Survey Analysis Report

Understanding the daily consumption pattern of single-use plastic items among the staff and students of the University of Nottingham Malaysia.

1st Edition

Prepared by the WasteNott's Survey Team (Summer 2021)

October 2021

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Sustainability Environment Education Network (SEEN) of the University of Nottingham Malaysia (UNM) had conceived a new project in December 2020, known as WasteNott Project. WasteNott Project aims to increase awareness on waste issues at the University and initiate a green movement towards a zero waste campus. To do this, WasteNott needs to understand the general behavioural attitudes of staff and students towards environmental issues, thus forming the Survey Team.

This document will analyse the survey data collected by WasteNott's Survey Team. Recommendations are also listed to help reduce wastes generated on campus.

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Acknowledgement

The success and final outcome of this project required a lot of guidance and assistance from many people, and we, as of the WasteNott's Survey Planning Team for the summer term 2020/21, we are extremely fortunate to have got this all along the completion of our team's project work.

I respect and thank WasteNott Project, associated with University of Nottingham Malaysia Sustainable Environmental Education Network (UNM SEEN) for giving our team an opportunity to carry out this survey project and providing us all support and guidance which made our project complete on time. We are extremely grateful for all WasteNott Project committees who have given us feedback and suggestions throughout the project. Furthermore, special thanks to our advisors, Wuei Shuen and Nurina for supervising the team since the start of the project.

Allow me to mention and praise all our survey planning team members, Nishaat, Xin Hui, Zhi Ying and Allyssa. They had been working along with me throughout these few months to produce a meaningful data set that is able to serve to promote a responsible use of plastics on campus in the near future. I am proud of our achievement so far since we have always worked hard to produce a good assignment with full commitment and responsibility.

Also, an honourable mention goes to Dr Wong Ee Phin, our WasteNott Project advisor, for helping us with her valuable suggestions and guidance. All the advice has been helpful in various phases of the completion of the project.

Last but not least, we would like to express our utmost gratitude towards every respondent who had participated in this survey and your willingness to spend some time with us to fill in the questionnaires. Without you all, we would not have distributed the survey analysis as scheduled.

Sean Yeo Sze Cherng

Introduction

Survey Planning Team at WasteNott

According to the University of Nottingham Malaysia (UNM) Strategic Road Map, the university systematically aims to reduce resource consumption and increase recycling through best practice environmental generation, in order to educate UNM campus users to manage their waste. As such, the survey planning team of WasteNott aims to help the university to conduct surveys to understand students' general behavioural attitudes towards environmental issues. The survey will be carried out in the circular process before every academic year begins, with the objective of improving the campus waste management. The survey collects respondents' behaviour, opinion, awareness and knowledge in waste management. After the data collection process, the survey planning team will share and present the report and analysis with the other teams at WasteNott including Handbook, Guideline, Social Media, advisors (academic staff), and WasteNott community members. The outcome of the survey will then be shared with the university management for future reference.

Survey: Summer Term 2020/21

The survey for summer term 2020/21, in preparation for the waste management action plan in academic year term 2021/22, was to understand the **daily consumption pattern of single-use plastic items among the staff and students of the UNM**. This survey aims to analyse the overall generation of single-use plastic waste by the UNM community and their level of awareness towards plastic waste. Also, to investigate the possible solutions to be implemented on campus to reduce single-use plastics consumption and plastic waste. The data collection process was conducted between 15th August 2021 to 3rd September 2021.

The survey questionnaires attempted a mixture of quantitative and qualitative methods, which included a total of 28 questions. There were 3 main sections for this survey which served different purposes. Each section consisted of a mixture of multiple choices, ranking, and open-ended questions. At the end of the data collection period, the survey had recorded a number of 121 responses. The following sections in this survey analysis report will demonstrate the analysis for each questionnaire in detail.

Respondents' Demographic Information

Out of 121 respondents, 51 were male (42.15%), 68 were female (56.20%) and 2 were of unknown gender identity (1.65%), as illustrated below:

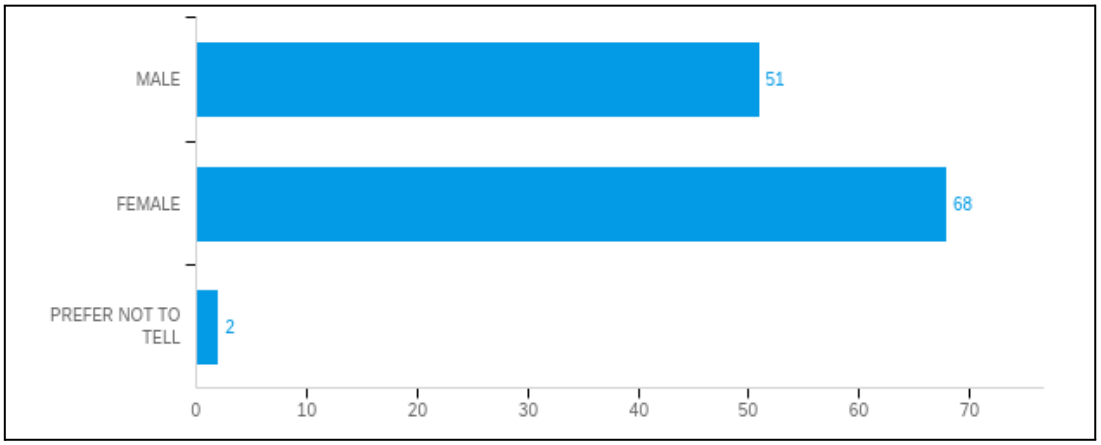


Figure 1i: Participants' gender ratio.

Geographically, 118 respondents were living in Malaysia, 1 in Singapore, 1 in India and 1 in Indonesia. Therefore it can be concluded that most of the respondents were from Malaysia (97.52%).

Part A - Behavioural Aspects towards Plastic Use in Everyday Life

Question 1: The amount of single-use plastic items received within a week.

Respondents were asked to roughly estimate how many single-use plastic items (frequency) they receive within a week for 10 different types of single-use plastics (snack wrappers, plastic bags, single-use plastic takeaway containers, plastic containers with cover, single-use plastic cutlery, plastic bottles, plastic lids, single-use plastic straws, single-use plastic cups and polystyrene containers).

Based on the data collected from the survey, the following findings have been extracted:

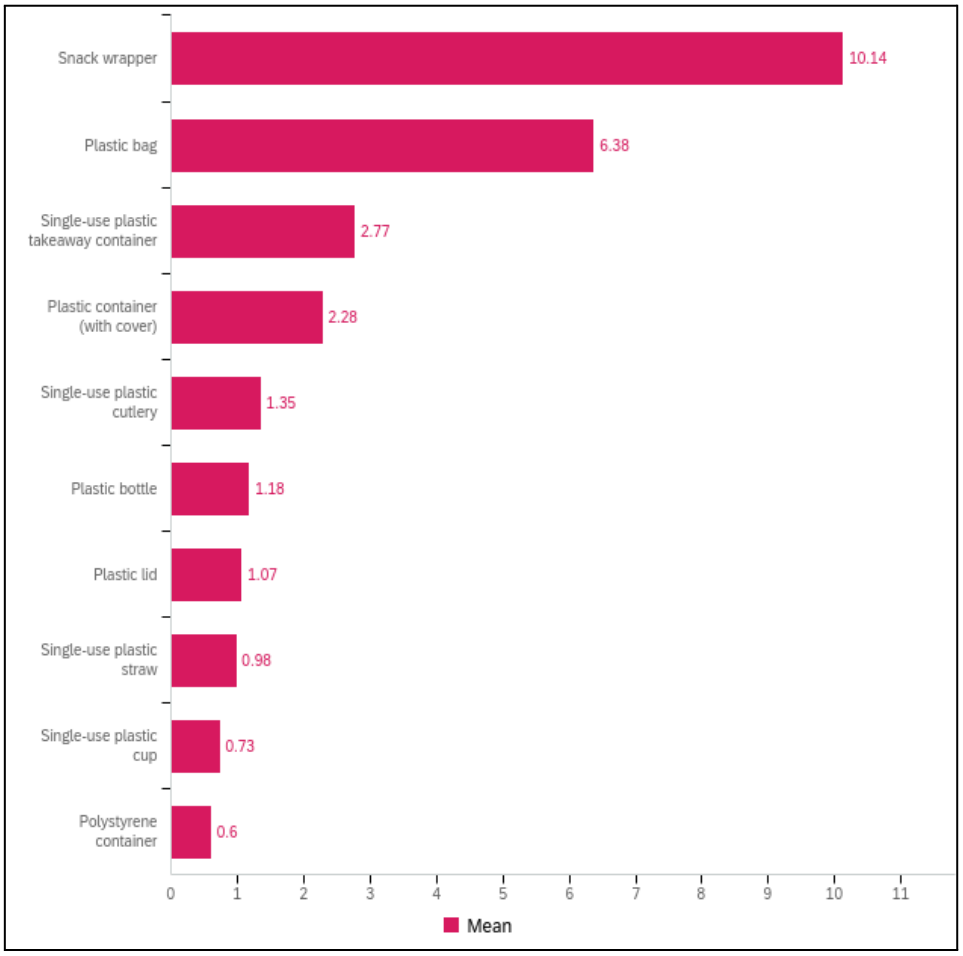


Figure 1Ai: Participants mean of single-use plastics they received in a week.

- Based on Figure 1Ai, snack wrappers (10.14) on average is the most common type of single-use plastics that the respondents receive in a week, followed by plastic bags (6.38), single-use plastic takeaway containers (2.77), plastic containers with cover (2.28), single-use plastic cutlery (1.35), plastic bottles (1.18), plastic lids (1.07), single-use plastic straws (0.98), single-use plastic cups (0.73) and lastly the polystyrene containers (0.6).

Hereunder is a table showing the minimum, maximum and mean recorded:

Single-use plastic items	Minimum	Maximum	Mean
Plastic bag	0	30	6.38
Single-use plastic takeaway container	0	20	2.77
Plastic container (with cover)	0	20	2.28
Polystyrene container	0	7	0.6
Single-use plastic cutlery	0	11	1.35
Single-use plastic straw	0	7	0.98
Plastic bottle	0	24	1.18
Single-use plastic cup	0	6	0.73
Plastic lid	0	6	1.07
Snack wrapper	0	311	10.14

Figure 1Aii: The minimum, mean and maximum single-use plastic items that respondents received in a week.

- It can be found that the minimum amount of the ten types of single-use plastics received in a week is zero.
- A respondent submitted 311 snack wrappers as answer, the data is deemed illogical and an outlier. Therefore the data (mean of 10.14) cannot be used for interpretation.
- On the other hand, single-use plastic cups and plastic lids are used the least, with a maximum number of 6.

The mean count of single-use plastics received in a week, in terms of gender is given as follows:

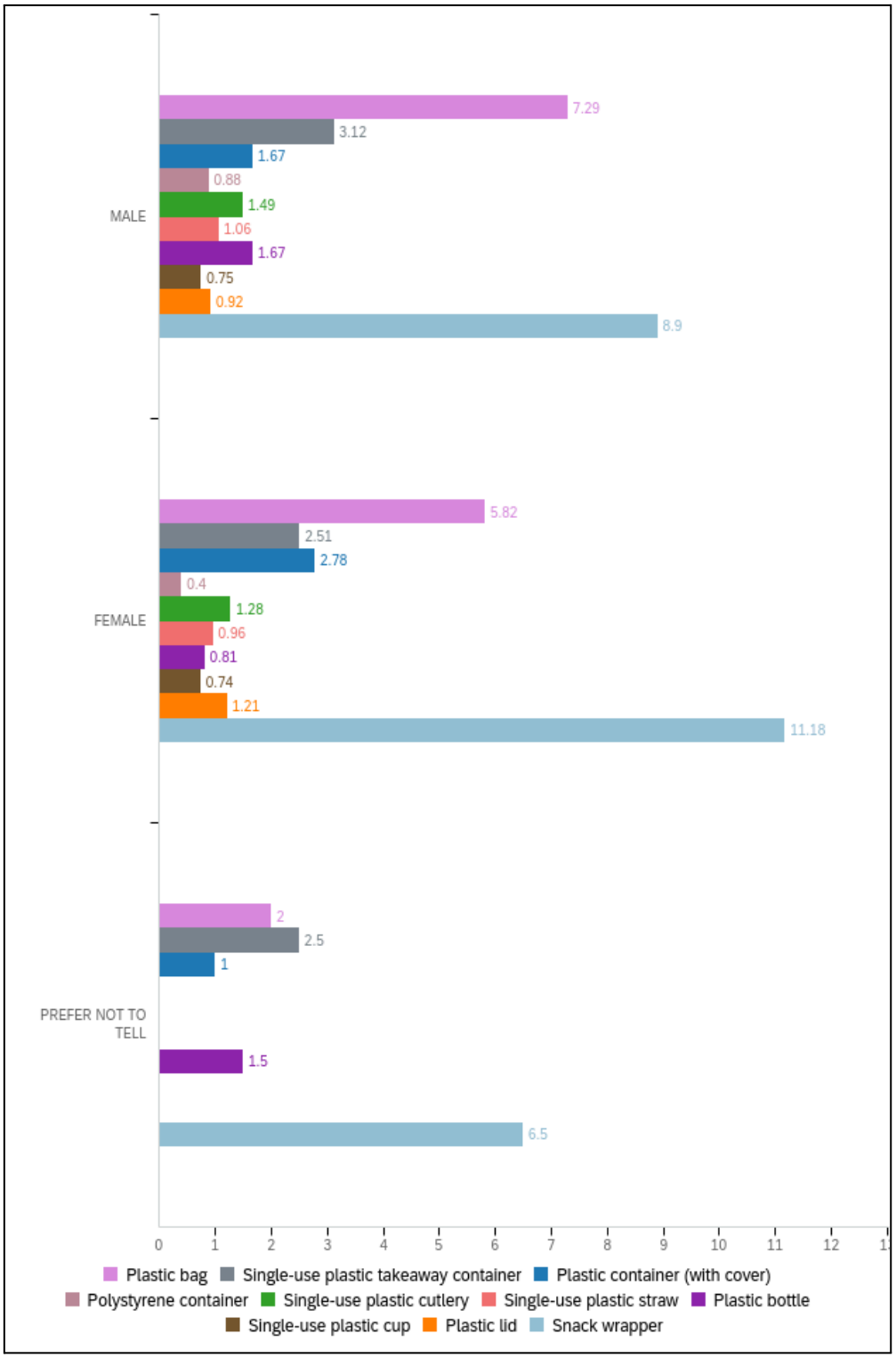


Figure 1Aiii: Participants mean single-use plastics they receive in a week, based on gender ratio.

- Among males, on average, snack wrapper (8.9) is the most common type of single-use plastics that they received in a week, followed by plastic bags (7.29), single-use plastic takeaway containers (3.12), plastic containers (with cover) and plastic bottle (1.67), single-use plastic cutlery (1.49), single-use plastic straw (1.06), plastic lid (0.92), polystyrene container (0.88) and lastly the single-use plastic cup (0.75).

- Among females, on average, snack wrapper (11.18) is the most common type of single-use plastics that they use in a week, followed by plastic bag (5.82), plastic container (with cover) (2.78), single-use plastic takeaway container (2.51), single-use plastic cutlery (1.28), plastic lid (1.21), single-use plastic straw (0.96), plastic bottle (0.81), single-use plastic cup (0.74) and lastly the polystyrene container (0.4).

- Among unknown gender identity, on average, snack wrapper (6.5) is the most common type of single-use plastics that they use in a week, followed by the single-use plastic takeaway container (2.5), plastic bag (2), plastic bottle (1.5), plastic container (with cover) (1) and lastly with no use at all for the polystyrene container, single-use plastic cutlery, single-use plastic straw, single-use plastic cup and plastic lid.

Hereunder is the data classified by gender, with the minimum, maximum and mean:

MALE

Single-use plastic items	**Minimum**	**Maximum**	**Mean**
Plastic bag	1	30	7.29
Single-use plastic takeaway container	0	20	3.12
Plastic container (with cover)	0	7	1.67
Polystyrene container	0	7	0.88
Single-use plastic cutlery	0	11	1.49
Single-use plastic straw	0	7	1.06
Plastic bottle	0	24	1.67
Single-use plastic cup	0	6	0.75
Plastic lid	0	6	0.92
Snack wrapper	0	100	8.9

FEMALE			
Single-use plastic items	**Minimum**	**Maximum**	**Mean**
Plastic bag	0	20	5.82
Single-use plastic takeaway container	0	20	2.51
Plastic container (with cover)	0	20	2.78
Polystyrene container	0	3	0.4
Single-use plastic cutlery	0	10	1.28
Single-use plastic straw	0	5	0.96
Plastic bottle	0	5	0.81
Single-use plastic cup	0	5	0.74
Plastic lid	0	5	1.21
Snack wrapper	0	311	11.18
PREFER NOT TO TELL			
Single-use plastic items	**Minimum**	**Maximum**	**Mean**
Plastic bag	0	4	2
Single-use plastic takeaway container	0	5	2.5
Plastic container (with cover)	0	2	1
Polystyrene container	0	0	0
Single-use plastic cutlery	0	0	0
Single-use plastic straw	0	0	0
Plastic bottle	0	3	1.5
Single-use plastic cup	0	0	0
Plastic lid	0	0	0
Snack wrapper	3	10	6.5

Figure A1iv: Participants ranking the activities that require the most plastic packaging as per their experience, sorted by gender (Percentage and Count).
(1 being the MOST and 4 being the LEAST.)

- Among males, it can be found that the minimum amount of the ten types of single-use plastics received in a week is zero, except for the plastic bags received being 1.
- Among females, it can be found that the minimum amount of the ten types of single-use plastics received in a week is zero.
- Among unknown gender identity participants, it can be found that the minimum amount of the ten types of single-use plastics received in a week is zero, except for the snack wrappers received being 3.
- All 3 genders agree that they receive snack wrappers the most in a week.

It can be deduced that the majority of students and staff of the University of Nottingham Malaysia uses single-use plastics, with snack wrappers being the most common item used. This means that the plastic waste continues to be generated among the respondents.

Malaysia has the highest annual per capita plastic use of 16.78 kg in comparison to other Southeast Asian countries such as China, Indonesia, the Philippines, Thailand, and Vietnam (WWF, 2020). Unfortunately, this large mass of plastic waste ends up in the oceans. Malaysia ranked third in the top 20 most polluting nations based on annual plastic emissions from rivers into seas, with 0.073 million metric tons per year (Foe Malaysia, 2021).

According to Life Out Of Plastic (Iberdrola, 2021), single-use plastics can take up to 500 years to decompose. Reducing plastic waste reduces carbon emissions from production to disposal, reduces environmental pollution, protects animals and humans from microplastic poisoning, and helps to preserve the environment for future generations (Vrachovska, 2020).

In order to reduce plastic waste, each individual should change their consumption pattern to a greener and more sustainable one. Some of the ways one can do so are as follows: To stop plastic at its source, that is, avoid unnecessary plastic, adopt the use of reusable items such as cloth shopping bags and metal cutlery and recycle the single-use plastics properly (Department of Agriculture, Water and the Environment, 2021). With a collective effort, we can make the world a better place to live in.

Question 2: Activities that require the most plastic packaging.

