ASSESSING YOUTH'S BEHAVIOUR TOWARDS SUSTAINABILITY IN OVERPACKAGING OF E-COMMERCE PURCHASES IN KLANG VALLEY

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ABSTRACT

This research investigates the behaviour of youths in the Klang Valley regarding overpackaging in e-commerce purchases. The study was based on a quantitative research design, encompassing a sample of 200 respondents aged 15 to 30 years old. The data were collected through a set of self-administered questionnaires. The study encompassed a demographic profile analysis, employing descriptive, Pearson correlation, and Multiple Linear Regression (MLR) analysis to address five hypotheses. The finding demonstrated that environmental concern emerges as a pivotal factor, with the highest mean score, indicating a heightened awareness of the long-term consequences of excessive packaging on the environment. Pearson correlation analyses reveal a significant positive relationship between attitude and behaviour, underscoring the impact of positive attitudes on shaping consumer behaviour. Subjective norms exhibit a substantial positive correlation, emphasizing the influence of perceived social norms. Perceived behavioural control demonstrates a robust positive relationship, indicating the influential role of individuals' beliefs in shaping their behaviours. The study also finds a moderate but significant relationship between environmental concern and behaviours, highlighting the importance of heightened environmental awareness in promoting sustainable consumer behaviour. The MLR analyses emphasized the influential role of attitudes, subjective norms, and perceived behavioural control in shaping behaviours, with environmental concern playing a crucial but nuanced role. The findings provide valuable insights for policymakers and businesses aiming to foster sustainable behaviour in e-commerce.

KEYWORDS: EXCESSIVE PACKAGING, E-COMMERCE, YOUTH BEHAVIOUR, ENVIRONMENTAL CONCERN, ATTITUDE, SUBJECTIVE NORMS, PERCEIVED BEHAVIOURAL CONTROL

ABSTRAK

Penyelidikan ini mengkaji berkenaan tingkah laku belia di Lembah Klang mengenai pembungkusan berlebihan dalam pembelian e-dagang. Kajian berdasarkan reka bentuk kajian kuantitatif, merangkumi sampel 200 responden berumur 15 hingga 30 tahun. Data dikumpul

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melalui satu set soal selidik yang ditadbir sendiri. Kajian ini merangkumi analisis profil demografi, menggunakan analisis deskriptif, korelasi Pearson, dan analisis Regresi Linear Berganda (MLR) untuk menangani lima hipotesis. Penemuan menunjukkan bahawa kebimbangan alam sekitar muncul sebagai faktor penting, dengan skor min tertinggi, menunjukkan kesedaran yang tinggi tentang akibat jangka panjang pembungkusan yang berlebihan terhadap alam sekitar. Analisis korelasi Pearson mendedahkan hubungan positif yang signifikan antara sikap dan tingkah laku, menggariskan kesan sikap positif dalam membentuk tingkah laku pengguna. Norma subjektif menunjukkan korelasi positif yang besar, menekankan pengaruh norma sosial yang dirasakan. Kawalan tingkah laku yang dirasakan menunjukkan hubungan positif yang teguh, menunjukkan peranan berpengaruh kepercayaan individu dalam membentuk tingkah laku mereka. Kajian itu juga mendapati hubungan yang sederhana tetapi signifikan antara kebimbangan dan tingkah laku alam sekitar, menonjolkan kepentingan kesedaran alam sekitar yang lebih tinggi dalam menggalakkan tingkah laku pengguna yang mampan. Analisis MLR mendapati peranan pengaruh sikap, norma subjektif, dan kawalan tingkah laku yang dirasakan dalam membentuk tingkah laku pengguna, dengan kebimbangan alam sekitar memainkan peranan yang penting tetapi bernuansa. Penemuan ini memberikan pandangan yang berharga untuk penggubal dasar dan perniagaan yang bertujuan untuk memupuk tingkah laku mampan dalam e-dagang.

KATA KUNCI: PEMBUNGKUSAN BERLEBIHAN, E-DAGANG, TINGKAH LAKU BELIA, KEPRIHATINAN ALAM SEKITAR, SIKAP, NORMA SUBJEKTIF, KAWALAN TINGKAH LAKU YANG DITANGGAPI

1. INTRODUCTION

The growth of e-commerce and delivery services has drastically altered shopping behaviours, especially among the tech-savvy youth demographic (Vasudevan & Arokiasamy, 2021). However, this shift has led to a rise in environmental concerns, particularly regarding excessive packaging (Rita & Ramos, 2022). The convenience of online shopping is accompanied by an increase in packaging materials, contributing to a concerning rise in waste generation (Pinos *et al.*, 2022). While consumers appreciate the convenience of online shopping, the ecological footprint of packaging excess raises questions about its impact (Xie *et al.*, 2021).

