consciousness are stronger.

In contrast, the social dynamics on Perhentian Island may not yet fully support environmentally friendly behaviours like reducing plastic use. Thus, environmental campaigns on the island might need to account for these unique dynamics and emphasise individual empowerment over collective societal pressure.

The findings of this study emphasise the significant role of individual attitudes and perceived behavioural control in predicting environmentally responsible behaviour among tourists visiting Perhentian Island.

In contrast, subjective norms did not play a significant role in shaping tourists' intentions to reduce single-use plastics. This has

important implications for policymakers and environmental advocates, who should prioritise shaping personal attitudes and increasing tourists' sense of control over their environmental choices, rather than relying on peer influence or societal pressure alone.

By providing tourists with both the knowledge and resources to reduce single-use plastics, stakeholders can foster more sustainable behaviour on Perhentian Island and similar environmentally sensitive locations.

Conclusions, Contribution, and Further Recommendation

A plastic ban is one of the most important contributions to enhancing sustainable tourism and establishing Perhentian Island as a model of responsible tourism. Many nations throughout the world have already implemented single-use plastic ban policies.

The Malaysian government and authorities might utilise Perhentian Island as a trial programme on a small scale to assess the effectiveness of a single-use plastic ban in islands. Individual citizens are expected to accept and support the implementation of the plastic ban law because personal attitude and perceived behavioural control lead to reduced use of single-use plastic-based items. Continuous assistance, monitoring, frequent evaluation, and data collection, on the other hand, may help discover areas for improvement, track progress, and adapt methods accordingly. However, there are limitations associated with this study that should be carefully considered.

First, the geographic focus on Perhentian Island alone limits the generalisability of the findings to other regions or tourism destinations. The specific social, cultural, and environmental context of the island may differ significantly from those of other tourist destinations, meaning that the results may not be fully transferable to other settings. For

instance, tourist intentions and behaviours are often influenced by local culture, available infrastructure, and tourism policies, which vary greatly across different destinations.

Therefore, caution is advised when extrapolating the study's findings beyond Perhentian Island without considering these contextual differences.

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Additionally, the use of purposive sampling introduces potential biases that may have affected the results. By selecting participants who fit specific criteria relevant to the study's objectives, the sample may not fully represent the broader population of tourists, particularly those with different demographics or travel motivations.

This could result in overestimating or underestimating the influence of factors such as attitudes or perceived behavioural control on tourists' intentions to minimise plastic use. This bias limits the external validity of the findings and suggests that future studies should consider using randomised sampling methods to obtain a more representative sample of the tourist population.

According to the theory of planned behaviour (TPB), education and awareness campaigns are needed to offer knowledge about the negative consequences of consuming single-use plastics, such as pollution, animal harm, and contributions to climate change. These campaigns could shift attitudes and raise awareness of alternatives, particularly among Malaysian island tourists.

Furthermore, messaging can highlight societal norms against single-use plastics, promoting the adoption of sustainable alternatives by influential individuals or

organisations. Tourists may feel societal pressure to adopt better practices as a result.

Policymakers and service providers must also ensure the availability and accessibility of sustainable alternatives to single-use plastics, such as reusable bags, bottles, and straws, which can enhance perceived behavioural control and make it easier for tourists to adopt alternative behaviours. This could include offering incentives for using reusable products, as well as implementing policies like plastic bag bans to reinforce positive behaviour.

Another limitation of this study is its focus on a single time period, which restricts the ability to observe changes in tourist behaviour over time.

The study may capture a snapshot of behavioural intentions at a specific point, but it does not account for how these intentions might evolve. Tourists' behaviours and environmental consciousness can shift in response to new policies, social trends, or personal experiences.

A longitudinal approach could provide a more comprehensive understanding of how sustainable practices, such as reducing single-use plastic, develop and persist over time. Assessing the stability or change in tourists' intentions through longitudinal data would offer valuable insights into the long-term effectiveness of sustainability initiatives.