Respondents were asked to rank based on their experience, the following activities that require the most plastic packaging, with 1 being the MOST plastic packaging and 4 being the LEAST plastic packaging The survey provided 4 options as stated below:

- Grocery shopping
- Online shopping
- Food delivery
- Take-out food (Tabao)

Based on the data collected from the survey among the students and staff of the University of Nottingham Malaysia who are 18 years old and above, the following findings have been extracted:

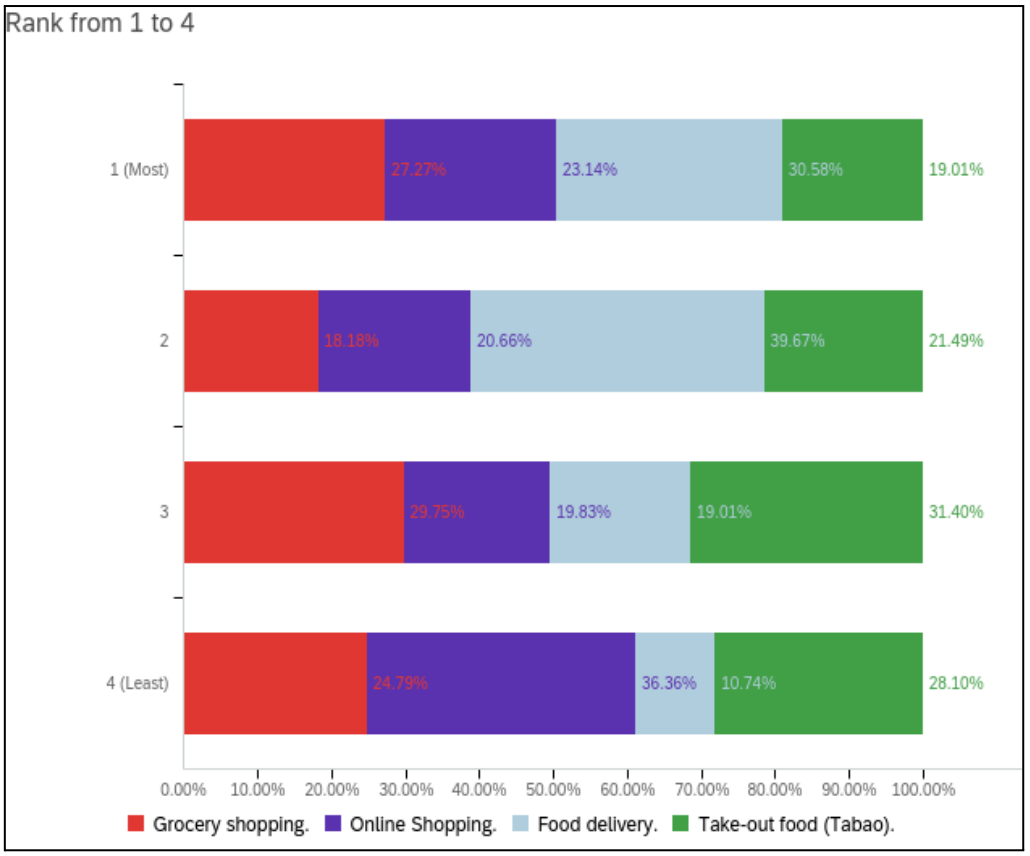


Figure A2i: Respondents' rank of activities requiring the most plastic packaging as per their experience. (1 being the MOST and 4 being the LEAST.)

Rank from 1 to 4

#	Field	1 (Most)	2	3	4 (Least)	Total
3	Food delivery.	30.58% 37	39.67% 48	19.01% 23	10.74% 13	121
1	Grocery shopping.	27.27% 33	18.18% 22	29.75% 36	24.79% 30	121
2	Online Shopping.	23.14% 28	20.66% 25	19.83% 24	36.36% 44	121
4	Take-out food (Tabao).	19.01% 23	21.49% 26	31.40% 38	28.10% 34	121

Showing rows 1 - 4 of 4

Figure A2ii: Respondents' rank of activities requiring the most plastic packaging as per their experience (Percentage and Count). (1 being the MOST and 4 being the LEAST.)

- 30.58% of the respondents think that food delivery generates the most plastic packaging out of the other activities listed.
- This was followed by (ranked '2') 39.67% of the respondents thinking that food delivery once again generates the most plastic packaging.
- Next, participants think that take-out food (ranked '3' with 31.40%), is the 3rd most generator of plastic packaging.
- Conversely, 10.74% of the respondents think that online shopping generates the least plastic packaging out of the other activities listed.

Therefore, according to the respondents, the activities which require the most plastic packaging are food delivery (ranked '1' and '2'), followed by take-out food (ranked '3') and lastly, online shopping (ranked '4'). Grocery shopping did not make it into the ranks.

The most plastic packaging generator as per respondents, in terms of gender, is given as follows:

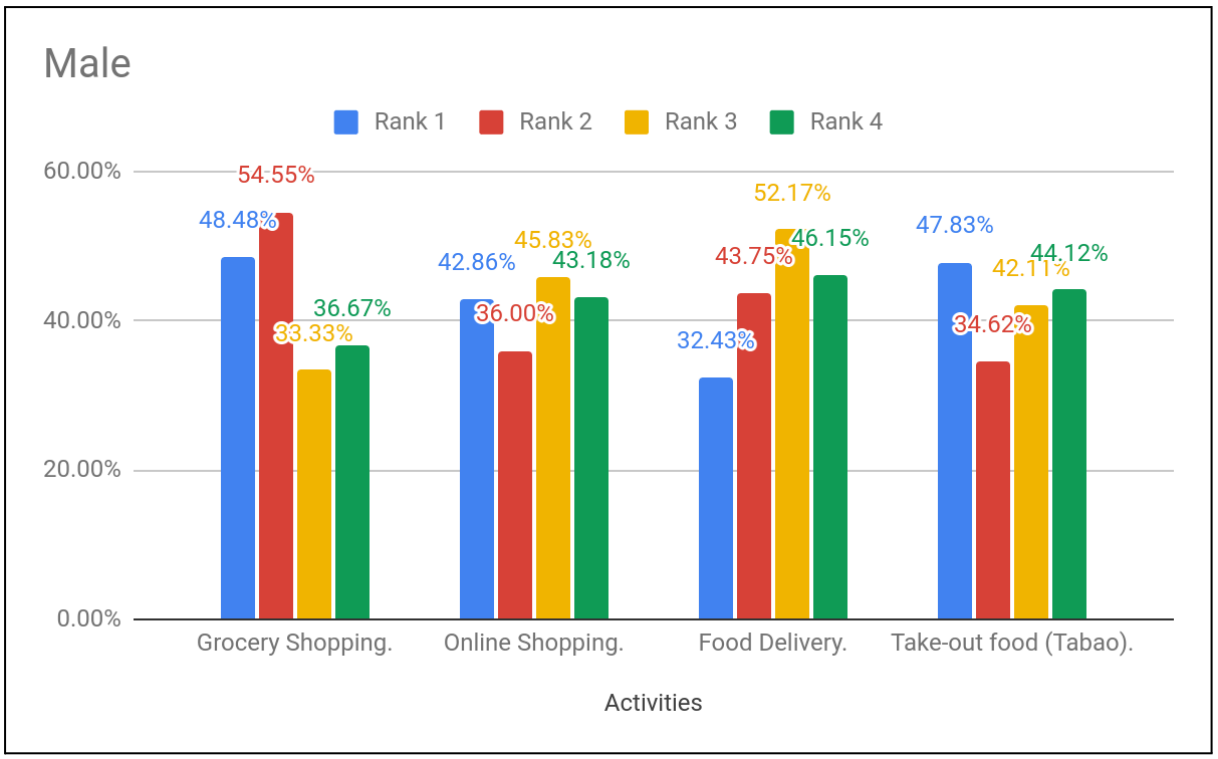


Figure A2iii: Male respondents' rank of activities requiring the most plastic packaging as per their experience (Percentage). (1 being the MOST and 4 being the LEAST.)

- 48.48% of males believed that grocery shopping generates the most plastic packaging (rank 1).
- This was followed by 47.83% of males ranking take-out food (Tabao) as the second most generator of plastic.
- In the third rank, 42.86% of the males choose online shopping.
- Lastly (rank 4), 32.43% of the males thought that food delivery generates the least amount of plastic.

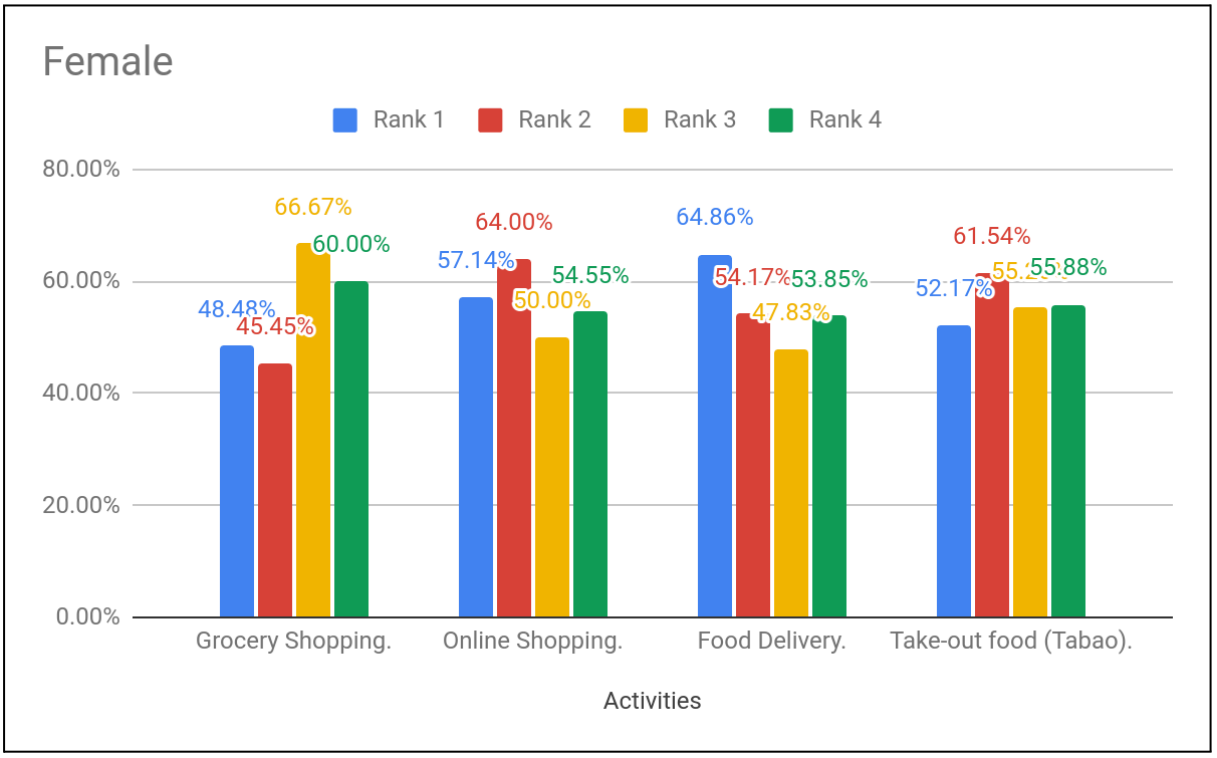


Figure A2iv: Female respondents' rank of activities requiring the most plastic packaging as per their experience (Percentage). (1 being the MOST and 4 being the LEAST.)

- 64.86% of females thought that food delivery generates the most plastic packaging (rank 1).
- This was followed by 57.14% of females ranking online shopping as the second most generator of plastic.
- In the third rank, 52.17% of the females chose take-out food (Tabao).
- Lastly (rank 4), 48.48% of the females thought that grocery shopping generates the least amount of plastic.

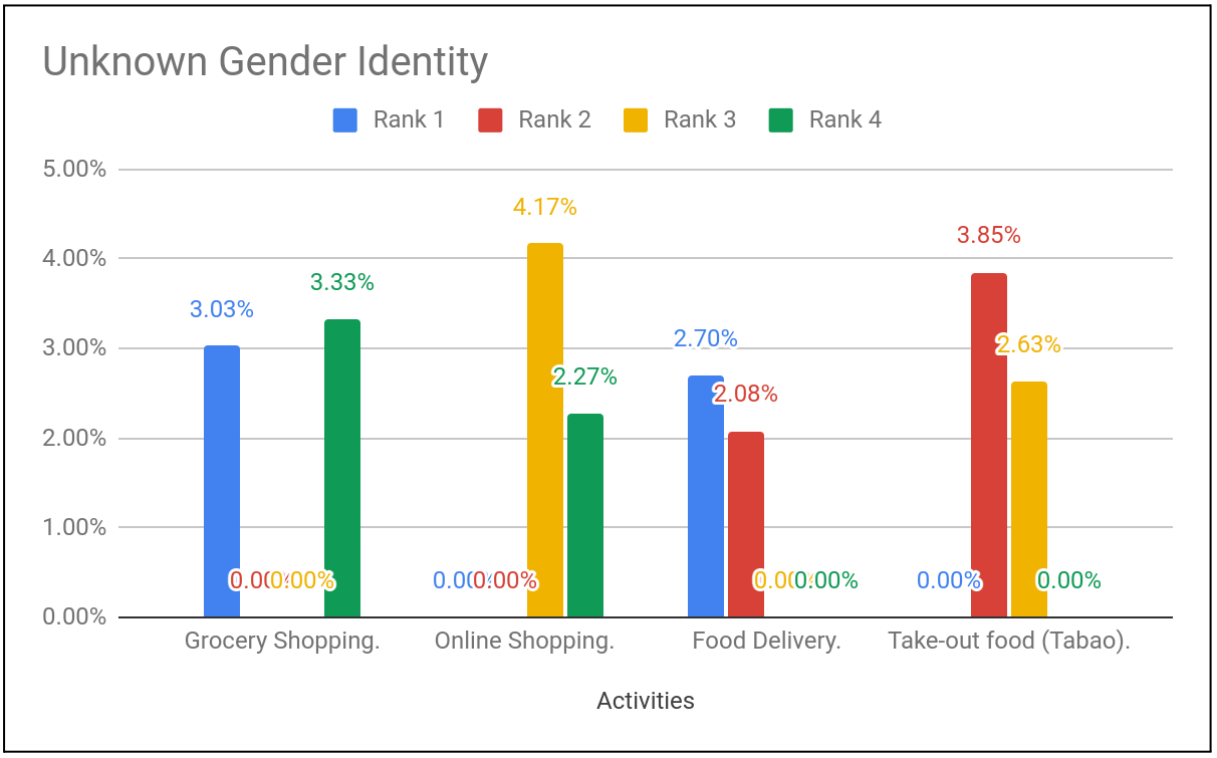


Figure A2iv: Unknown gender identity respondents' rank of activities requiring the most plastic packaging as per their experience (Percentage). (1 being the MOST and 4 being the LEAST.)

- 3.03% of unknown gender identity participants thought that food delivery generates the most plastic packaging (rank 1).
- This was followed by 2.70% of unknown gender identity participants ranking food delivery as the second most generator of plastic.
- There were no 3rd or 4th ranked activities.

Hereunder is the data classified by gender, in terms of percentages and counts:

Grocery shopping							
Rank	**MALE**		**FEMALE**		**PREFER NOT TO TELL**		**Total**
1	48.48%	16	48.48%	16	3.03%	1	33
2	54.55%	12	45.45%	10	0.00%	0	22
3	33.33%	12	66.67%	24	0.00%	0	36
4	36.67%	11	60.00%	18	3.33%	1	30
Online Shopping							
Rank	**MALE**		**FEMALE**		**PREFER NOT TO TELL**		**Total**
1	42.86%	12	57.14%	16	0.00%	0	28
2	36.00%	9	64.00%	16	0.00%	0	25
3	45.83%	11	50.00%	12	4.17%	1	24
4	43.18%	19	54.55%	24	2.27%	1	44
Food delivery							
Rank	**MALE**		**FEMALE**		**PREFER NOT TO TELL**		**Total**
1	32.43%	12	64.86%	24	2.70%	1	37
2	43.75%	21	54.17%	26	2.08%	1	48
3	52.17%	12	47.83%	11	0.00%	0	23
4	46.15%	6	53.85%	7	0.00%	0	13
Take-out food (Tabao)							
Rank	**MALE**		**FEMALE**		**PREFER NOT TO TELL**		**Total**
1	47.83%	11	52.17%	12	0.00%	0	23
2	34.62%	9	61.54%	16	3.85%	1	26
3	42.11%	16	55.26%	21	2.63%	1	38
4	44.12%	15	55.88%	19	0.00%	0	34

Figure A2v: Participants' rank of activities requiring the most plastic packaging as per their experience, sorted by gender (Percentage and Count). (1 being the MOST and 4 being the LEAST.)

According to the respondents, food delivery is the activity that requires the most plastic packaging. This might be because of an increase in food deliveries during this COVID-19 pandemic which has led to an increase in the plastic waste generated. Also, considering the other options (take-out food, online shopping and grocery shopping), food delivery seemed to have been the activity that was performed the most in this pandemic period, thus contributing to the fact that food delivery generated the most plastic packaging.

Malaysia used 148,000 tonnes of plastic packaging for food in 2020 alone, as a result of food deliveries or receiving food aid in plastics (Yeo, 2021). According to a poll conducted in Southeast Asia (Malaysia, Indonesia, the Philippines, Thailand, and Vietnam), consumers and businesses understand that governments are worried about plastic waste and expect the state to take further action (UN Environment, 2020). To reduce food delivery plastic waste, The Environmental Research Institute, Chulalongkorn University (ERIC) (2021) suggests the 3 Re Principles: Reduce consumption (option to have delivery with plastic utensils or not), Replace with alternative packaging (using paper-based packaging) and using Reusable containers. The reduction of plastic waste depends on not only the consumers but businesses and the government as well.

Question 3: The most used medium to carry the items you have bought from shopping.

Respondents were asked to choose their most used medium to carry the items they have bought from shopping. Options given are listed below:

- Self-bought reusable bags
- Plastic bags
- Prefer Shopping Online (I do not carry the items as I get them delivered)
- Nothing (I carry the items with bare hands)
- Other (please specify)

Based on the data collected from the survey among the students and staff of the University of Nottingham Malaysia who are 18 years old and above, the following findings have been extracted:

- Over half of the participants used self-bought reusable bags, being the most popular choice.
- Plastic bags are the second most popular choice, followed by "Nothing (I carry the items with bare hands)" and "I prefer shopping online (I do not carry the items as I get them delivered)".
- "Other", as stated by 2 participants, includes "Plastic bags obtained from previous shopping". One participant highlighted that before the pandemic he/she would have preferred to use self-bought usable bags. However, with the ongoing COVID-19, he/she prefers to shop online.

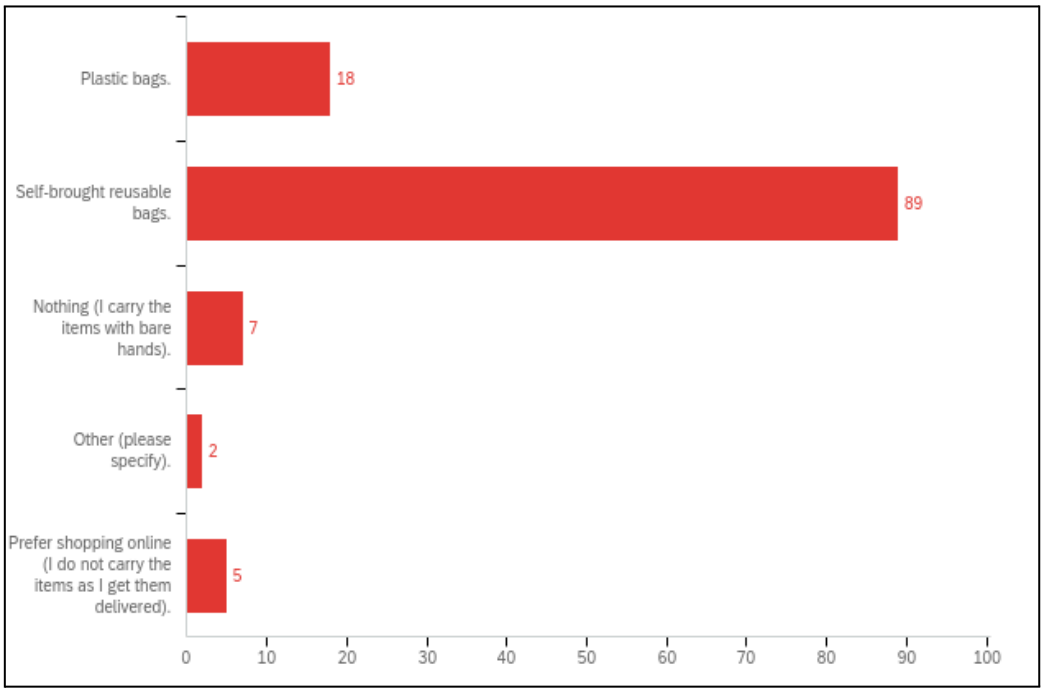


Figure A3i: Participants most used medium to carry the items they have bought from shopping (Count).