The Malaysian market for courier, express, and parcel services is expected to grow substantially, with its size projected to increase from MYR 6.14 billion in 2023 to MYR 11.9 billion by 2028. This represents a compound annual growth rate (CAGR) of 14.03% during the forecast period from 2023 to 2028. While this progress has brought numerous benefits in terms of convenience and accessibility, it has also led to a significant rise in packaging waste, particularly overpackaging (Xie *et al.*, 2021). Overpackaging involves the excessive use of non-biodegradable materials, causing harm to the environment (Flaherty, 2017). Consumers are increasingly aware of this trend and are seeking proper ways to dispose of packaging waste (Rita & Ramos, 2022). Hence, there is a clear opportunity for companies and regulatory bodies to innovate and implement more sustainable packaging solutions. Amongst the solutions are using biodegradable materials, reducing packaging size, reusable packaging, Recycling programs, education and awareness, and legislation and policies by the governments. By adopting these practices, the market can grow in a way that is not only economically beneficial but also environmentally responsible.

Over time, concerns have arisen about the environmental impact of excessive packaging materials used in online shopping (Wang & Zhu, 2020). The concerns about the environmental impact of excessive packaging materials in online shopping are indeed significant. The increase in online shopping, especially evident during the COVID-19 pandemic, has led to a massive rise in the use of packaging materials. These materials often include plastics, styrofoam, and other non-biodegradable components that contribute to environmental pollution and waste. According to the research example provided by Wang and Zhu (2020), when a consumer purchases a small item, they may receive it in an oversized package, confusing the nature and

size of the item. As a result, consumers may feel compelled to verify the product before unpacking it from the adhesive holding the container together. Furthermore, proper packaging can reduce returns, and facilitate deliveries, and customers are willing to pay a premium for goods that come from companies supporting a green environment (Oláh *et al*., 2018). However, online retailers often overlook the importance of eco-friendly packaging due to operational inefficiencies (Monnot, Parguel, & Reniou, 2015).

The youth, as trendsetters and influencers, play a pivotal role in shaping consumer patterns in the digital marketplace (Pinos *et al.*, 2022). Their behaviours can significantly impact e-commerce efforts, given their substantial presence as both buyers and influencers (Xie *et al*., 2021). Understanding their attitudes and perceptions towards excess packaging in e-commerce purchases is crucial (Boz, Korhonen, & Sand, 2020). According to Kanapathipillai, Lau, Appannah, & Yi, (2023), these factors were within the unique urban context of Klang Valley, where e-commerce is thriving. Hence, This study aims to investigate the predictor factors influencing the behaviour towards sustainability in overpackaging of e-commerce purchases.

2. LITERATURE REVIEW

Theory Planned Behaviour
The Theory of Planned Behaviour (TPB) was developed by Ajzen in 1991 and is often applied to study human behaviour. This theory says that behaviour is influenced by attitudes towards behaviour, subjective norms, and perceived behavioural control.

Based on this theory, attitude is the main predictor (Ajzen, 1991) that affects men's behaviour. Attitude in the theory of planned behaviour is an individual's overall evaluation of a particular behaviour. In the theory of planned behaviour, attitude is the most important variable. Ajzen (2020) stated that TPB is specifically to study the relationship between an individual's attitude and behaviour. The second predictor in determining behaviour in the TPB is subjective norms. According to Ajzen (1991), subjective norms can also be defined as social pressure such as the actions of individuals or groups that are close to those who encourage or may inhibit a person's intention to perform the behaviour. The control of behavioural impressions is seen more collectively as a factor that builds and prevents the performance of certain behaviours.

All three components can be a guide when predicting human social behaviour (Aziz *et al*. 2012). Figure 2.1 shows the conceptual framework of the study based on the Theory of Planned Behaviour (Ajzen, 1991). However, Ajzen (1991) suggested that additional variables be used to further strengthen the existing model and to adapt to the research conducted as in Figure 1:
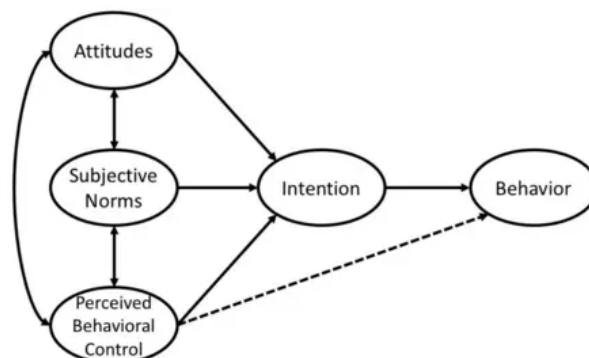

FIGURE 1: THEORY OF PLANNED BEHAVIOUR
Source: Ajzen (1991)

Based on the Theory of Planned Behaviour that has been discussed above, there are several chains connecting each component of cause and effect in the process of forming a person's behaviour. Attitudes, subjective norms, and perceived behavioural control are generally able

to influence intention and encourage certain behaviours. In simplest terms, the intention depends on the external factors of the environment and the internal factors of the individual himself. However, studies show that attitude, subjective norms, and perceived behavioural control have a direct relationship to the formation of real behaviour regardless of the individual's intention.

Overpackaging
The realm of e-commerce has garnered significant attention due to the explosive growth of online shopping, leading to the unnecessary and often wasteful use of packing materials in shipping products (Hua *et al*., 2022; Xie *et al*., 2021). This overuse contributes to environmental problems, increasing waste in landfills and posing challenges for recycling and disposal, especially with non-biodegradable materials (Flaherty, 2017). In Malaysia, the e-commerce market is rapidly growing, expected to reach US\$11 billion by 2025 with a 24% annual growth rate, accelerated by the COVID-19 pandemic (Kim, 2022). Educating customers about product life cycles and proper disposal is crucial, as consumers play a significant role in the impact of e-commerce on the environment (Ignat and Chankov, 2020; Pinos *et al*., 2022).