Implementing a plastic ban, on the other hand, necessitates meticulous preparation and a staged approach. Begin by identifying high-risk places for single-use plastics, such as hotels, restaurants, and seaside vendors. Provide tools, assistance, and incentives to these businesses to progressively phase out plastic straws, bags, bottles, and utensils.

Collaborate with local companies to explore alternative packaging and waste management solutions aligned with environmental goals. Establish stringent laws

and penalties for violating the plastic ban, and train enforcement officials to ensure compliance. A monitoring system to track progress and measure plastic waste reduction would help evaluate the effectiveness of the ban. Regular data collection and analysis will assist in identifying challenges, refining strategies, and demonstrating the positive impact of the plastic ban.

The geographic and temporal limitations of this study also underscore the need for further research in diverse settings and over extended periods.

The findings from Perhentian Island might not be fully applicable to locations with different ecological or tourist profiles, necessitating caution in generalising the results. Moreover, broader studies in other regions, such as urban and rural tourism settings, could provide a more robust understanding of the global applicability of policies to reduce single-use plastics.

Furthermore, appropriate regulations and infrastructure are necessary to support tourists' efforts to limit their use of single-use plastics. Policies focusing on plastic reduction must be implemented, and rules enforced to ensure effectiveness.

Collaboration with local governments and tourism operators is critical for improving waste management systems, promoting recycling, and ensuring accessible disposal facilities across the island. This could include placing recycling bins in key areas to make it easier for tourists and locals to dispose of waste responsibly. Encouraging local businesses to offer reusable or biodegradable alternatives will further support these efforts.

The study on factors influencing tourists' behavioural intentions to minimise single-use plastics on Perhentian Island has yielded valuable findings. However, the narrow focus on a single destination and the use of purposive

sampling limits the generalisability of these results.

To gain a more comprehensive understanding of the factors driving sustainable tourism behaviour, further research should be conducted across diverse tourist destinations with more varied samples.

Additionally, long-term studies would provide deeper insights into the evolving nature of tourists' environmental behaviours, helping to refine sustainability initiatives over time.

Future research could also explore the impact of environmental awareness, social media, and regulatory factors on efforts to reduce single-use plastic use. By focusing on environmental education, personal attitudes, societal norms, and supportive legislation, tourism destinations can address the issue of single-use plastics and move towards a more sustainable future.

If these concepts are adopted, Terengganu could preserve its pristine environment, protect its ecological sustainability, and promote responsible consumption among tourists. It is hoped that the Terengganu government will take proactive steps to encourage sustainable tourism, ensuring the region remains a natural sanctuary for future generations.

In conclusion, this study offers important insights into the factors influencing tourists' intentions to reduce single-use plastics on Perhentian Island, with personal attitudes and perceived behavioural control playing significant roles.

These findings carry key implications for tourism stakeholders and policymakers, indicating that policies aimed at reducing single-use plastics must go beyond legislation and focus on fostering positive attitudes and enhancing individuals' sense of control over their environmental actions.

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indicating that policies aimed at reducing single-use plastics must go beyond legislation and focus on fostering positive attitudes and enhancing individuals' sense of control over their environmental actions.

For policymakers, this underscores the need for comprehensive campaigns, infrastructure support, and continuous engagement to ensure the long-term success of plastic reduction efforts.

By addressing these factors, destinations like Perhentian Island can become models of sustainable tourism, setting an example for the broader adoption of responsible tourism practices worldwide.

Acknowledgements

We sincerely thank everyone who contributed to the completion of this research article. We extend our deepest appreciation to our research respondents for their valuable time and insights. We are also grateful to Universiti Malaysia Terengganu for providing the necessary resources and support throughout the study. Special thanks to the Global Tourism Conference (GTC2023) for offering the platform to share the ideas of this research.

Conflict of Interest Statement

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare absence of conflicting interests with the funders.

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