Hereunder is the data classified in terms of percentages and counts:

Medium	**%**	**Count**
Plastic bags	14.88%	18
Self-brought reusable bags	73.55%	89
Nothing (I carry the items with bare hands)	5.79%	7
Other (please specify)	1.65%	2
Prefer shopping online (I do not carry the items as I get them delivered)	4.13%	5
Total	100%	121

Figure A3ii: Respondents' most used medium to carry the items they have bought from shopping (Percentage and Count).

The most popular medium to carry items in descending order is self-bought reusable bags (73.55%), followed by plastic bags (14.88%), nothing (I carry the items with bare hands) (5.79%), prefer shopping online (I do not carry the items as I get them delivered) (4,13%) and lastly, other to be specified (1.65%).

The most used medium to carry the items bought from shopping in terms of gender is given as follows:

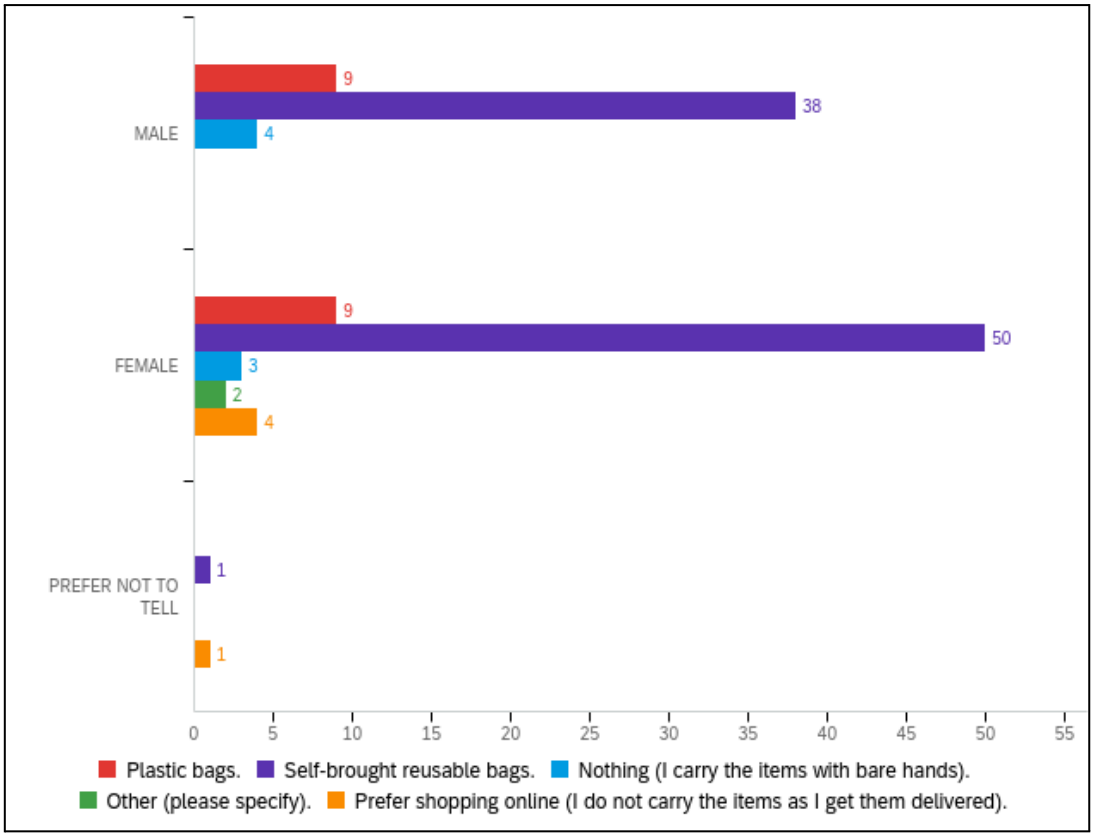


Figure A3iii: Respondents' most used medium to carry the items from shopping based on gender.

- The most popular choice with 89 responses out of 121, is self-bought reusable bags, which is also the most common choice within the gender groups for 38 males, 50 females and 1 of the unknown gender identity.
- Among male respondents, the second most preferred choice is plastic bags while the least popular choice was "Nothing".
- Among female respondents, the second most preferred choice is plastic bags, followed by preferring shopping online, "Nothing". The least popular choice was "Other".
- Among those with unknown gender identity, one chose the self-bought reusable bags while the other one prefers to shop online.

- Other than "self bought reusable bags", both male and female participants tend to prefer plastic bags.
- Another choice recorded as stated by respondents is "Plastic bags obtained from previous shopping".

Hereunder is the data classified by gender, in terms of percentages:

Medium	MALE		FEMALE		PREFER NOT TO TELL		Total
Plastic bags	50.00%	9	50.00%	9	0.00%	0	18
Self-brought reusable bags	42.70%	38	56.18%	50	1.12%	1	89
Nothing (I carry the items with bare hands)	57.14%	4	42.86%	3	0.00%	0	7
Prefer shopping online (I do not carry the items as I get them delivered)	0.00%	0	80.00%	4	20.00%	1	5
Other (please specify)	0.00%	0	100.00 %	2	0.00%	0	2

Figure A3iv: Participants most used the medium to carry items from shopping based on gender (Table).

Based on the analysis, it can be deduced that a large majority of the respondents uses self-bought reusable bags (73.55%), which shows their awareness of the item's usefulness and benefits. Self-bought reusable bags have the following advantages: they last longer since they are made of sturdy materials (jute, canvas, and cotton), they are cost-effective because they can be reused numerous times, they are more comfortable, practical, and convenient (Raechelle, 2020).

It is assumed that 18 respondents chose "plastic bags" as they might have forgotten to bring their reusable bags and just purchased plastic bags from the shopping counter. They might otherwise prefer the use of plastic bags because it is cheaper than reusable bags (Weiss, 2017).

7 respondents carry their items by hand, probably because they bought a small number of products, and thus the usage of bags (reusable or plastic) can be omitted. A small number of

respondents (5), prefer to shop online which might be fueled due to the Movement Control Order (MCO) and COVID-19 pandemic, where displacing physically is harder. This is supported by an argument stated by a respondent who chose “other”. Thus, online shopping becomes a good alternative.

However, it must be noted that online shopping increases the plastic packaging volume. Last year, Amazon produced 465 million pounds of plastic packaging waste that were included in the over 7 billion Amazon parcels sent in 2019 (Oceana, 2020a). According to Oceana (2020b), 22.4 million pounds of plastic packaging wound up in streams and marine environments. Therefore, consumers should pressure the retailers to use less or no plastic packaging. The retailers on their part ought to show an environmentally conscious attitude to deal with the great waste generated. Nini (2021) suggest rethinking carefully on a purchase, choose companies that deal with compostable packaging, request for plastic-free deliveries, when buying several items go for combined packaging and opt for pick up instead of deliveries.

Question 4: The preferred method of drinking beverages.

Respondents were asked to choose their preferred method of drinking beverages. The survey provided 4 options as stated below:

- Plastic straws
- Metal straws
- Paper straws
- Nothing
- Other (please specify)

Based on the data collected from the survey among the students and staff of the University of Nottingham Malaysia who are 18 years old and above, the following findings have been extracted:

- Over half of the participants favour using "nothing" to drink beverages, meanwhile being the most popular choice.
- Metal straws is the second most popular choice, followed by paper straws and plastic straws which got equal responses.
- Other choices, being the least popular option, include tumblers and glass straws, as stated by respondents.

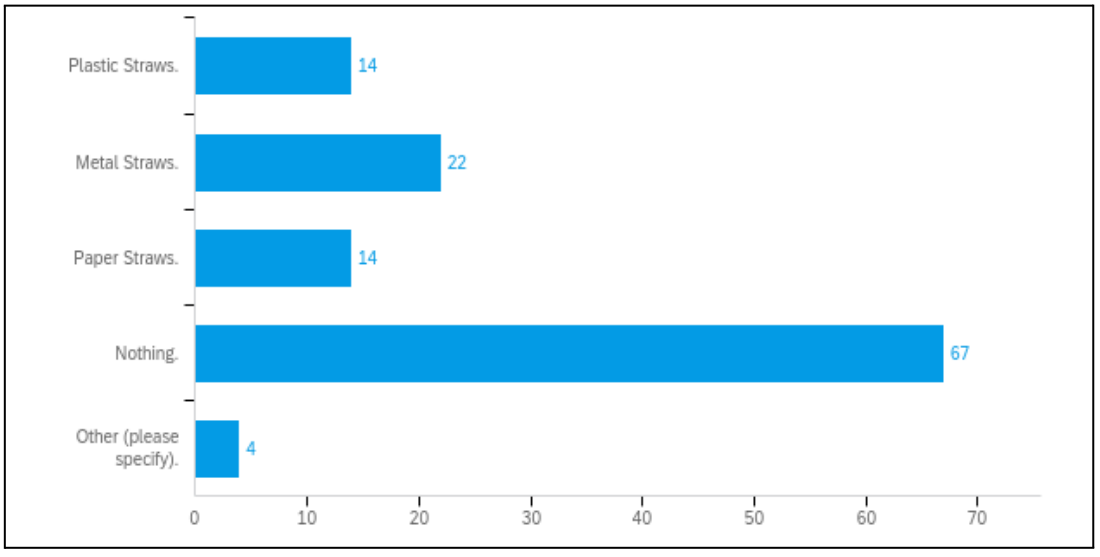


Figure A4i: Respondents' preferred method of drinking beverages.

Hereunder is the data classified in terms of percentages and counts:

Preferred method of drinking beverages	%	Count
Plastic Straws.	11.57%	14
Paper Straws.	11.57%	14
Other (please specify).	3.31%	4
Nothing.	55.37%	67
Metal Straws.	18.18%	22
Total	100%	121

Figure A4ii: Participants' preferred method of drinking beverages (Table).

The most preferred method of drinking beverages in descending order is using "nothing" (55.37%), followed by metal straws (18.18%), plastic and paper straws (11.57%) and lastly, others (3.31%).

The preferred method of drinking beverages in terms of gender is given as follows:

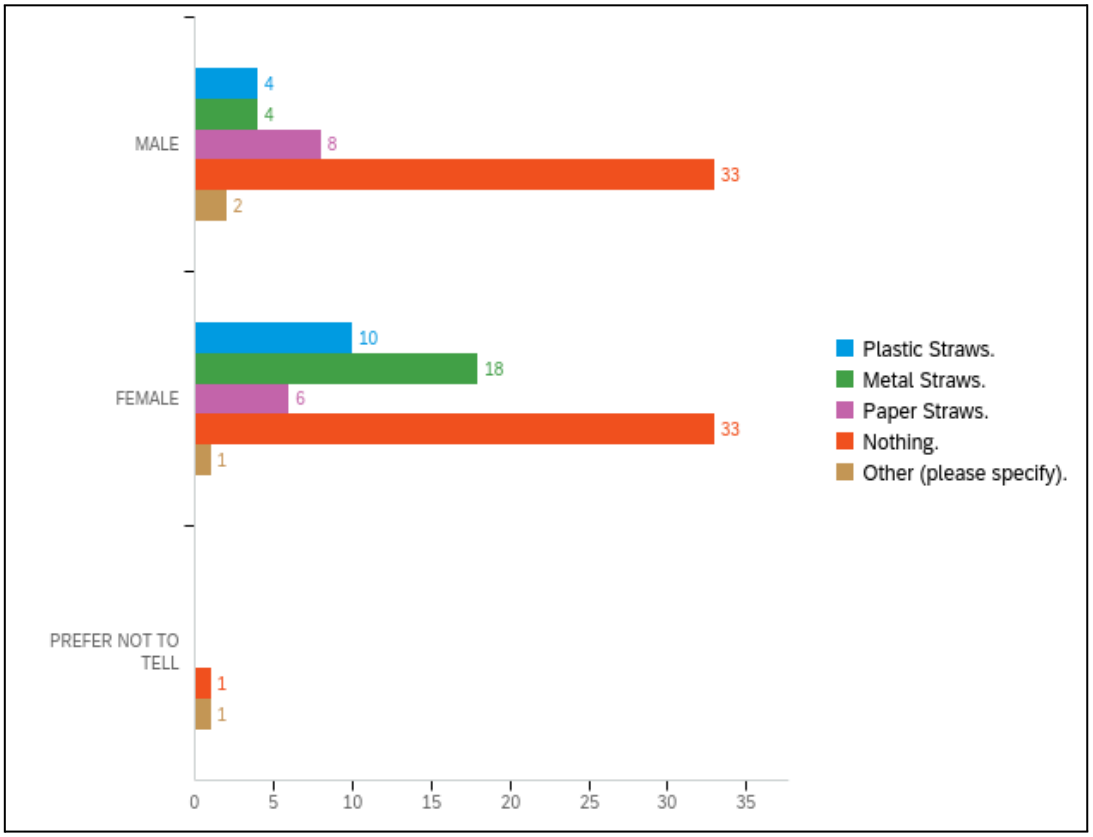


Figure A4iii: Preferred method of drinking beverages based on gender (Chart).

- The most popular choice with 67 responses out of 121, is “nothing”, which is also the most common choice within the gender groups of 33 males, 33 females and 1 unknown gender identity.
- Among male respondents, the second preferred choice is paper straws followed by an equal score for plastic and metal straws. “Other” is the least popular option when drinking beverages among males.
- Among female respondents, the second preferred choice is metal straws followed by plastic straws and paper straws. “Other” is the least popular option when drinking beverages among females.
- Two respondents of unknown gender identity prefer “nothing” and other (glass straw).
- Other than “nothing”, male participants tend to prefer paper straws while female participants prefer metal straws. It is ambiguous to decide whether males or females are more environmentally friendly based on this survey question alone.
- Other methods of drinking beverages recorded included glass straws and tumblers. The tumbler can be categorised as “nothing” as no drinking straw or similar tools are used.

Hereunder is the data classified by gender, in terms of percentages:

Preferred method of drinking beverages	**MALE**		**FEMALE**		**PREFER NOT TO TELL**		**Total**
Plastic Straws	28.57%	4	71.43%	10	0.00%	0	14
Paper Straws	57.14%	8	42.86%	6	0.00%	0	14
Other (please specify)	50.00%	2	25.00%	1	25.00%	1	4
Nothing	49.25%	33	49.25%	33	1.49%	1	67
Metal Straws	18.18%	4	81.82%	18	0.00%	0	22

Figure A4iv: Preferred method of drinking beverages based on gender in terms of percentages (Table).

Based on the analysis, it can be deduced that the majority of the respondents uses “nothing” to drink a beverage (55.37%), which shows that they are environmentally-friendly when it comes to the method of drinking beverages. It is assumed that the 67 participants who chose “nothing” usually drink directly from cups, mugs or bottles regardless of the material used. Therefore, no waste of any kind is being produced in the process of consumption of beverages. Among the straws, metal straw is the most favourable, indicating respondents being aware of the benefit of using metal straws over plastic ones to the environment.

Overall, the usage of plastic straws is considered not environmentally friendly as compared to metal and paper straws. This is because most plastic straws are also not biodegradable and cannot be broken down naturally by bacteria and other decomposers into non-toxic materials. Most plastic straws simply break into ever-smaller particles, releasing chemicals into the soil, air, and water that are harmful to animals, plants, people, and the environment (Staff, 2019).

Plastic straws were commonly used in food stalls and restaurants throughout Malaysia until 2019 when the state governments of Selangor and all 3 federal territories in Malaysia banned the use of plastic straws (Chen, et al., 2021a). Since then, paper straws began making an entrance into the Malaysian market.

Paper straws are ocean-friendly. According to a study from 5Gyres Science to Solutions (n.d.), paper straws will break down in 6 months. This means they are safer for wildlife than plastic straws. The cost of paper straws is slightly more than plastic ones.

Meanwhile, metal straws are more costly but reusable, as they can be washed over and over again until the end of their shelf life hence contributing less as a waste product. Metal straws may be uncommon owing to the inconvenience of carrying them along with oneself everywhere.

Question 5: Item that requires most plastic packaging upon purchase

Participants were asked to rank the following items that require the most plastic packaging upon purchase. (1st rank being the MOST and 6th rank being the LEAST).

- Fruit and vegetables
- Snacks
- Toiletries
- Consumer electronics
- Beverages
- Frozen food

Based on the data collected, the following findings have been extracted:

- The item that requires most plastic packaging upon purchase that the majority of the respondents chose is snacks.
- Over half of the respondents selected consumer electronics as the item that requires least plastic packaging among other items listed.
- Both snacks and frozen food are the items that show decreasing trend of being selected by the respondents from the item with most plastic packaging to the item with the least plastic packaging upon purchase than other items listed.

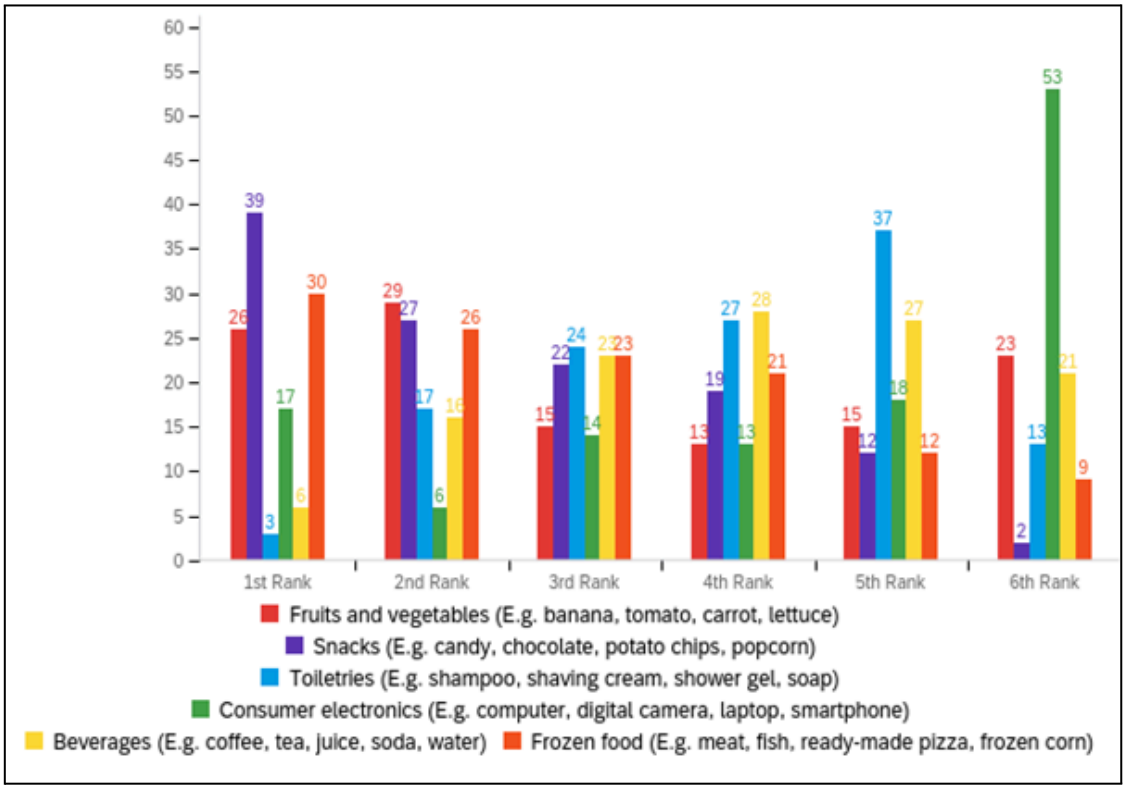


Figure A5i: Count of participants' rank of the items with the most plastic packaging upon purchase (Bar Chart). (1st rank being the MOST and 6th rank being the LEAST)

#	Field	1st Rank	2nd Rank	3rd Rank	4th Rank	5th Rank	6th Rank	Total
1	Fruits and vegetables (E.g. banana, tomato, carrot, lettuce)	21.49% 26	23.97% 29	12.40% 15	10.74% 13	12.40% 15	19.01% 23	121
2	Snacks (E.g. candy, chocolate, potato chips, popcorn)	32.23% 39	22.31% 27	18.18% 22	15.70% 19	9.92% 12	1.65% 2	121
3	Toiletries (E.g. shampoo, shaving cream, shower gel, soap)	2.48% 3	14.05% 17	19.83% 24	22.31% 27	30.58% 37	10.74% 13	121
4	Consumer electronics (E.g. computer, digital camera, laptop, smartphone)	14.05% 17	4.96% 6	11.57% 14	10.74% 13	14.88% 18	43.80% 53	121
5	Beverages (E.g. coffee, tea, juice, soda, water)	4.96% 6	13.22% 16	19.01% 23	23.14% 28	22.31% 27	17.36% 21	121
6	Frozen food (E.g. meat, fish, ready-made pizza, frozen corn)	24.79% 30	21.49% 26	19.01% 23	17.36% 21	9.92% 12	7.44% 9	121

Showing rows 1 - 6 of 6

Figure A5ii: Percentage and Count of participants' rank of the items with the most plastic packaging upon purchase Table). (1st rank being the MOST and 6th rank being the LEAST)

- As shown in the table above, for the item that the respondents think with the most plastic packaging upon purchase (1st rank), the popularity of the items chosen by the participants in descending order is snacks (39%), followed by frozen food (30%), fruits and vegetables (26%), consumer electronics (17%), beverages (6%), and lastly, the toiletries (3%).
- For the item that the respondents think with the least plastic packaging upon purchase (6th rank), the popularity of the items chosen by the participants in descending order is consumer electronics (53%), followed by fruits and vegetables (23%), beverages (21%), toiletries (13%), frozen food (9%) and lastly, the snacks (2%).
- Each item listed has its most ranked position which is, fruits and vegetables has the most second rank (29%), snacks has the most first rank (39%), toiletries has the most fifth rank (37%), consumer electronics has the most sixth rank (53%), beverages has the most fourth rank (28%) while frozen food has the most first rank (30%).