Customer satisfaction in e-commerce extends beyond the transaction, influencing the entire supply chain from product procurement to delivery (Xie *et al*., 2021; Rao *et al*., 2021). However, consumers are increasingly demanding sustainable practices, expressing frustration with unnecessary packaging that generates more waste and can be cumbersome to dispose of (Rita *et al.,* 2022; Wang *et al*., 2020). Businesses face pressure to adopt eco-friendly practices as consumer awareness of sustainability grows (Purcărea *et al*., 2022). Excessive packaging in e-commerce is a multifaceted issue impacting the environment, business operations, and customer satisfaction, requiring innovative solutions to mitigate its negative consequences (Pinos *et al*., 2022; Xie *et al*., 2021).

Attitude
Attitude within the Theory of Planned Behaviour (TPB) framework refers to the extent of an individual's positive or negative opinion or evaluation of a specific behaviour, as highlighted by Herbes *et al*. (2018). Efforts to foster a positive consumer attitude towards packaging can serve as a motivating factor for consumers, as indicated by Boz *et al*. (2020). This attitude is shaped by behavioural beliefs, which encompass anticipated consequences of the behaviour, as proposed by Ajzen (2020). Zsóka *et al*. (2013) suggest a strong correlation between environmental information and attitude, emphasizing the role of environmental cues such as labels in enhancing consumer understanding of the connection between their purchasing decisions and environmental impacts, as noted by Rokka and Uusitalo (2008). Moorthy *et al*. (2021) further emphasize the significance of a favourable attitude towards green packaging, highlighting its impact on consumer behaviour, with a statistically significant positive relationship observed between attitude towards green packaging and purchase intention. Based on the above research findings, the following hypothesis is proposed:

H_{01}: There is no significant relationship between attitude and behaviour towards sustainability in overpackaging e-commerce purchases.

Subjective Norm
This Subjective norm refers to how the external environment influences an individual's behaviour, as highlighted by Song *et al.* (2023). This factor is considered crucial in impacting individuals' behaviours (Shi *et al*., 2022). Individuals concerned about the environment can influence others' behaviour through social pressure within family and peer groups (Paul *et al*., 2016). Gholamrezai *et al*. (2021) demonstrated that social norms have a stronger influence on environmentally protective behaviours, with personal norms being influenced by perceived social norms (Boz *et al*., 2020). However, in a study by Martinho *et al*. (2015), respondents were not influenced by social pressure regarding sustainable packaging purchasing and

disposal behaviours, and their perception of control over solving packaging waste problems was found to be weak, indicating that social pressure has only a small influence on respondents' behaviours. Hence, the following hypothesis is constructed:

H_{02}:   There is no significant relationship between subjective norms and behaviour towards sustainability in overpackaging e-commerce purchases.

Perceived Behavioural Control
Ajzen (1991) proposed perceived behavioural control as an individual's perception of the degree of difficulty in performing behaviour. This perception, along with behavioural intention, can directly forecast the attainment of a specific behaviour according to the theory of planned behaviour. Perceived behavioural control is assumed to be based on accessible control beliefs, which concern the presence of factors that can facilitate or impede behaviour performance (Ajzen, 2020). Hua *et al.* (2022) examined and validated the significance of perceived behavioural control in influencing pro-environmental behaviours, extending the research scope of perceived behavioural control as an independent variable in the Theory of Planned Behaviour (TPB) model. Empirical research results have confirmed that the predictive power of individual behaviour intention and behaviours is significantly improved after the introduction of perceived behavioural control (Hua *et al.*, 2022). Heinz and Koessler (2021) found that informing people about behaviour consequences and classification information could effectively increase pro-environmental behaviours. Similarly, Sultan *et al.* (2020) found that perceived behavioural control could effectively reduce the gap between intention and behaviours in the TPB model, encouraging consumers to transform consumption intentions into consumer behaviours. This suggests that individuals who perceive greater control over their behaviours are more likely to have a higher intention to adopt sustainability, such as reusing or recycling packaging materials, thereby reducing overpackaging waste (Boz *et al.*, 2020). Accordingly, the following hypothesis is proposed.

H_{03}: There is no significant relationship between perceived behavioural control and behaviour towards sustainability in overpackaging e-commerce purchases.

Environmental Concern
Environmental concern, as defined by Bamberg (2003), reflects an individual's connection with the natural environment, encompassing their attitudes, values, perceptions, and behaviours towards it. Individuals with high environmental concerns are more likely to adopt environmentally friendly behaviours, as noted by Zhang *et al.* (2019). In the extended model by Boz *et al.* (2020), environmental concern was included as an additional measure, and Hua and Dong (2022) found that consumers' purchasing behaviour is influenced by positive or negative comments on products with high or low environmental concern. Miafodzyeva and Brandt (2013) also demonstrated a positive correlation between consumers' environmental concern and their actual environmental behaviour, using environmental concerns as an extension of their behavioural intentions. Bamberg (2003) suggests that environmental concern influences behaviour by shaping situation-specific cognitions, with consumers showing more concern about the end-of-life stage of packaging rather than its source, as noted by Herbes *et al.* (2018). Song *et al.* (2023) successfully tested the variable of environmental concern about individual behaviour, highlighting how it can act as an activating factor for consumers' intention to use reusable packaging. Accordingly, the following hypothesis is proposed.