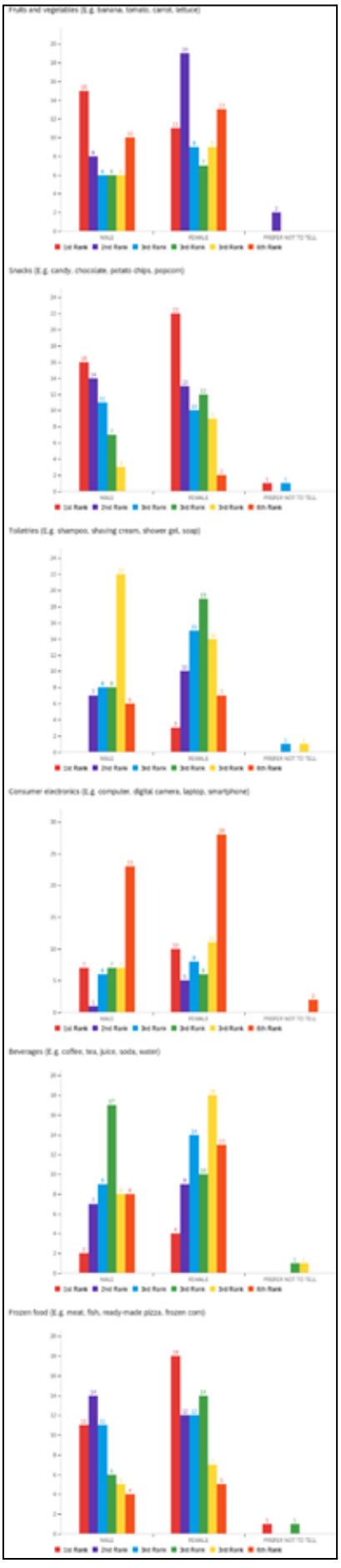
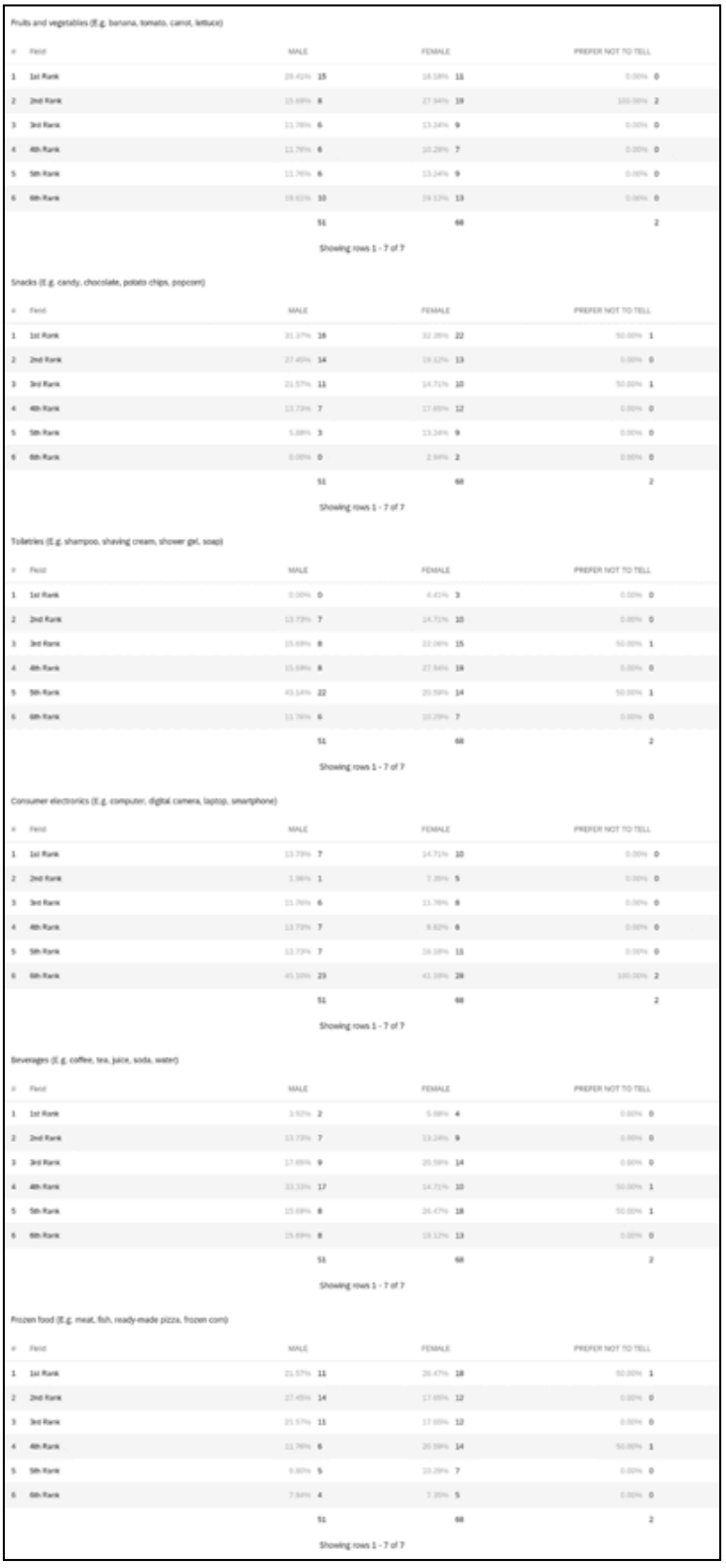

Fruits and vegetables (E.g. banana, tomato, carrot, lettuce)
Snacks (E.g. candy, chocolate, potato chips, popcorn)
Toiletries (E.g. shampoo, shaving cream, shower gel, soap)
Consumer electronics (E.g. computer, digital camera, laptop, smartphone)
Beverages (E.g. coffee, tea, juice, soda, water)
Frozen food (E.g. meat, fish, ready-made pizza, frozen corn)

Figure A5ii: Count of participants' rank of the items with the most plastic packaging upon purchase based on gender (Bar Chart). (1st rank being the MOST and 6th rank being the LEAST)

- For the ranking from the item with the most plastic packaging to the item with the least packaging, most male participants chose fruits and vegetables and snacks as their first rank, toiletries and beverages as fourth rank, consumer electronics as sixth rank, and frozen food as second rank.
- As for the females, most of them selected fruits and vegetables as their second rank, snacks as first rank, toiletries as fourth rank, consumer electronics as sixth rank, beverages as fifth rank, and frozen food as their first rank.
- This shows that both male and female participants have similar opinions and experiences on the amount of plastic packaging for different items bought, as most of them rank the same item at the same ranking position, for example snacks being the first rank, toiletries being the fourth rank and consumer electronics being the sixth rank. Also, both fruits and vegetables and frozen food were selected as the first two ranks by most of the male and female respondents.
- Meanwhile, two of the respondents who are from unknown gender agreed on the fruits and vegetables as the second rank, while consumer electronics as the sixth rank.
- With this, we can conclude that the order of the item from the most plastic packaging to the least plastic packaging is viewed by the participants regardless of their gender as the first being snacks, followed by fruits and vegetables and frozen food, then toiletries and beverages, and lastly, the consumer electronics.



Fruits and vegetables (E.g. banana, tomato, carrot, lettuce)

#	Field	MALE		FEMALE		PREFER NOT TO TELL	
1	1st Rank	29.41%	15	16.18%	11	0.00%	0
2	2nd Rank	15.69%	8	27.94%	19	100.00%	2
3	3rd Rank	11.76%	6	13.24%	9	0.00%	0
4	4th Rank	11.76%	6	10.29%	7	0.00%	0
5	5th Rank	11.76%	6	13.24%	9	0.00%	0
6	6th Rank	19.61%	10	19.12%	13	0.00%	0
		51		68		2	

Showing rows 1 - 7 of 7

Snacks (E.g. candy, chocolate, potato chips, popcorn)

#	Field	MALE		FEMALE		PREFER NOT TO TELL	
1	1st Rank	31.37%	16	32.35%	22	50.00%	1
2	2nd Rank	27.45%	14	19.12%	13	0.00%	0
3	3rd Rank	21.57%	11	14.71%	10	50.00%	1
4	4th Rank	13.73%	7	17.65%	12	0.00%	0
5	5th Rank	5.88%	3	13.24%	9	0.00%	0
6	6th Rank	0.00%	0	2.94%	2	0.00%	0
		51		68		2	

Showing rows 1 - 7 of 7

Toiletries (E.g. shampoo, shaving cream, shower gel, soap)

#	Field	MALE		FEMALE		PREFER NOT TO TELL	
1	1st Rank	0.00%	0	4.41%	3	0.00%	0
2	2nd Rank	13.73%	7	14.71%	10	0.00%	0
3	3rd Rank	15.69%	8	22.06%	15	50.00%	1
4	4th Rank	15.69%	8	27.94%	19	0.00%	0
5	5th Rank	43.14%	22	20.59%	14	50.00%	1
6	6th Rank	11.76%	6	10.29%	7	0.00%	0
		51		68		2	

Showing rows 1 - 7 of 7

Consumer electronics (E.g. computer, digital camera, laptop, smartphone)

#	Field	MALE		FEMALE		PREFER NOT TO TELL	
1	1st Rank	13.73%	7	14.71%	10	0.00%	0
2	2nd Rank	1.96%	1	7.35%	5	0.00%	0
3	3rd Rank	11.76%	6	11.76%	8	0.00%	0
4	4th Rank	13.73%	7	8.82%	6	0.00%	0
5	5th Rank	13.73%	7	16.18%	11	0.00%	0
6	6th Rank	45.10%	23	41.18%	28	100.00%	2
		51		68		2	

Showing rows 1 - 7 of 7

Beverages (E.g. coffee, tea, juice, soda, water)

#	Field	MALE		FEMALE		PREFER NOT TO TELL	
1	1st Rank	3.92%	2	5.88%	4	0.00%	0
2	2nd Rank	13.73%	7	13.24%	9	0.00%	0
3	3rd Rank	17.65%	9	20.59%	14	0.00%	0
4	4th Rank	33.33%	17	14.71%	10	50.00%	1
5	5th Rank	15.69%	8	26.47%	18	50.00%	1
6	6th Rank	15.69%	8	19.12%	13	0.00%	0
		51		68		2	

Showing rows 1 - 7 of 7

Frozen food (E.g. meat, fish, ready-made pizza, frozen corn)

#	Field	MALE		FEMALE		PREFER NOT TO TELL	
1	1st Rank	21.57%	11	26.47%	18	50.00%	1
2	2nd Rank	27.45%	14	17.65%	12	0.00%	0
3	3rd Rank	21.57%	11	17.65%	12	0.00%	0
4	4th Rank	11.76%	6	20.59%	14	50.00%	1
5	5th Rank	9.80%	5	10.29%	7	0.00%	0
6	6th Rank	7.84%	4	7.35%	5	0.00%	0
		51		68		2	

Showing rows 1 - 7 of 7

Figure A5iv: Percentage and Count of participants' rank of the items with the most plastic packaging upon purchase based on gender (Table). (1st rank being the MOST and 6th rank being the LEAST)

- In conclusion, in the opinion of most participants, snacks use the most plastic packaging, while consumer electronics use the least plastic packaging. This might be because of most of the snacks available in the market are packaged in the plastic wrappers and is easily accessible by consumers on daily basis, while consumer electronics which are mostly big in size are transported, unloaded, and moved into houses by workers, hence consumers might have less visualisation on the amount of plastic packaging for consumer electronics which are less frequently bought too. Consumer electronics are also commonly packaged in cardboard boxes with some plastics wrapping it inside of the box, hence its packaging is not just plastic only.
- Alternative packaging for snacks available which are sustainable are metalized polypropylene, board, polylactic acid, cellulose film, high density polyethylene. However, what consumers can do easily would be buying snacks from bulk stores by searching online for the bulk stores near their residential areas. With that, they can buy the snacks without generating plastic wastes by bringing their own containers to store the snacks bought from the stores.
- Similar approach can be done to minimize the usage of plastic packaging upon purchase of fruits and vegetables. The consumers can go to the local market to buy the fruits and vegetables with plastic-free packaging by carrying the things bought using reusable bags, used plastic bags or mesh cloth bags.
- As of now, frozen food such as frozen meat is commonly found to be packaged in plastic wraps and plastic trays. Occasionally, frozen food such as frozen pastry is packaged in corrugated cardboard and other paper-based packaging on the outer side while using plastic packaging on the inner side. In this case, there are some frozen food makers that use recycled plastics in their packaging to ensure sustainability of the environment in their packaging. In the market, there is one major frozen food maker uses plastics from recycled plastic bottles in frozen meal trays for several of its food brands—the company says this diverts an estimated 8 million plastic bottles from the waste stream annually, which results in less valuable material buried in landfills (American Chemistry Council, 2013).
- Therefore, the public should be exposed with more information about the simple steps to reduce the plastic packaging upon purchase items in daily lives, so that we can help to effectively eliminate plastic waste coming from the single-use plastic packaging of the goods we bought.

Question 6: Choice of action that best describes the respondents on the plastic bag usage

Respondents were asked to choose the actions listed below that best describe them on plastic bag usage.

- Rethink: Think of the necessity before getting a new plastic bag.
- Refuse: Decline the use of a new plastic bag.
- Reduce: Take the necessary amount instead of extras.
- Reuse: Use the plastic bag again.
- Instantly after use, discard the plastic bag in the general garbage bin.
- Without cleaning the plastic bag, discard it in the recycle bin.
- After cleaning the plastic bag properly, discard it in the recycle bin.
- I use reusable bags instead of getting new plastic bags.
- I practise none of these actions.

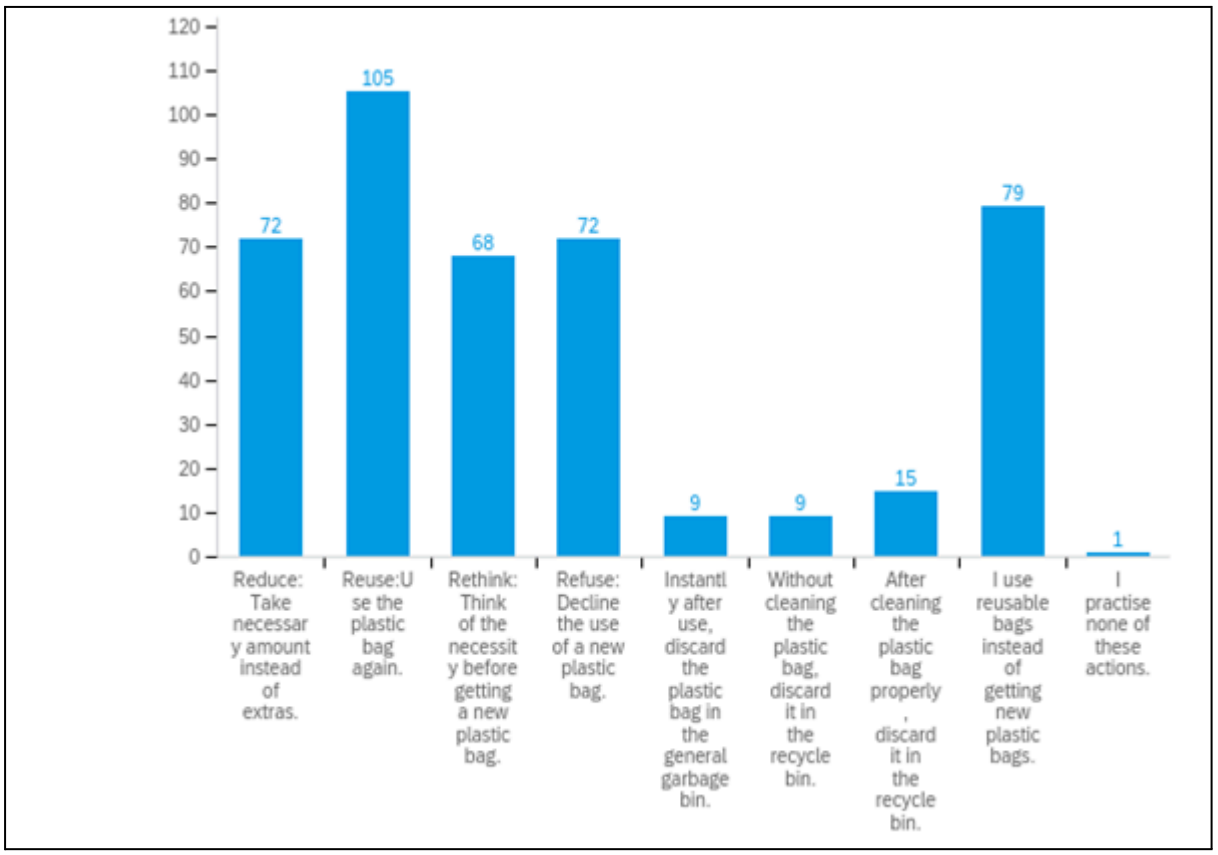


Figure A6i: Count of participants that select the action(s) that best describe them on plastic bag usage (Bar Graph).

#	Field	Choice Count	
1	Reduce: Take necessary amount instead of extras.	16.74%	72
8	Reuse: Use the plastic bag again.	24.42%	105
9	Rethink: Think of the necessity before getting a new plastic bag.	15.81%	68
10	Refuse: Decline the use of a new plastic bag.	16.74%	72
11	Instantly after use, discard the plastic bag in the general garbage bin.	2.09%	9
12	Without cleaning the plastic bag, discard it in the recycle bin.	2.09%	9
13	After cleaning the plastic bag properly, discard it in the recycle bin.	3.49%	15
16	I use reusable bags instead of getting new plastic bags.	18.37%	79
18	I practise none of these actions.	0.23%	1
			430

Showing rows 1 - 10 of 10

Figure A6ii: Percentage and Count of participants that select the action(s) that best describe them on plastic bag usage (Table).

- The most popular choice of action that best describes the respondents on the plastic bag usage is reusing the plastic bags (24.4%), while least popular choice is that the respondent does not practise all the other actions listed (0.2%).
- The order from the most popular choice to the least popular choice is as follows: from reusing the plastic bags (24.4%), followed by using reusable bags (18.37%), then reducing (16.7%) and refusing using plastic bags (16.7%), rethinking about the necessity of using plastic bag before use (15.8%), cleaning the plastic bag properly and discarding it into the recycle bin (3.5%), discarding the plastic bags into general bin right after using it (2.1%) and discard plastic bags into recycle bin without cleaning it (2.1%), and lastly, practise none of the actions listed (0.2%).

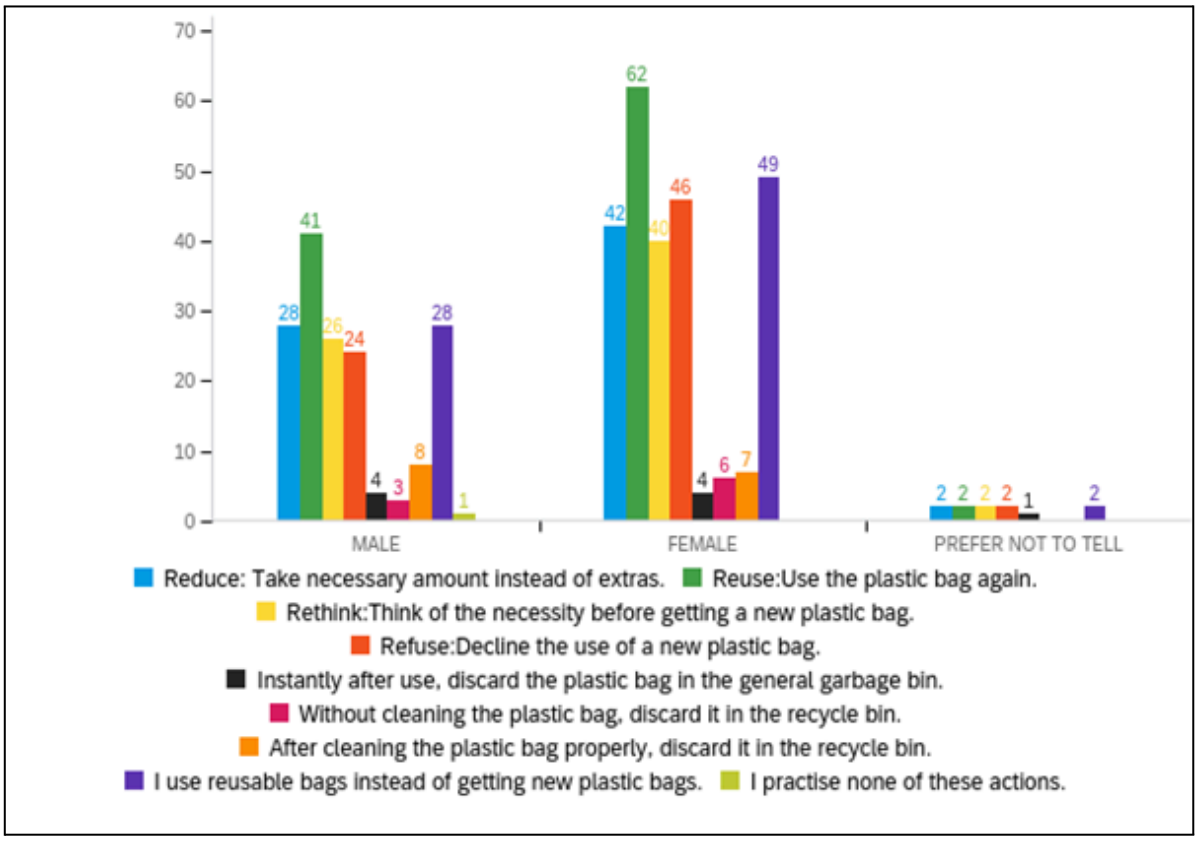


Figure A6iii: Count of participants that select the action(s) that best describe them on plastic bag usage based on gender (Bar Graph).

#	Field	MALE		FEMALE		PREFER NOT TO TELL		Total
9	Rethink: Think of the necessity before getting a new plastic bag.	38.24%	26	58.82%	40	2.94%	2	68
10	Refuse: Decline the use of a new plastic bag.	33.33%	24	63.89%	46	2.78%	2	72
1	Reduce: Take necessary amount instead of extras.	38.89%	28	58.33%	42	2.78%	2	72
8	Reuse: Use the plastic bag again.	39.05%	41	59.05%	62	1.90%	2	105
11	Instantly after use, discard the plastic bag in the general garbage bin.	44.44%	4	44.44%	4	11.11%	1	9
12	Without cleaning the plastic bag, discard it in the recycle bin.	33.33%	3	66.67%	6	0.00%	0	9
13	After cleaning the plastic bag properly, discard it in the recycle bin.	53.33%	8	46.67%	7	0.00%	0	15
16	I use reusable bags instead of getting new plastic bags.	35.44%	28	62.03%	49	2.53%	2	79
18	I practise none of these actions.	100.00%	1	0.00%	0	0.00%	0	1

Showing rows 1 - 9 of 9

Figure A6iv: Percentage and Count of participants that select the action(s) that best describe them on plastic bag usage based on gender (Table).

- For both male and female respondents, the most popular choice for the action that best describes them on plastic bag usage is reusing the plastic bags, while the least popular choice is that they practise none of the actions listed.
- As for the respondents with unknown gender, the choices are too little to extract any significant data.
- Overall, both male and female participants show similar selection on the action(s) that best describe them on plastic bag usage, because they have the same most popular and least popular choice. Aside from that, the more popular choices are the same, which include rethink, refuse, reduce, reuse the plastic bags and use reusable bags, while the less popular choices are also the same, which include discard plastic bags into general bin after use, discard plastic bags into recycle bin with or without cleaning, and not practising any of the actions listed.
- Therefore, it is obvious that most of the participants are environmentally friendly regardless of their gender, as they chose to rethink, refuse, reduce and reuse the plastic bag usage. With these actions being implemented to their daily lives, usage on plastic bags can be reduced and minimized effectively.
- According to the Malaysian Plastic Manufacturers Association (MPMA), the average Malaysian uses 300 plastic bags per year - totaling up to 9 billion bags in tota, of which the majority are single use (Grey KL, 2018a). The figure is solely based on plastic bags taken away from hypermarkets and supermarkets which does not include plastic bags from departmental stores, morning and night markets, or even from all Malaysians' favorite local hawker stalls. (Grey KL, 2018b).
- With so many plastic bags being used and generated into waste, the negative impact of the plastic bags to the environment has surely magnified. As the decomposition of plastic bags is very slow, they remain in the environment for long, which creates serious negative consequences. For example, plastic bags remaining under sunlight such as those that are collected at the landfill will experience photodegradation and they break down into microplastics. These microplastics are released into the soil and water, causing land and water pollution. Other than that, when plastic bags are burned, they can release toxic substances into the air. Not only that, sea creatures often consume plastics or microplastics unconsciously which might endanger their health and reduce their lifespan. Some of them are even trapped in plastic bags and

suffocated until death, such as the tortoises that mistake the floating plastic bags as their food.

- As you can see, plastic bags usage and the poor waste management on plastic bags contribute to many different negative impacts on the environment which essentially adversely affect living creatures including humans and animals. Therefore, it is crucial to continue any initiatives that educate the public about the importance of reducing the usage of plastic bags in daily lives so that different parties including the consumers, the seller, non-governmental organisation, the Government and more can take proactive actions on reducing the manufacturing and usage of plastic bags while managing the plastic bags waste properly.
- However, since some respondents chose to discard plastic bags into recycle bins without proper cleaning, awareness on the importance of cleaning the used plastic bags before throwing them into the recycle bin should be raised among the community.
- As some plastic bags are unavoidable in some scenarios, we can always reuse or recycle them. In the case of recycling it, we should take note that we cannot throw the used plastic bags to the recycle bin. This is because if we discard the plastic bags in the recycling bin, they can tangle up with other materials. Plastic bags are also inherently difficult to keep free of contaminants and to pull out of the recycling without snagging something else along with them. (Less Is More, n.d.). Hence, the best approach to recycle the used plastic bags is to clean and dry them off, then throw them at a store with a plastic bag recycling bin, which can be found in certain local grocery stores. At the same time, the consumers are encouraged to reuse the plastic bags instead of throwing it away, for example to use the dirty plastic bags as the garbage bag.

Question 7: Choice of action that best describes the respondents on food and drinks packaging

Respondents were asked to choose the actions listed below that best describe them on the usage of following food and drinks packaging (a – g):

a. Single-use plastic takeaway container

b. Plastic container (with cover)

c. Polystyrene container

d. Single-use plastic cutlery

e. Single-use plastic straw

f. Single-use plastic cup

Actions are as follows:

- Rethink: Think of the necessity before getting a new plastic bag.
- Refuse: Decline the use of a new plastic bag.
- Reduce: Take the necessary amount instead of extras.
- Reuse: Use the plastic bag again.
- Instantly after use, discard the plastic bag in the general garbage bin.
- Without cleaning the plastic bag, discard it in the recycle bin.
- After cleaning the plastic bag properly, discard it in the recycle bin.
- I use tiffin carriers.
- I order from restaurants that use paper-based packaging.
- I practise none of these actions.

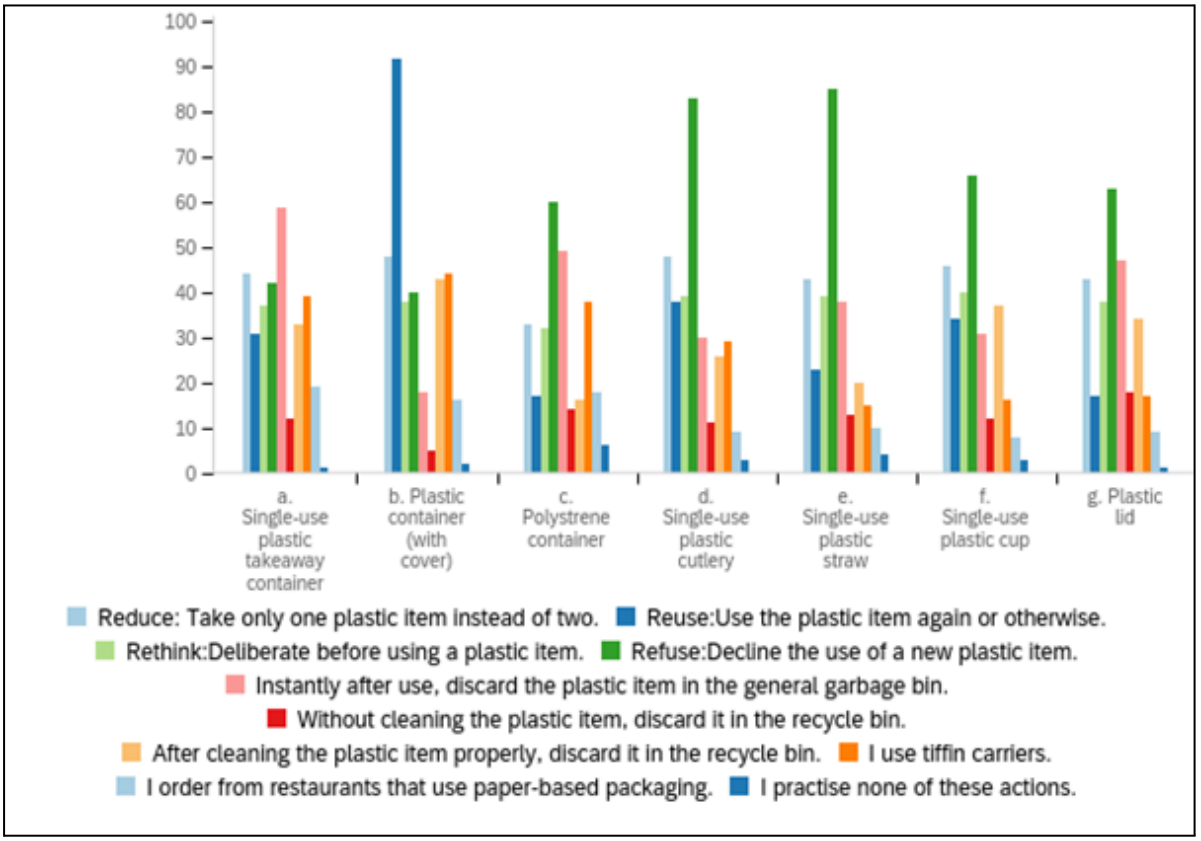


Figure A7i: Count of participants that select the action(s) that best describe them on usage of different food and drinks packaging (Bar Graph).

#	Field	Reduce: Take only one plastic item instead of two.		Reuse: Use the plastic item again or otherwise.		Rethink: Deliberate before using a plastic item.		Refuse: Decline the use of a new plastic item.		Instantly after use, discard the plastic item in the general garbage bin.		Without cleaning the plastic item, discard it in the recycle bin.		After cleaning the plastic item properly, discard it in the recycle bin.		I use tiffin carriers.		I order from restaurants that use paper-based packaging.		I practise none of these actions.	
1	a. Single-use plastic takeaway container	14.43%	44	12.30%	31	14.07%	37	9.57%	42	21.69%	59	14.12%	12	15.79%	33	19.70%	39	21.35%	19	5.00%	1
2	b. Plastic container (with cover)	15.74%	48	36.51%	92	14.45%	38	9.11%	40	6.62%	18	5.88%	5	20.57%	43	22.22%	44	17.98%	16	10.00%	2
3	c. Polystrene container	10.82%	33	6.75%	17	12.17%	32	13.67%	60	18.01%	49	16.47%	14	7.66%	16	19.19%	38	20.22%	18	30.00%	6
4	d. Single-use plastic cutlery	15.74%	48	15.08%	38	14.83%	39	18.91%	83	11.03%	30	12.94%	11	12.44%	26	14.65%	29	10.11%	9	15.00%	3
5	e. Single-use plastic straw	14.10%	43	9.13%	23	14.83%	39	19.36%	85	13.97%	38	15.29%	13	9.57%	20	7.58%	15	11.24%	10	20.00%	4
6	f. Single-use plastic cup	15.08%	46	13.49%	34	15.21%	40	15.03%	66	11.40%	31	14.12%	12	17.70%	37	8.08%	16	8.99%	8	15.00%	3
7	g. Plastic lid	14.10%	43	6.75%	17	14.45%	38	14.35%	63	17.28%	47	21.18%	18	16.27%	34	8.59%	17	10.11%	9	5.00%	1
			305		252		263		439		272		85		209		198		89		20

Showing rows 1 - 8 of 8

Figure A7ii: Percentage and Count of participants that select the action(s) that best describe them on usage of different food and drinks packaging (Table).

- For most of the food and drink beverages listed in the question, the most popular action chosen by the respondents is refusing the use of new plastic items, which include the polystyrene container, single-use plastic cutlery, single-use plastic straw, single-use plastic cup and plastic lid.
- Besides, the most popular action chosen by the participants is reusing plastic items for plastic containers with covers and discarding the plastic item into a general garbage bin after use for single-use plastic takeaway containers.
- Generally, for all the food and drinks packaging listed in the question, the most popular choice of action that best describes participants on their usage of the packaging is by refusing the use of new plastic items (439 counts).

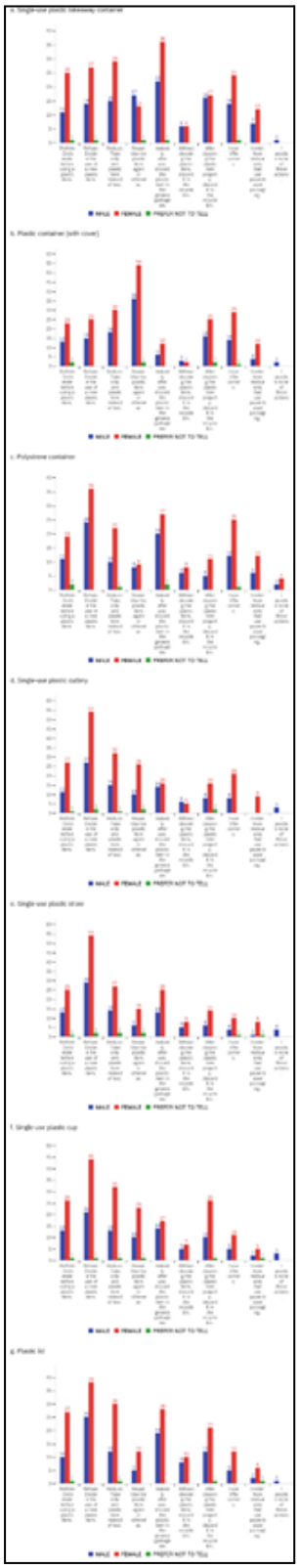


Figure A7iii: Count of participants that select the action(s) that best describe them on usage of different food and drinks packaging based on gender (Bar Graph).

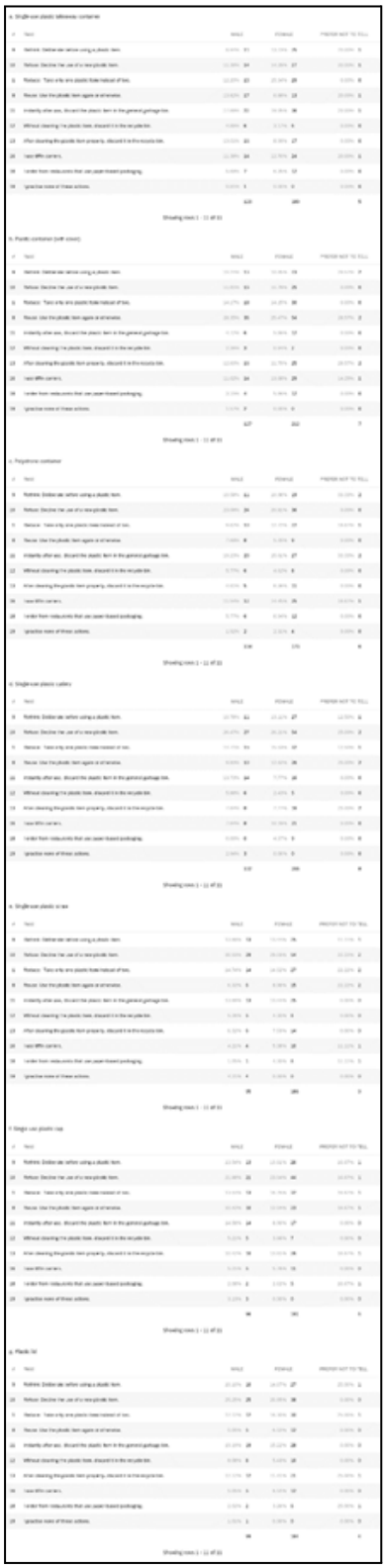


Figure A7iv: Percentage and Count of participants that select the action(s) that best describe them on usage of different food and drinks packaging (Table).

- Both male and female respondents have the same most popular action chosen that best describe them for the usage of all the food and drinks packaging listed in the question, which is the same as the general analysis done above.
- This proves that most participants are environmentally friendly person who chose to reuse and refuse the plastic packaging for their food and drinks, as shown in the data for plastic container with cover, polystyrene container, single-use plastic cutlery, single-use plastic straw and single-use plastic cup. With this, the usage of plastic items for food and drinks packaging is reduced which will reduce the harm of plastic wastes to the Earth.
- However, most participants chose to discard the single-use plastic takeaway container into the general garbage bin immediately after use, which is a less environmentally friendly approach. As compared to how most respondents refuse the usage of other single-use plastic packaging for food and drinks, single-use plastic takeaway containers are more difficult to be replaced. This is because reusable food containers are relatively larger in size than cutlery, straw, and cups, hence it is less convenient for the consumers to always bring along reusable food containers with them.
- Therefore, it is encouraged that the consumers store their reusable food container in any reachable storage for most of the time, for example in their car boot, office storage and more. Different reusable food containers that are designed to be easily carried around can be recommended to the consumers.
- To achieve these, both consumers and sellers need to start working on ways to reduce the usage of plastic items in the food and beverages industry. For example, the sellers need to try on the new initiatives in providing the consumers with the environmentally-friendly options of purchasing their food and drinks. Meanwhile, the consumers can just bring along reusable items for the storing and consumption of food and beverages to replace the usage of plastic items for food and drinks.
- Nevertheless, we should not cease any effort in reducing plastic usage in the food industry due to part of the survey results showing that most participants are being environmentally friendly for most of the plastic items used in the food and beverages industry. This is because in 2020 we used 148,000 tonnes of plastic packaging for food in Malaysia (Kader, 2021a). Our annual per capita plastic packaging usage is 16.78kg (Kader, 2021b). This use of plastic has been increasing year by year despite campaigns designed to move people away from single-use plastics (Kader, 2021c).