H_{04}: There is no significant relationship between environmental concern and behaviour towards sustainability in overpackaging e-commerce purchases.

Sustainable Behaviour
This behaviour involves consumers actively engaging in behaviours that contribute to the reduction, reuse, recycling, or responsible disposal of packaging materials, aiming to

minimize packaging waste and its negative environmental effects (Wang *et al.*, 2020). It is widely believed that conserving the environment and preventing packaging waste after consumption can be achieved through consumer behaviour and reductions in excessive packaging (Chen *et al.*, 2021). Despite ecological pressures from unsustainable packaging consumption and disposal, many companies still rely on environmentally harmful practices such as single-use plastics and multi-layered packaging, as noted by the Worldwide Fund for Nature (WWF). For example, Kim *et al.* (2022) found that online shopping in Korea generates 4.8 times more packaging waste than traditional stores. Escursell *et al.* (2020) suggest that sustainability in e-commerce can be achieved by favouring the use of paper and paperboard materials for packaging, emphasizing the need for products to be efficient and sustainable rather than merely aesthetically pleasing. However, Koch, Frommeyer, and Schewe (2022) explain that perceived pressure from the close social network is higher than an individual's general environmental concerns, indicating that individuals may feel the need to make their online shopping more eco-friendly to meet external expectations, with packaging being one way to achieve sustainable behaviour that divided into three "R" which is reduce, reuse and recycle (Xie *et al.*, 2021; Song *et al.*, 2022; Lu *et al.*, 2020). Based on the above research findings, the following hypothesis is proposed:

H_{05}: There is no significant relationship between attitude, subjective norm, perceived behavioural control, environmental concern, and behaviour towards sustainability in overpackaging e-commerce purchases.

The Theory of Planned Behaviour has been used as a core theory since this study focuses on human behaviour towards attitudes, subjective norms, and perceived behavioural control. Furthermore, the Ajzen model (1991) has been widely used in psychology to explain and predict human behaviour related to the environment as in Figure 2:
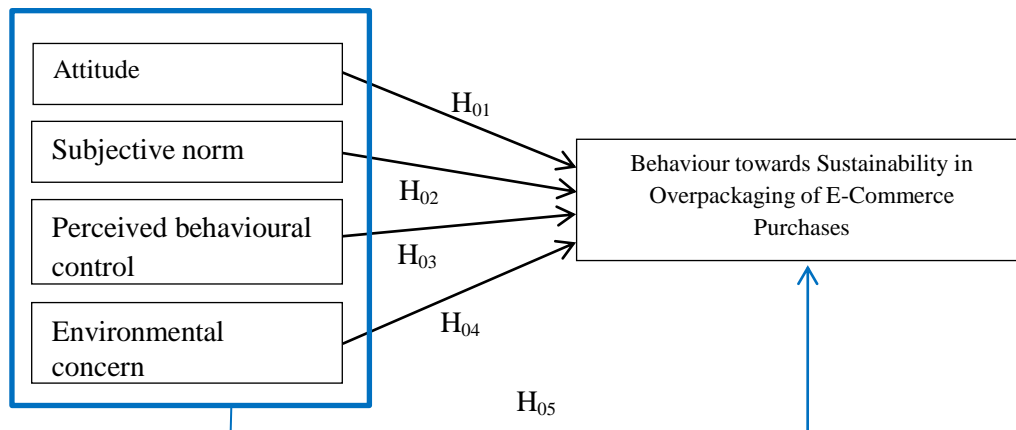

FIGURE 1: THEORY OF PLANNED BEHAVIOUR
Source: Ajzen (1991)

3. METHODOLOGY

Study Location
Klang Valley was chosen as the study location covering the Federal District of Kuala Lumpur, Selangor and Putrajaya. This location was selected by the researcher because Klang is among the districts with the highest age structure composition for the youth group which is 25.3% with 1,786 per km2 (Department of Statistics Malaysia, 2023).

Sampling Method
The target population are consumers who engage in e-commerce in youth around Selangor. A suitable sampling technique is purposive sampling comprised of individuals aged fifteen to

thirty years old, as defined by the Youth Societies and Youth Development (Amendment) Act of 2019. According to this legislation, youth are specifically identified within the age range of 15 to 30 years, Section 15 of the principal Act is amended by substituting the word "forty" with the word "thirty". This demographic group represents a crucial stage of transition and development, capturing adolescence and early adulthood. The inclusion of individuals within this age brack*et al*igns with the legal and societal recognition of youth. This technique also is not costly and simplistic and will be employed to select a representative sample from the population (Bujang *et al*., 2012).