Question 8: Choice of action that best describes the respondents on plastic bottle and snack wrapper packaging

Respondents were asked to choose the actions listed below that best describe them on the usage of a. Plastic bottle and b. Snack wrapper.

- Rethink: Think of the necessity before getting a new plastic bag.
- Refuse: Decline the use of a new plastic bag.
- Reduce: Take the necessary amount instead of extras.
- Reuse: Use the plastic bag again.
- Instantly after use, discard the plastic bag in the general garbage bin.
- Without cleaning the plastic bag, discard it in the recycle bin.
- After cleaning the plastic bag properly, discard it in the recycle bin.
- I practise none of these actions.

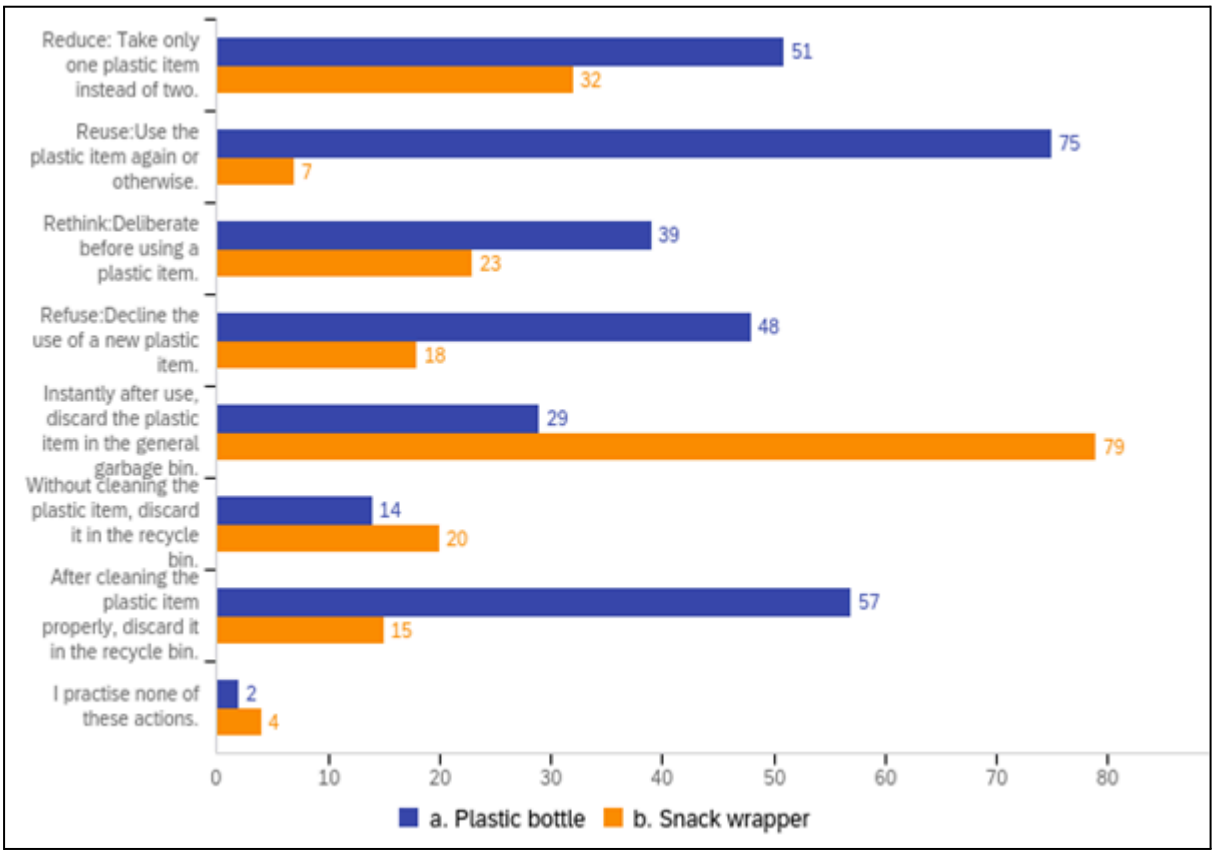


Figure A8i: Count of participants that select the action(s) that best describe them on usage of plastic bottle and snack wrapper (Bar Graph).

#	Field	Reduce: Take only one plastic item instead of two.	Reuse: Use the plastic item again or otherwise.	Rethink: Deliberate before using a plastic item.	Refuse: Decline the use of a new plastic item.	Instantly after use, discard the plastic item in the general garbage bin.	Without cleaning the plastic item, discard it in the recycle bin.	After cleaning the plastic item properly, discard it in the recycle bin.	I practise none of these actions.	Total
1	a. Plastic bottle	16.19% 51	23.81% 75	12.38% 39	15.24% 48	9.21% 29	4.44% 14	18.10% 57	0.63% 2	315
2	b. Snack wrapper	16.16% 32	3.54% 7	11.62% 23	9.09% 18	39.90% 79	10.10% 20	7.58% 15	2.02% 4	198

Showing rows 1 - 2 of 2

Figure A8ii: Percentage and Count of participants that select the action(s) that best describe them on usage of plastic bottle and snack wrapper (Table).

- For the usage of plastic bottle, the most popular action chosen that best describe the respondents is to reuse it again, followed by discard it into the recycle bin after proper cleaning, reduce the usage, refuse it, rethink before using it, discard it into the general bin immediately after use, discard it into the recycle bin without cleaning it, and lastly, the respondent do not practise any of the actions listed.
- For snack wrapper, the most popular action chosen that best describe the respondents is to discard it into the general bin immediately after use, followed by reduce its usage, rethink before using it, discard it into the recycle bin without cleaning, refuse to use it, discard it into the recycle bin after proper cleaning, reuse the plastic, and lastly, the respondent do not practise any of the actions listed.

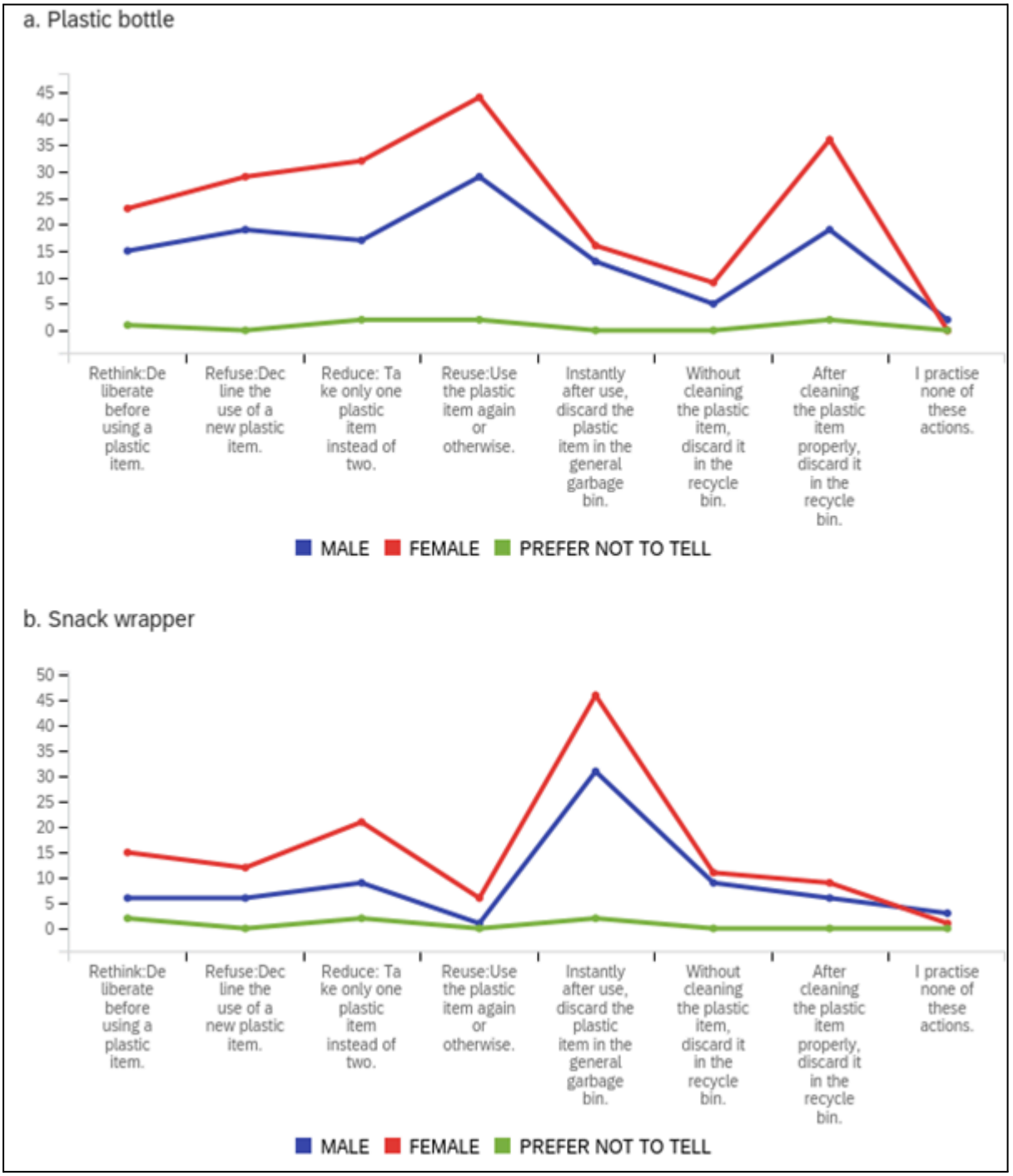


Figure A8iii: Count of participants that select the action(s) that best describe them on usage of plastic bottle and snack wrapper based on gender (Line Graph).

a. Plastic bottle

#	Field	MALE		FEMALE		PREFER NOT TO TELL		Total
9	Rethink: Deliberate before using a plastic item.	38.46%	15	58.97%	23	2.56%	1	39
10	Refuse: Decline the use of a new plastic item.	39.58%	19	60.42%	29	0.00%	0	48
1	Reduce: Take only one plastic item instead of two.	33.33%	17	62.75%	32	3.92%	2	51
8	Reuse: Use the plastic item again or otherwise.	38.67%	29	58.67%	44	2.67%	2	75
11	Instantly after use, discard the plastic item in the general garbage bin.	44.83%	13	55.17%	16	0.00%	0	29
12	Without cleaning the plastic item, discard it in the recycle bin.	35.71%	5	64.29%	9	0.00%	0	14
13	After cleaning the plastic item properly, discard it in the recycle bin.	33.33%	19	63.16%	36	3.51%	2	57
16	I practise none of these actions.	100.00%	2	0.00%	0	0.00%	0	2

Showing rows 1 - 8 of 8

b. Snack wrapper

#	Field	MALE		FEMALE		PREFER NOT TO TELL		Total
9	Rethink: Deliberate before using a plastic item.	26.09%	6	65.22%	15	8.70%	2	23
10	Refuse: Decline the use of a new plastic item.	33.33%	6	66.67%	12	0.00%	0	18
1	Reduce: Take only one plastic item instead of two.	28.13%	9	65.63%	21	6.25%	2	32
8	Reuse: Use the plastic item again or otherwise.	14.29%	1	85.71%	6	0.00%	0	7
11	Instantly after use, discard the plastic item in the general garbage bin.	39.24%	31	58.23%	46	2.53%	2	79
12	Without cleaning the plastic item, discard it in the recycle bin.	45.00%	9	55.00%	11	0.00%	0	20
13	After cleaning the plastic item properly, discard it in the recycle bin.	40.00%	6	60.00%	9	0.00%	0	15
16	I practise none of these actions.	75.00%	3	25.00%	1	0.00%	0	4

Showing rows 1 - 8 of 8

Figure A8iv: Percentage and Count of participants that select the action(s) that best describe them on usage of plastic bottle and snack wrapper based on gender (Table).

- Both male and female respondents show the similar trend of answering the question, as shown in the similar trend for both male and female in Figure A8iii for the selection of actions that best describe their usage on plastic bottles and snack wrappers.
- Generally, participants are being environmentally friendly for the usage of plastic bottles, as most of them chose to reuse the plastic bottle, discard it into the recycle bin after cleaning it, and reduce the usage. Hence, with these actions, the waste of plastic bottles can be reduced and will be less in amount that contributes to the plastic waste that builds up year by year which harms the environment.

- However, most participants are being less environmentally friendly for the usage of snack wrapper, as most of them chose to discard it into the general garbage bin immediately after use. This is due to the difficulty to clean up the snack wrapper properly as compared to plastic bottles. Snack wrapper is also difficult to be reused due to this problem. Hence, it is encouraged that the consumers reduce the usage by purchasing the bigger package of snacks without many small individual packaging of snacks in order to reduce the plastic usage on the snack wrapper. Besides, snack wrapper is usually made up of a mixture of materials including plastics and aluminium, which makes it hard to be recycled as we need to be able to separate the materials using high technology, high cost and energy before melting it in the recycling process. Therefore, the initiatives to provide the public insights on how to reduce waste generated due to plastic snack wrapper should be carried out, for example by recommending bulk stores that the consumers can buy snacks from without wasting plastic packaging upon purchase of snacks.

Part B - Opinions on how to use plastic efficiently

Question 1: Which action(s) would possibly encourage you to practice the reduction of single-use plastics?

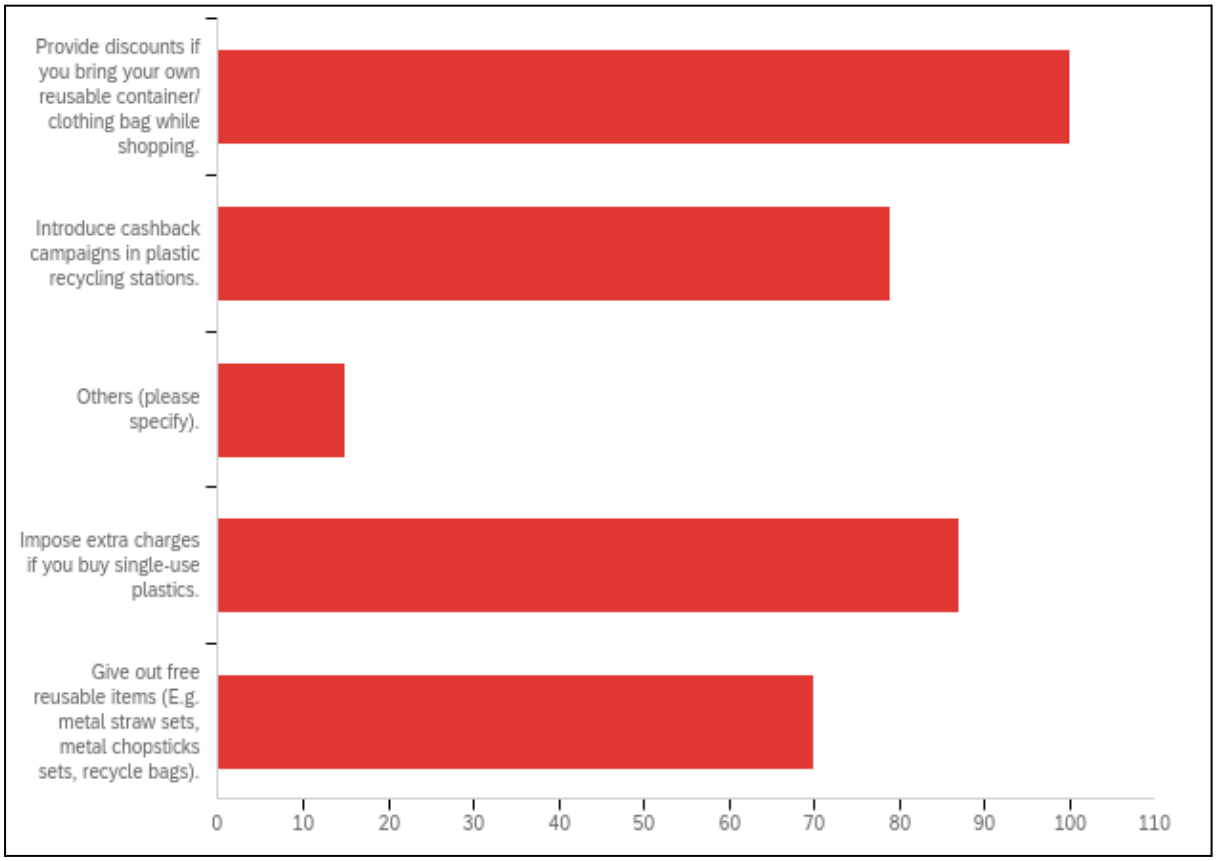


Figure B1i Action(s) that possibly encourage you to practice the reduction of single-use plastic.

- Participants are most encouraged to practice the reduction of single-use plastic by having discounts if they brought their own reusable container or bag while shopping.
- The second most popular way is imposing extra charges if they buy single-use plastics followed by introducing cashback campaigns in plastic recycling stations. As the Government imposes extra charges on the purchase of single-use plastics, there will be more funds available for the Government to carry out beneficial initiatives such as raising more campaigns or building more recycling bins throughout the whole country.

- Introducing cashback campaigns and giving out reusable items are also being chosen by 79 and 70 participants.
- Others include removing single-use plastic as an automation option, raising awareness, government intervention, and making it a habit from a small age, having more recycling bins and sellers could provide different material (which is recyclable) for the consumers. Government should take the initiative by having laws and regulations that need to be followed regardless.
- In conclusion, students and staff in the University of Nottingham Malaysia mostly preferred discounts and implementation of extra charges to be encouraged on the reduction of single-use plastics.

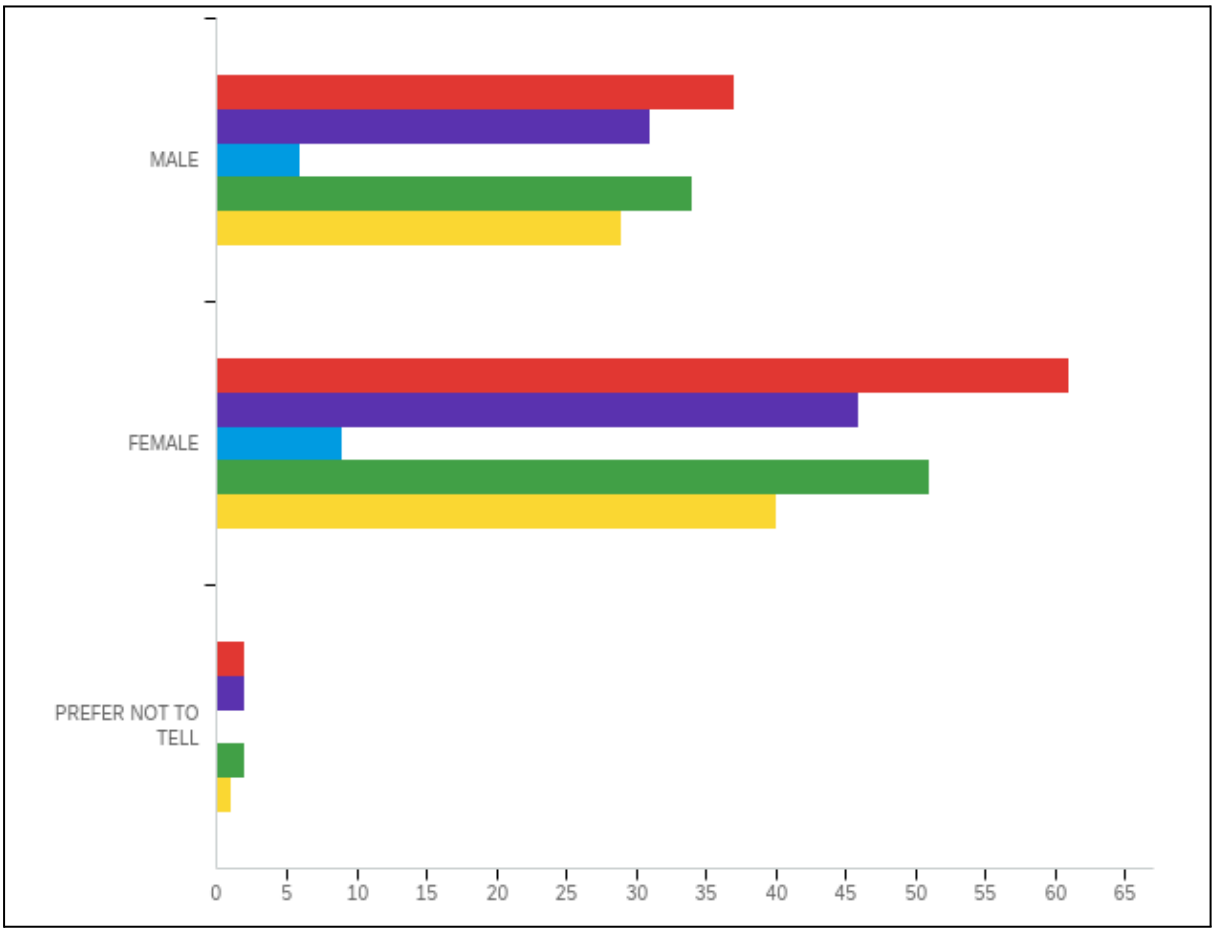


Figure B1ii shows the action(s) that encourage the participants to practice the reduction of single-use plastic separated by gender.

- The data above shows that discounts provided if participants bring their own reusable containers or clothing bags while shopping is more preferred by all genders.
- Both genders' second most popular choice is imposing extra charges if they buy single-use plastics which are the same as well.
- One of the respondents of unknown gender identity does not prefer free reusable items.
- Every choice shows that more females took initiative to practice the reduction of single-use plastic. However, it could be untrue as most participants are female and it could not cover all students and staff in UNM.
- Tesco Malaysia has implemented a campaign called The Unforgettable Bag to reduce the usage of single-use plastic bags. It has unique designs and a barcode for scanning to have a rebate of RM 0.20. The reusable bag costs RM 0.50 but it can be replaced if

broken or torn. Bringing your own bag also could be rebated by RM 0.40 in Tesco. Meanwhile, Malaysia has implemented Free Plastic Bag day for every Saturday since 1st January 2011, in which asking for a plastic bag would cost you RM 0.20 per bag. After 2022, it will still be implemented and more encouraged by the Government to not use straws as well (Zain, 2018).

- In conclusion, students and staff in the University of Nottingham Malaysia mostly preferred discounts and implementation of extra charges to be encouraged in the reduction of usage of single-use plastics.

Question 2. Which of the following will you most likely adopt as a new routine to reduce single-use plastic?

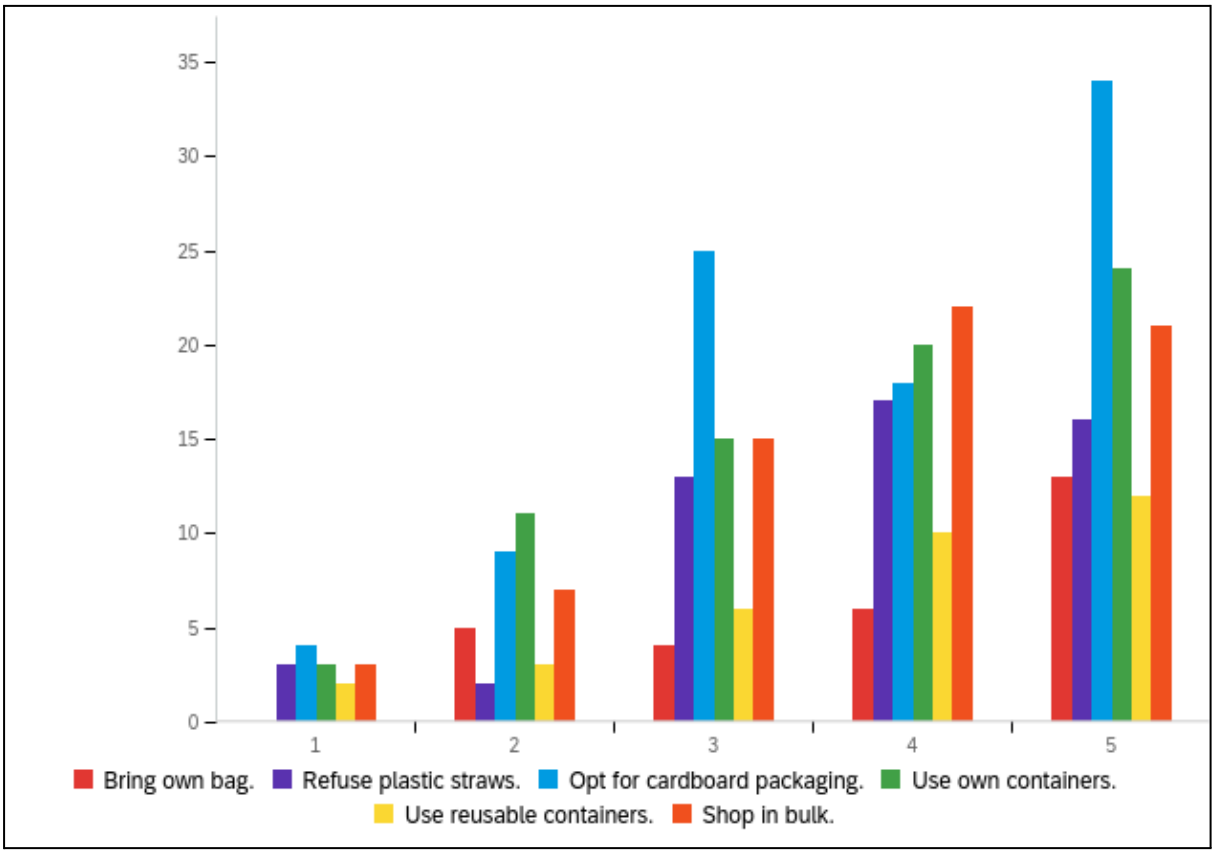


Figure B2i: New routines that are most likely to be adopted by participants to reduce single-use plastics (overall).

Based on the data collected from the staff and students of the University of Nottingham Malaysia,

- Overall, the participants are extremely willing to bring their own bags while shopping, refuse plastic straws when drinking beverages, opt for cardboard packaging instead of plastic packaging when buying items, use their own containers instead of buying new single-use plastic containers, use reusable containers to store food leftovers and shop in bulk to minimise plastic packaging.
- This is proven from the graph where it shows a high number of respondents chose 3, 4 and 5 out of the scale of 5, indicating they are extremely willing or already practising the routines.

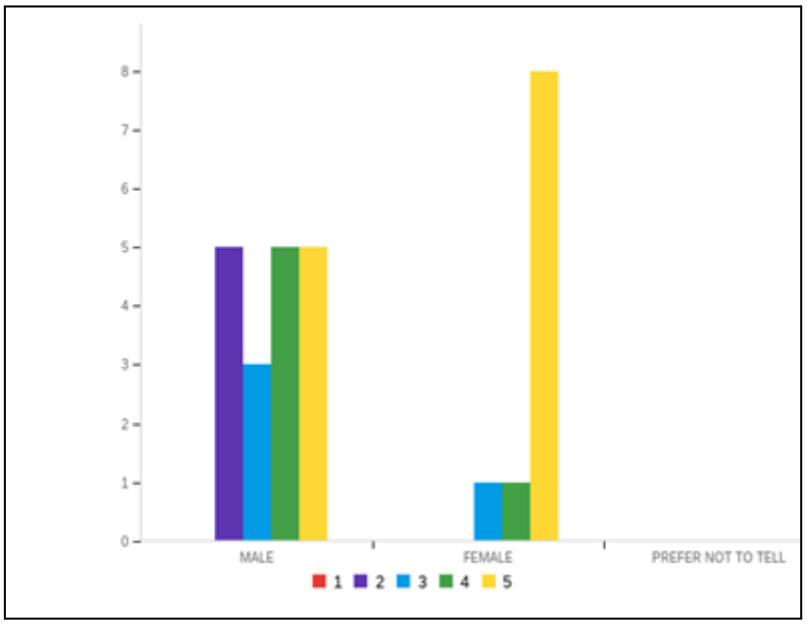


Figure B2ii: Bring own bag while shopping.

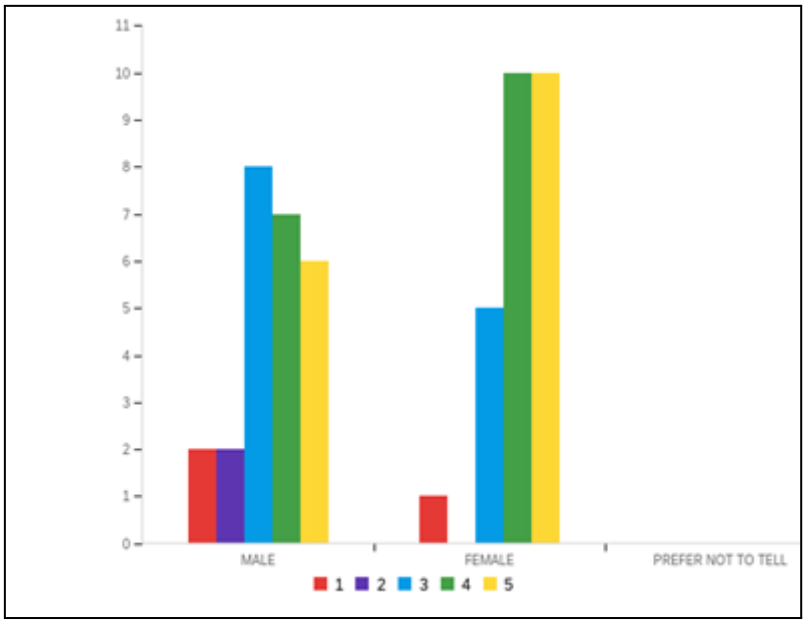


Figure B2iii: Refuse plastic straws when drinking beverages even if the waiter offers.

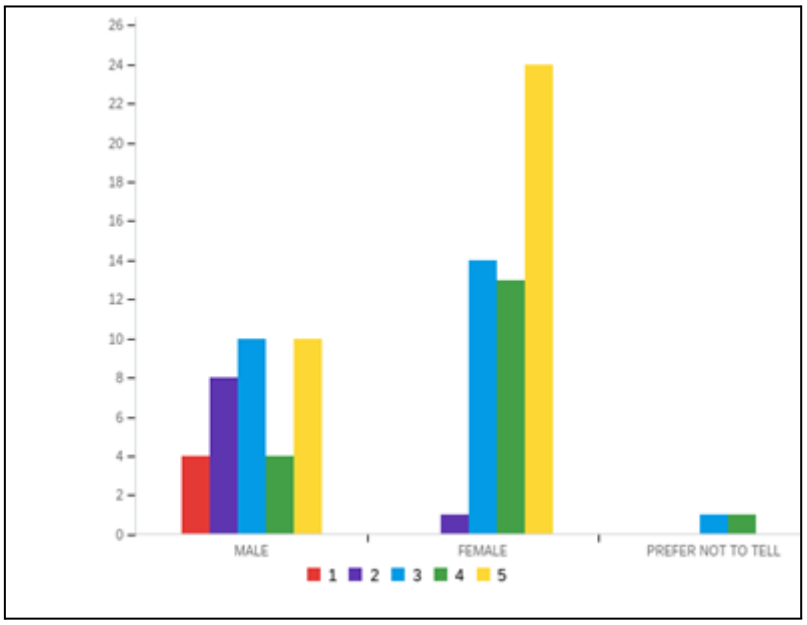


Figure B2iv: Opt for cardboard packaging instead of plastic ones when buying items.

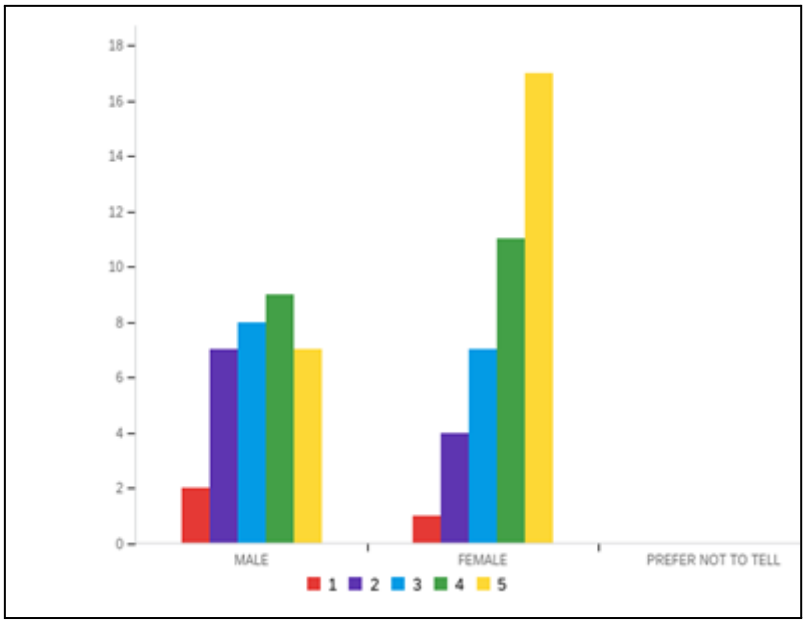


Figure B2v: When ordering takeaway food, use own containers instead of buying new single-use plastic containers.

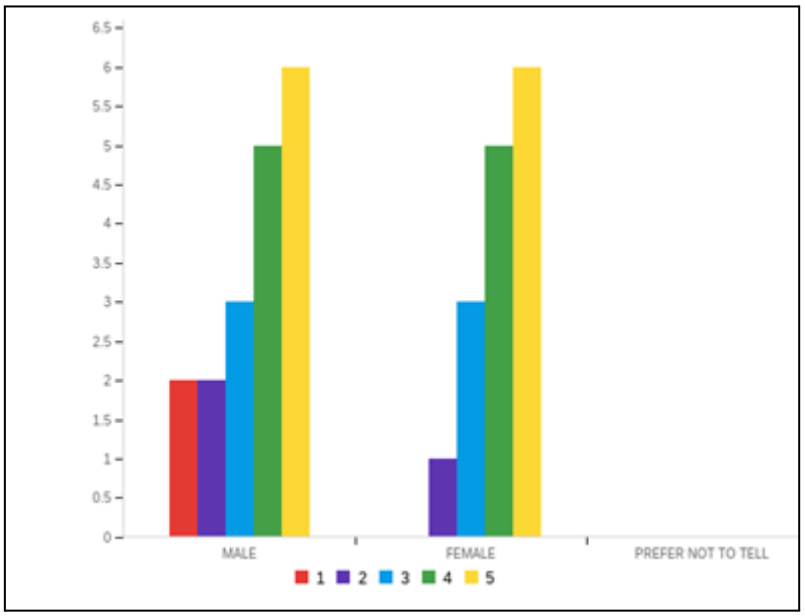


Figure B2vi: Use reusable containers to store food leftovers.

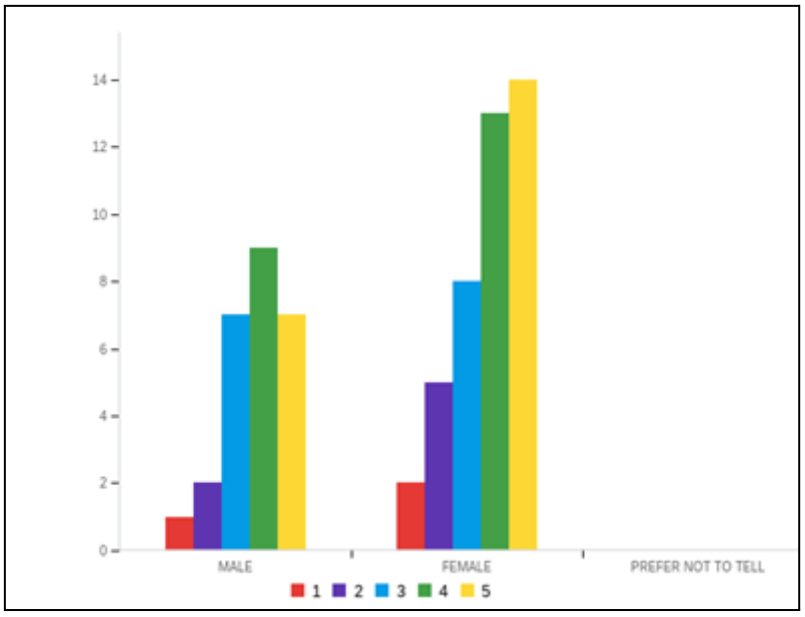


Figure B2vii: Shop in bulk to minimise plastic packaging.

Based on the bar charts above,

- Females are more willing to bring their own bags while shopping whereas males are less willing to bring their bags.
- Males are more reluctant to refuse straws while drinking beverages whereas females are more willing to refuse them. However, most male participants chose to be neutral

to refuse straws while drinking beverages as most of them rated a willingness score of 3 out of 5.

- Females are more willing to use cardboard packaging than males whereas males are more reluctant to use cardboard packaging as an optimum choice of packaging.
- Participants who do not identify their gender are choosing to be more willing to use cardboard packaging instead of plastic packaging.
- Females are more willing to bring their own container for takeaway (rated willingness score of 5 out of 5) whereas males are more neutral to this action (rated willingness score of 3 or 4 out of 5).
- Both genders are willing to use containers to store food leftovers.
- Females are more willing to do bulk buying than males.
- In conclusion, most participants are willing to have a certain routine on reducing plastic usage however it is shown that females are more willing than males in this matter. It might be due to the number of female participants being greater than males.
- Sellers of the stalls could charge more from the consumers for the request of plastic bags or plastic containers upon purchase of items as it discourages people from using plastic bags and containers. Overall, it would encourage people to bring their own bags and containers for takeaway or shopping.
- Plastic bag charges are applied to all businesses starting 2022, it will be implemented to all businesses. (Bernama, 2019)

Question 3. State your level of agreement for each of the following statements:

#	Field	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
1	a. Single-use plastics are harmful to the environment.	1.65% 2	1.65% 2	0.83% 1	17.36% 21	78.51% 95	121
2	b. Reusable bags/ bottles are more useful than single-use plastic ones.	3.31% 4	1.65% 2	8.26% 10	22.31% 27	64.46% 78	121
3	c. Utilising reusable items help the environment by reducing waste production.	2.48% 3	0.83% 1	4.13% 5	23.97% 29	68.60% 83	121

Showing rows 1 - 3 of 3

Figure B3i shows the level of agreement for each statement.

- 95 people strongly agree that single-use plastics are harmful to the environment whereas 2 people strongly oppose them. Single-use plastic is not biodegradable and it would cause harm as animals might think it is food and consume it hence hurting themselves.
- Most people agree that reusable bags are more useful than single-use plastic ones whereas 6 people disagree on that. 10 people are neutral on this topic. It will prevent sellers from buying more plastic bags for customers' use, however, some might think that it is inconvenient as they need to bring their recycle bags every time they go shopping.
- 83 people strongly agree that reusable items help the environment by reducing waste, whereas 3 people strongly disagree on that. Reusable items will reduce waste as people can reuse items such as water bottles, recycle bags, and containers repeatedly. As a result, it will decrease the purchases of new items while the old items would not be disposed of.

a. Single-use plastics are harmful to the environment.

#	Field	MALE	FEMALE	PREFER NOT TO TELL	Total
4	Strongly Disagree	50.00% 1	50.00% 1	0.00% 0	2
44	Strongly Agree	37.89% 36	60.00% 57	2.11% 2	95
41	Neutral	0.00% 0	100.00% 1	0.00% 0	1
40	Disagree	100.00% 2	0.00% 0	0.00% 0	2
43	Agree	57.14% 12	42.86% 9	0.00% 0	21

Showing rows 1 - 5 of 5

b. Reusable bags/ bottles are more useful than single-use plastic ones.