In this study, the Klang Valley was chosen as the study location covering the Federal District of Kuala Lumpur, Selangor and Putrajaya. As reported by the Department of Statistics Malaysia (2023), the Klang Valley exhibits a notable population density, particularly in Selangor, surpassing other states. In 2020, five administrative districts recorded a population exceeding one million, compared to four districts in 2010. Notably, all these administrative districts are situated in the Klang Valley, with Petaling, Selangor being the sole district with a population exceeding two million. Klang is among the districts with the highest age structure composition for the youth group which is 25.3% with 1,786 per km2. A total of 8.622 million people as of 2023 in the Klang area (Department of Statistics Malaysia, 2023). Hence, a total of 2.156 million were among the youth group. The calculation for sample size was:

Step 1: Set parameter
Confidence Level (95%): Z = 1.96
Margin of Error (E) = 0.05
Population Size (N) = 2,156,000
Proportion (p), assuming maximum variability = 0.5

Step 2: Calculate the initial sample size
n =1.962×0.5×(1−0.5)/0.052=1.962×0.25/0.0025=384.16

Step 3: Apply finite population correction
nadj=384/1+[(384−1)/2,156,000]=384/(1+0.00018)=383.93≈384

So, we would need approximately 384 respondents to estimate the proportion with a 95% confidence level and a margin of error of 5% from a population of 2,156,000 people. However, there were 200 respondents have been determined as sufficient for this study due to the cost constraint.

Instruments
To gather the latest data and to ensure data come from the appropriate population, data are collected directly using structured questionnaires to gather information from the targeted respondents. It is conducted by sharing the questionnaire via Google form and posting it to social media specifically through the Klang Valley community group within three (3) months, from June 2023 until August 2023. Therefore, the questions were developed based on an adopted questionnaire which was found to have high reliability and was divided into six parts.

Pre-test
A pre-test was conducted and distributed through the questionnaire to a group of respondents who had the same characteristics as the actual study population. This distributed through face to face with a total of 20 respondents involved to ensure that the questions were understandable to the actual respondents. According to Li, (2013), a total of 15 to 20 respondents is reasonable and sufficient for pre-testing. It aims to get feedback on the questionnaire that will be used for the actual study in addition to re-evaluating the survey questions to ensure that they are easy to understand, free of spelling mistakes, ensure that respondents answer within the specified period, and determine which questions can achieve the research objective.

Data Collection and Analyses

The data obtained are then processed and analysed using the Statistical Package Social Science, SPSS version 29. The questionnaire was conducted in Malay and English. The main statistical analysis was frequency analysis, descriptive analysis, Pearson correlation analysis and multiple linear regression analysis. Besides, the level of score toward this research was categorized into three levels which are low, medium, and high by using the highest score and the lowest score.

4. FINDINGS AND DISCUSSION

Demographic Profile of Respondents

This study involved a total of 200 respondents. The results of the study showed that 33.5% were male respondents while 66.5% were female respondents. For the age category, 22 - 25 years old is the highest category which is 44.5% followed by the age category 18 - 21 years old 4.5% and the lowest number is the age range of 26 - 30 years old which is 21.0%. Next, for the ethnicity category, it shows that the majority of the respondents consisted of 60.5% Malays, followed by 20.5% Indians and 19.0% Chinese. In terms of the highest level of education, Bachelor's degree which is 41.5% is the highest category followed by Foundation/ STPM/ Matriculation/ A-level/ Diploma which is 25.5%, Sijil Pelajaran Malaysia (SPM) at 23%, Master Degree 6.5% and Doctoral Degree (PhD) 3.5%. Based on the questionnaire, the current employment sector consists of students at 67.5% which is the highest number, followed by the private sector at 19.5%, the government sector at 9.5%, self-employed/businessmean at 2.5%, and housewives/not working at 1.0% which is the lowest amount. Meanwhile, about the monthly allowance range, the highest amount is RM400 - RM799 at (31.5%), followed by below RM400 at (20.5%), while RM800 - RM1,199 at (18.0%), RM1,200 and above at (18.5%), and the lowest is no allowance at (11.5%). Next, for the monthly income range, it shows that respondents with no income at (46.0%), followed by RM1,000 - RM3,999 at 59 (29.5%), below RM1,000 at 41 (20.5%), and RM4,000 - RM7,999 at 8 (4.0%) as summarised in Table 1.

TABLE 1: DEMOGRAPHIC PROFILE OF RESPONDENTS

Variable	Categories	Frequency	Percentage (%)
Age	18 - 21	69	34.5
	22 - 25	89	44.5
	26 - 30	42	21.0
Gender	Male	67	33.5
	Female	133	66.5
Ethnicity	Malay	121	60.5
	Chinese	38	19.0
	India	41	20.5
High education level	Sijil Pelajaran Malaysia (SPM)	46	23.0
	Foundation/STPM/Matriculation/A-level/ Diploma	51	25.5
	Bachelor's Degree	83	41.5
	Master's degree	13	6.5
	Doctoral Degree (PhD)	7	3.5

Current employment sector	Student	135	67.5
	Government sector	19	9.5
	Private sector	39	19.5
	Self–employed/Businessman	5	2.5
	Housewife/Not working	2	1.0
Monthly allowance range	No allowance	23	11.5
	Below RM400	41	20.5
	RM400 - RM799	63	31.5
	RM800 - RM1,199	36	18.0
	RM1,200 and above	37	18.5
Monthly income range	No income	92	46.0
	Below RM1,000	41	20.5
	RM1,000 - RM3,999	59	29.5
	RM4,000 - RM7,999	8	4.0

Attitude, Subjective Norm, Perceived Behavioural Control, Environmental Concern, and Behaviour Levels towards Sustainability in Overpackaging of e-Commerce Purchases

Table 2 indicates the descriptive analysis used to calculate the mean and standard deviation of the constructs for all variables, ranging from 3.51 to 4.21. The consistency and stability of the constructs supplied are examined using reliability analysis. Correspondingly, environmental concerns have the highest mean with 4.21 with a standard deviation of 0.39. This was followed by an attitude mean of 4.15 with a standard deviation of 0.44. The third score is behaviour with a mean of 3.92 and standard deviation of 0.46. Meanwhile, subjective norms mean of 3.77 with a standard deviation of 0.571 and perceived behaviour control has the lowest mean score of 3.51 with a standard deviation of 0.612.

TABLE 2: DESCRIPTIVE ANALYSIS OF THE VARIABLES

Variables	Mean	Standard deviation
Attitude	4.157	0.441
Subjective norms	3.778	0.571
Perceived behavioural control	3.513	0.612
Environmental Concern	4.218	0.390
Behaviour	3.922	0.469

Relationship Between Attitude, Subjective Norm, Perceived Behavioural Control and Environmental Concern with Behaviour Towards Sustainability in Overpackaging Of e-Commerce Purchases

H_{01}: There is no significant relationship between attitude and behaviour towards sustainability in overpackaging of e-commerce purchases.
Pearson Correlation test was utilised to examine the relationship between attitude and behaviour towards sustainability in overpackaging e-commerce purchases is 0.228. The results shown in Table 3, it is deduced that attitude has a weak positive relationship with behaviour towards excessive packaging from e-commerce purchases. The significant value is 0.001 which indicates that there is a statically significant correlation between attitude and behaviour towards sustainability in overpackaging of e-commerce purchases. Therefore, H_{01} is rejected.

H_{02}: There is no significant relationship between subjective norms and behaviour towards sustainability in overpackaging of e-commerce purchases.
Pearson Correlation test was utilised to examine the relationship between subjective norms and behaviour towards sustainability in overpackaging of e-commerce purchases is 0.462. The results shown in Table 3, it is deduced that subjective norms have a medium positive relationship with the behaviour towards sustainability in overpackaging of e-commerce purchases. The significant value is < 0.001 which indicates that there is a statistically significant correlation between subjective norms and behaviour towards sustainability in overpackaging of e-commerce purchases. Therefore, H_{02} is rejected.

H_{03}: There is no significant relationship between perceived behavioural control and behaviour towards sustainability in overpackaging of e-commerce purchases.
Pearson Correlation test was utilised to examine the relationship between perceived behavioural control and behaviour towards sustainability in overpackaging of e-commerce purchases is 0.513. The results shown in Table 3, it is deduced that subjective norms have a medium positive relationship with the behaviour towards sustainability in overpackaging of e-commerce purchases. The significant value is < 0.001 which indicates that there is a statistically significant correlation between perceived behavioural control and behaviour towards sustainability in overpackaging of e-commerce purchases. Therefore, H_{03} is rejected.

H_{04}: There is no significant relationship between environmental concern and behaviour towards sustainability in overpackaging of e-commerce purchases.
Pearson Correlation test was utilised to examine the relationship between environmental concern and behaviour towards sustainability in overpackaging e-commerce purchases is 0.279. The results shown in Table 3, indicate that environmental concern has a weak positive relationship with the behaviour towards sustainability in overpackaging of e-commerce purchases. The significant value is < 0.001 which indicates that there is a statistically significant correlation between environmental concern and behaviour towards sustainability in overpackaging of e-commerce purchases. Therefore, H_{04} is rejected.

TABLE 3: PEARSON CORRELATION ANALYSIS RESULTS

Variables	Behaviour	
	r	p
Attitude	0.228**	0.001
Subjective norm	0.462**	0.001
Perceived Behavioural Control	0.513**	0.001
Environmental concern	0.279**	0.001

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

Most Influencing Predictor Factor on Behaviour Towards Sustainability in Overpackaging of e-Commerce Purchases

H_{05}: *There is no significant relationship between attitude, subjective norm, perceived behavioural control, environmental concern, and behaviour towards sustainability in overpackaging of e-commerce purchases.*

Multiple Linear Regression was used to assess the strength of the relationship between variables. As shown in Table 4, showing which variable is used to identify the most influencing predictor on behaviour towards sustainability in overpackaging of e-commerce purchases. A significant regression equation was found F = 27.483 with an adjusted R^2 of 0.361. The model is also found to be significant (p < 0.01). Among the four variables shown in Table 4, perceived behavioural control shows the most substantial positive relationship, with a Beta coefficient of 0.495 and a significant p-value of less than 0.001. This implies that the perceived behavioural control strongly influences behaviour towards sustainability in overpackaging of e-commerce purchases. Subjective norms exhibit a stronger positive relationship, with a Beta coefficient of 0.349 and a highly significant p-value of less than 0.001.

TABLE 4: MULTIPLE LINEAR REGRESSION ANALYSIS

Independent variable	Unstandardized Coefficients		Standardized Coefficients	t	p
	B	Std. Error	Beta		
(Constant)	2.526	.469		5.389	0.001
Attitude	- 0.118	.084	- 0.111	- 1.406	0.161
Subjective norms	0.287	.054	0.349	5.279	0.001
Perceived behavioural control	0.379	.066	0.495	5.736	0.001
Environmental concern	- 0.125	.093	- 0.104	- 1.339	0.182

F = 27.483   R= 0.600^a R^2= 0.361   Adjusted R^2= 0.347

Discussion
This section discusses findings that have been attained from the analysis of the study.

Environmental concerns gain the highest level towards sustainability in overpackaging from e-commerce purchases
The analysis of descriptive statistics reveals that environmental concerns garnered the highest mean score of 4.218, indicating a heightened level of concern among the respondents regarding the long-term consequences of excessive packaging in e-commerce purchases on the environment. This finding aligns with the growing global awareness and emphasis on environmental issues, particularly in the context of consumer behaviour and sustainable behaviour (Rita *et al.*, 2022). The relatively low standard deviation of 0.390 suggests a notable degree of consensus among the participants in their elevated environmental concerns. This

consistent and high mean score underscores the salience of environmental considerations in shaping behaviours towards excessive packaging in e-commerce purchases.

There is a significant relationship between attitude and behaviour towards sustainability in overpackaging from e-commerce purchases.

Based on the Pearson correlation coefficient analysis, attitude and behaviour towards sustainability in overpackaging from e-commerce purchases yielded a correlation coefficient of 0.228, with a highly significant p-value of 0.001. This positive correlation suggests that there is a modest yet statistically significant relationship between attitudes and behaviours in the context of overpackaging. The findings indicate that individuals with more positive attitudes towards reducing overpackaging are more likely to exhibit corresponding behaviours. This aligns with the Theory of Planned Behaviour, which posits that attitudes significantly influence behavioural intentions and subsequent actions (Ajzen, 1991). The strength of the correlation, although moderate, underscores the relevance of attitudes in shaping consumer behaviour in the realm of e-commerce purchases.

There is no significant relationship between subjective norms and behaviour towards sustainability in overpackaging from e-commerce purchases.

The analysis of the Pearson correlation coefficient between subjective norm and behaviour towards sustainability in overpackaging from e-commerce purchases revealed a significant and positive correlation of 0.462, with a p-value less than 0.001. This suggests a substantial relationship between perceived social norms and individual behaviours regarding packaging. These results are in line with existing research that emphasizes the impact of subjective norms on shaping individual behaviour, particularly in the context of sustainability (Bamberg, 2003). The positive correlation underscores the role of social influences in guiding individuals' actions, aligning with the tenets of the Theory of Planned Behaviour. The findings emphasize the importance of considering social factors in interventions aimed at reducing excessive packaging in e-commerce, highlighting the need to leverage perceived social norms as a catalyst for sustainable consumer behaviour.

There is a significant relationship between perceived behavioural control and behaviour towards sustainability in overpackaging from e-commerce purchases.

The Pearson correlation coefficient analysis between perceived behavioural control and behaviour towards sustainability in overpackaging from e-commerce purchases revealed a robust and highly significant correlation of 0.513, with a p-value less than 0.001. This indicates a substantial positive relationship between individuals' perceived behavioural control over their behaviour regarding excessive packaging. These findings resonate with research in the field, supporting the importance of perceived behavioural control as a significant predictor of actual behaviour (Ajzen, 1991). The strong correlation underscores the influential role of individuals' beliefs in their ability to control and regulate their behaviour in shaping their decisions regarding packaging in online purchases. As identified by the Theory of Planned Behaviour, perceived behavioural control is a key determinant that, when high, enhances the likelihood of engaging in behaviours aligned with one's attitudes and intentions.

There is no significant relationship between environmental concern and behaviour towards sustainability in overpackaging from e-commerce purchases.

The Pearson correlation coefficient analysis between environmental concern and behaviour towards sustainability in overpackaging from e-commerce purchases revealed a significant positive correlation of 0.279, with a p-value less than 0.001. This finding indicates a moderate but statistically significant relationship between individuals' environmental concerns and their actual behaviours related to excessive packaging. The correlation aligns with research

highlighting the influence of environmental concern on sustainable behaviour (Martinho *et al*., 2015). The positive correlation underscores the importance of fostering to encouraging sustainable consumer behaviour in the context of e-commerce packaging behaviour. It also suggests that heightened environmental concern can contribute to more responsible and positive behaviour towards consumer lifestyle.

There is no significant relationship between attitude, subjective norm, perceived behavioural control, environmental concern, and behaviour towards sustainability in overpackaging of e-commerce purchases.

The result of this study is aligned with a previous study by Hosta and Zabkar (2019) which has a positive influence on environmentally responsible behaviour and is socially responsible. It also supports the outcome of a previous study by Lee (2022) stated that subjective norm had a perfect mediating effect on the use intention of packaging to packaging that has low environmental impact where it shows that, when consumers had a positive subjective norm, their intention to use product packaging that has low environmental impact packaging was higher. This suggests that perceived behavioural control and subjective norms significantly influence behaviour towards sustainability in overpackaging.

However, for Attitude, the Beta coefficient is -0.111, with a p-value of 0.161. This indicates a weak negative relationship, though not statistically significant at the conventional significance level of 0.05. This finding aligns with prior research emphasizing the effect of excess packaging on an environmentally friendly green brand and consumer attitudes (Chen *et al*., 2017) where the results suggested that overpackaging did not have a direct effect on green brand attachment. Instead, consumer view on green brands governs the negative attitude toward excess packaging.

Meanwhile, environmental concern displays a weak negative relationship with a Beta coefficient of -0.104 and a non-significant p-value of 0.182. Nonetheless, inconsistent with prior research, our results unexpectedly found no significant effect of environmental concern on consumers' subjective norms. This may be explained by the current limited environmental concern of consumers (Moshood *et al*., 2022). The lack of concern for the environment in society has not created social pressure on consumers.

5. CONCLUSION

Eventually, to enhance the framework of the study, the objective of this research is to understand behaviour towards sustainability in overpackaging of e-commerce purchases. The first specific objective is to determine the level of attitude, subjective norm, perceived behavioural control, environmental concern, and behaviour towards sustainability in overpackaging e-commerce purchases. The research, found four variables at a high level, namely environmental concerns (mean = 4.218), attitude (mean = 4.157), behaviour (mean = 3.922), and subjective norms (mean = 3.778). While the mean score is at a moderate level is perceived behavioural control (mean = 3.513).

The second specific objective is to identify the relationship between variables. Based on the Pearson correlation analysis, it was found that all four factors have a significant relationship with behaviour towards sustainability in overpackaging from e-commerce purchases. Hence, it was successfully rejected. The results also showed that the factors that influence the behaviour are positive, and this shows a good indication as a consumer applying sustainable behaviour in reducing the production of waste.

The third specific objective is to investigate the most influencing predictor factor on behaviour towards sustainability in overpackaging of e-commerce purchases. The results of the Multiple Linear Regression analysis showed that perceived behavioural control is the highest predictor factor ($\beta = 0.495$, p = 0.001) followed by subjective norms ($\beta = 0.349$, p = 0.001). In turn, the

beta values of environmental concern (β = -0.104, p = 0.182) and attitude (β = -0.111, p = 0.161) were found not to be contributing factors to behaviour.

6. IMPLICATIONS AND RECOMMENDATIONS

This study utilizes Ajzen's theory of planned behaviour (1991) to assess youth behaviour regarding sustainability in overpackaging e-commerce purchases. The study's findings suggest that all variables studied influenced behaviour, with perceived behavioural control being the strongest predictor influencing behaviour towards sustainability in overpackaging of e-commerce purchases. Meanwhile, the practical implications of this study are significant for consumers and stakeholders involved in excessive packaging behaviour from e-commerce purchases. Implementing these implications effectively relies on understanding the factors influencing consumer behaviour sustainability in overpackaging from e-commerce purchases. The study found that perceived behavioural control is a strong influencing factor in overpackaging from e-commerce purchases. Therefore, strategies to encourage changes towards waste reduction behaviour from excessive packaging should be implemented. Enterprises can utilize diverse packaging materials, establish efficient recycling systems, adopt combined packaging, and redesign packaging to reduce waste and increase environmental performance. Government initiatives targeting e-commerce enterprises and delivery service providers, such as extended producer responsibility policies, can also encourage recycling and sustainability in packaging practices.

Previous research has primarily focused on proposing solutions to reduce waste without considering consumer behaviour towards these solutions (Lu *et al*., 2020). Avoiding impulse single-product purchases and raising collective purchasing of goods can also be considered positive steps towards environmental responsibility (Xie *et al.*, 2021). To achieve desired environmental benefits, solutions must be accepted and adopted by consumers. Increased consumer awareness of environmental protection can lead to changes in shopping behaviour, including increased purchasing of goods in each session to reduce environmental impact. Solutions are more likely to be successful if they are accepted and embraced by consumers, highlighting the importance of understanding consumer behaviour in implementing sustainable behaviour.

From the discussions and conclusions drawn, several recommendations have emerged to improve future research and guide relevant parties in addressing consumer behaviour towards sustainability in excess packaging waste. The study's findings can serve as a framework for future researchers to achieve better research outcomes. However, this study involved only 200 respondents in the Klang Valley area. Future research should consider a larger sample size and include multiple study locations across Malaysia to obtain more comprehensive insights into consumer behaviour.

Furthermore, this study focused solely on specific variables, neglecting others such as intention. Future studies should encompass a broader range of factors to provide a more comprehensive understanding of behaviour regarding the sustainability of overpackaging from e-commerce purchases. Additionally, while this study targeted youth, future research could expand its scope to include all age groups. This expansion could reveal differences related to income factors that may influence variables like attitudes and subjective norms. Researchers are encouraged to broaden their studies to encompass the entire state of Malaysia, including Sabah and Sarawak, to capture a more representative sample and provide a more holistic understanding of consumer behaviour.

ACKNOWLEDGEMENT

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