#	Field	MALE	FEMALE	PREFER NOT TO TELL	Total
4	Strongly Disagree	25.00% 1	75.00% 3	0.00% 0	4
44	Strongly Agree	41.03% 32	58.97% 46	0.00% 0	78
41	Neutral	50.00% 5	40.00% 4	10.00% 1	10
40	Disagree	0.00% 0	100.00% 2	0.00% 0	2
43	Agree	48.15% 13	48.15% 13	3.70% 1	27

Showing rows 1 - 5 of 5

c. Utilising reusable items help the environment by reducing waste production.

#	Field	MALE	FEMALE	PREFER NOT TO TELL	Total
4	Strongly Disagree	33.33% 1	66.67% 2	0.00% 0	3
44	Strongly Agree	36.14% 30	62.65% 52	1.20% 1	83
41	Neutral	40.00% 2	40.00% 2	20.00% 1	5
40	Disagree	100.00% 1	0.00% 0	0.00% 0	1
43	Agree	58.62% 17	41.38% 12	0.00% 0	29

Showing rows 1 - 5 of 5

Figure 3Bii shows the level of agreement for each statement but separated by gender.

Based on the data collected,

- 57 females strongly agree that single-use plastic is harmful to the environment whereas 36 males strongly agree on it. Participants who do not identify their gender also agreed with the statement. More males chose to agree with the statement than females. It might be because they do not have strong opinions but still agree with the matter. There are two strong disagreements for both genders regarding whether single-use plastic has brought harmful impacts to the environment.

- 46 females strongly agree reusable bags/bottles are more useful than single-use plastic ones whereas males have 32 of them strongly agree on the statement. 13 of both genders chose to agree on this topic. 3 females strongly disagree whereas there is one male who also chose that.

- 52 females strongly agree on the utilizing of reusable items to help the environment by reducing waste production while 30 males also chose this option. There are 2 females and 1 male who chose to strongly disagree on the utilising of reusable items to help the environment by reducing the waste problem.

- Recycling more plastic, more frequently, reduces its footprint. Polyethylene terephthalate, one of the most commonly recycled plastics and the material that makes up most water and soda bottles, can be turned into everything from polyester fabric to automotive parts. But 91% of all plastic isn't recycled at all. Instead, it goes to landfills or the environment. Single-use plastics in small items like straws, bags, and cutlery are traditionally hard to recycle because they fall into the crevices of recycling machinery and therefore are often not accepted by recycling centers (Lindwall, 2020).

Question 4. Participants that have exposure to Malaysia's culture

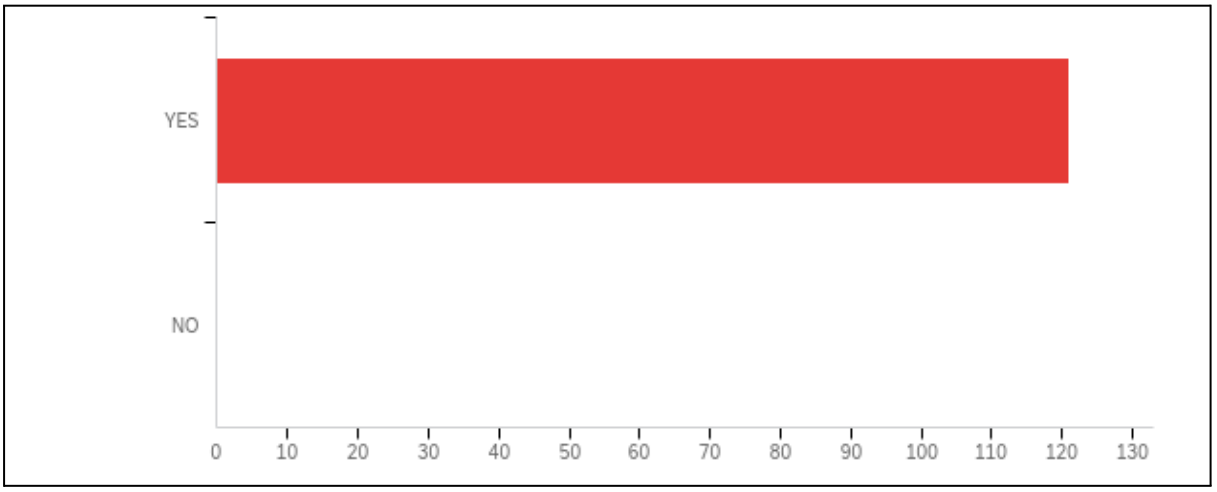


Figure B4i shows whether or not the participants have been living in Malaysia most of their time.

- All respondents are Malaysian and have been living in Malaysia most of their time. They have seen the changes in Malaysia regarding the Government's effort on plastic waste management.

Question 5. Satisfaction on Malaysian Government's effort on the country's plastic waste management

#	Field	YES	NO
1	1	21.10%	0.00%
2	2	36.70%	0.00%
3	3	26.61%	0.00%
4	Average Effort	11.93%	0.00%
5	5	3.67%	0.00%
		109	0

Showing rows 1 - 6 of 6

Figure B4ii shows in 1 to 5 how satisfied participants are regarding the Malaysian Government's effort on the country's plastic waste management.

Based on the table,

- Most respondents rated 2 out of 5 (higher rating indicates higher effort) for the Malaysian Government's effort on country's waste management while the least

respondents chose to rate 5 out of 5. This might be due to Malaysia is still a developing country and does not have strong laws regarding plastic waste or waste in general.

- The percentage of participants rated for different scores out of 5 for the Malaysian Government's effort on country's waste management is as follows: 1 has 21.1% of participants, 3 has 26.61% of participants and average effort has 11.93% of participants.
- Most respondents are not satisfied with Malaysia Government's effort.

#	Field	MALE	FEMALE	PREFER NOT TO TELL	Total
1	1	39.13% 9	56.52% 13	4.35% 1	23
2	2	35.00% 14	62.50% 25	2.50% 1	40
3	3	44.83% 13	55.17% 16	0.00% 0	29
4	Average Effort	46.15% 6	53.85% 7	0.00% 0	13
5	5	25.00% 1	75.00% 3	0.00% 0	4

Showing rows 1 - 5 of 5

Figure B4iii shows the satisfaction of participants for the Malaysian government's effort separated by gender.

Based on the graph,

- 14 male respondents rated 2 out of 5 whereas 25 females rated 2 as well.
- Respondents that did not identify their gender chose to rate 1 and 2 out of 5.
- The majority of the developing countries in Southeast Asia have waste management systems that are not efficient for dealing with the amount of plastic waste produced including Malaysia. Households from Malaysia vary by economic status and range from 0.85kg to 1.5kg per person per day (Zainu & Songip, 2017). Malaysian households have higher wastage compared to other developing countries such as Indonesia and the Philippines (Chen, et al., 2021b).

Question 6. Which of the following measures might be the MOST effective way for the Government to curb the single-use plastic problems?

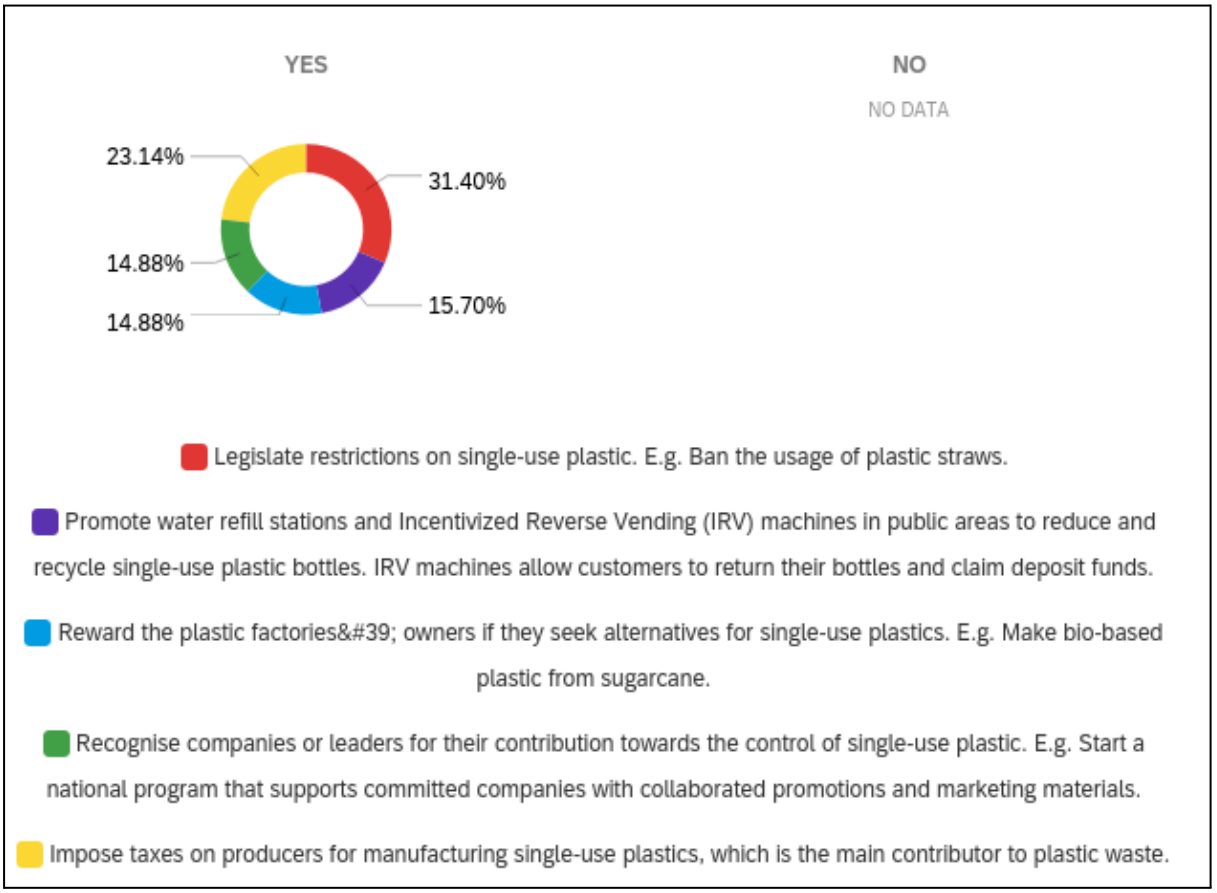


Figure B4iv: Choices that are more preferable among UNM students and staff.

Based on the survey,

- Most respondents think that legislation restrictions on single-use plastic would be most effective.
- The second most popular choice is imposing taxes on producers for manufacturing single-use plastics, which is the main contributor to plastic waste.
- Rewarding plastic productions if they seek alternatives and recognize companies or leaders for their contributions to single-use plastic is the least popular choice.

#	Field	MALE		FEMALE		PREFER NOT TO TELL		Total
1	Legislate restrictions on single-use plastic. E.g. Ban the usage of plastic straws.	47.37%	18	52.63%	20	0.00%	0	38
2	Promote water refill stations and Incentivized Reverse Vending (IRV) machines in public areas to reduce and recycle single-use plastic bottles. IRV machines allow customers to return their bottles and claim deposit funds.	52.63%	10	47.37%	9	0.00%	0	19
8	Reward the plastic factories' owners if they seek alternatives for single-use plastics. E.g. Make bio-based plastic from sugarcane.	22.22%	4	72.22%	13	5.56%	1	18
3	Recognise companies or leaders for their contribution towards the control of single-use plastic. E.g. Start a national program that supports committed companies with collaborated promotions and marketing materials.	27.78%	5	66.67%	12	5.56%	1	18
7	Impose taxes on producers for manufacturing single-use plastics, which is the main contributor to plastic waste.	50.00%	14	50.00%	14	0.00%	0	28

Showing rows 1 - 5 of 5

Figure B4v: Choices that are more preferable among UNM students and staff assorted by gender.

Based on the data collected, from UNM's students and staff,

- Both genders are equally choosing imposing taxes for producers for manufacturing plastic waste as the most effective way for the Government to curb the single-use plastic problems.
- More females chose to legislate restrictions on single-use plastic.
- More males chose to promote water refill stations and Incentivized Reverse Vending (IRV) machines in public areas.
- Respondents who chose to not identify their gender chose rewarding plastic factories owners if they seek alternatives and recognize companies and leaders for their contribution towards the control of single-use plastic.
- It shows that both genders agree on imposing taxes and the Government should implement it as it would help the environment and the economics, even though the impact would be small but over many years it will eventually reduce plastic waste hence reducing carbon footprint.

Part C - Awareness Questions

Question 1. Are you aware that home deliveries and/or pick-up services have significantly increased the single-use plastic waste produced in this COVID-19 pandemic? (Question method: Multiple-choice)

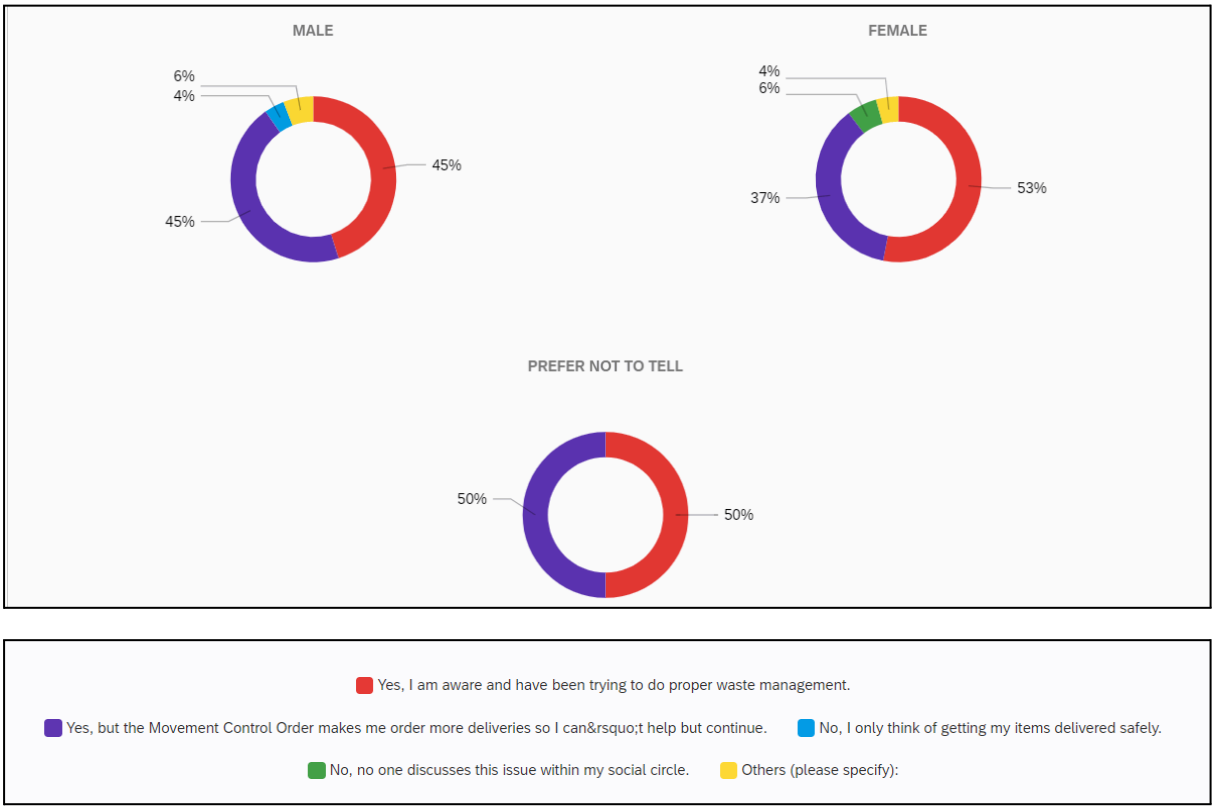


Figure C1i shows the data of the awareness of proper waste management among females and males.

- In general, 50% of the participants were aware of proper waste management. However, data has shown that females are more aware of proper waste management than males, with a leading of 8% (Refer to figure C1i). Besides that, 45% of males and 37% of females indicated that although they were aware of proper waste management, the Movement Control Order (MCO) imposed onto Malaysia has given them no choice but to do more online deliveries. In the "others please specify" option, there was a response specifically mentioning that Tesco (now mainly known as Lotus's) does not provide plastic bags for online groceries purchases.

Question 2. Did you know that there exist some items on the market that can help in reducing plastic waste? (Question method: For each statement, choose "YES" or "NO" according to your preference.)

a. Metal straws REPLACING single-use plastic straws.

#	Field	MALE	FEMALE	PREFER NOT TO TELL	Total
1	Yes	41% 47	57% 66	2% 2	115
2	No	67% 4	33% 2	0% 0	6

Showing rows 1 - 2 of 2

b. Bamboo toothbrushes REPLACING plastic toothbrushes. (bamboo is biodegradable while plastic is non-biodegradable)

#	Field	MALE	FEMALE	PREFER NOT TO TELL	Total
1	Yes	38% 30	60% 48	3% 2	80
2	No	51% 21	49% 20	0% 0	41

Showing rows 1 - 2 of 2

c. Cloth pads REPLACING one-time menstrual pads.

#	Field	MALE	FEMALE	PREFER NOT TO TELL	Total
1	Yes	31% 22	68% 49	1% 1	72
2	No	59% 29	39% 19	2% 1	49

Showing rows 1 - 2 of 2

d. Shampoo bars REPLACING the liquid shampoo filled in plastic bottles.

#	Field	MALE	FEMALE	PREFER NOT TO TELL	Total
1	Yes	39% 31	59% 47	3% 2	80
2	No	49% 20	51% 21	0% 0	41

Showing rows 1 - 2 of 2

e. Solid toothpaste packed in biodegradable packaging REPLACING the liquid toothpaste packed in plastic tubes.

#	Field	MALE	FEMALE	PREFER NOT TO TELL	Total
1	Yes	39% 17	61% 27	0% 0	44
2	No	44% 34	53% 41	3% 2	77

Showing rows 1 - 2 of 2

f. Others (please specify):

#	Field	MALE	FEMALE	PREFER NOT TO TELL	Total
1	Yes	25% 2	75% 6	0% 0	8
2	No	53% 9	47% 8	0% 0	17

Showing rows 1 - 2 of 2

Figure C2.1.1 shows the data of the understanding of plastic-friendly products among men and women.

c. Cloth pads REPLACING one-time menstrual pads.

#	Field	MALE	FEMALE	PREFER NOT TO TELL	Total
1	Yes	31% 22	68% 49	1% 1	72
2	No	59% 29	39% 19	2% 1	49

Figure C2.1.2 shows the data of the participants' awareness regarding the replacement of one-time menstrual pads with cloth pads.

- Interestingly, female participants knew all the products better than males, as they had a higher percentage of "YES" in every category of items (Refer to figure C2.1.1). Besides that, the data revealed that more than 50% of females knew that a cloth pad could replace a one-time menstrual pad (Refer Figure C2.1.2). However, the survey could not prove that there is a direct link if females prefer to use cloth pad over one-time menstrual pad during their menstruation period. Metal straws could be argued to be the most common item in the market that helps reduce plastic waste, with over 95% of participants aware of its presence (Refer to figure C2i). The least recognised product was the solid toothpaste packed in biodegradable packaging, with only 36% of the participants having known or have seen it displayed in the market.

#	Field	Yes	No	Total
1	a. Metal straws REPLACING single-use plastic straws.	95%	5%	121
2	b. Bamboo toothbrushes REPLACING plastic toothbrushes. (bamboo is biodegradable while plastic is non-biodegradable)	66%	34%	121
3	c. Cloth pads REPLACING one-time menstrual pads.	60%	40%	121
4	d. Shampoo bars REPLACING the liquid shampoo filled in plastic bottles.	66%	34%	121
5	e. Solid toothpaste packed in biodegradable packaging REPLACING the liquid toothpaste packed in plastic tubes.	36%	64%	121
6	f. Others (please specify):	32%	68%	25

Figure C2i shows the data of the participants' awareness towards the replacement of plastic-friendly products in daily life.

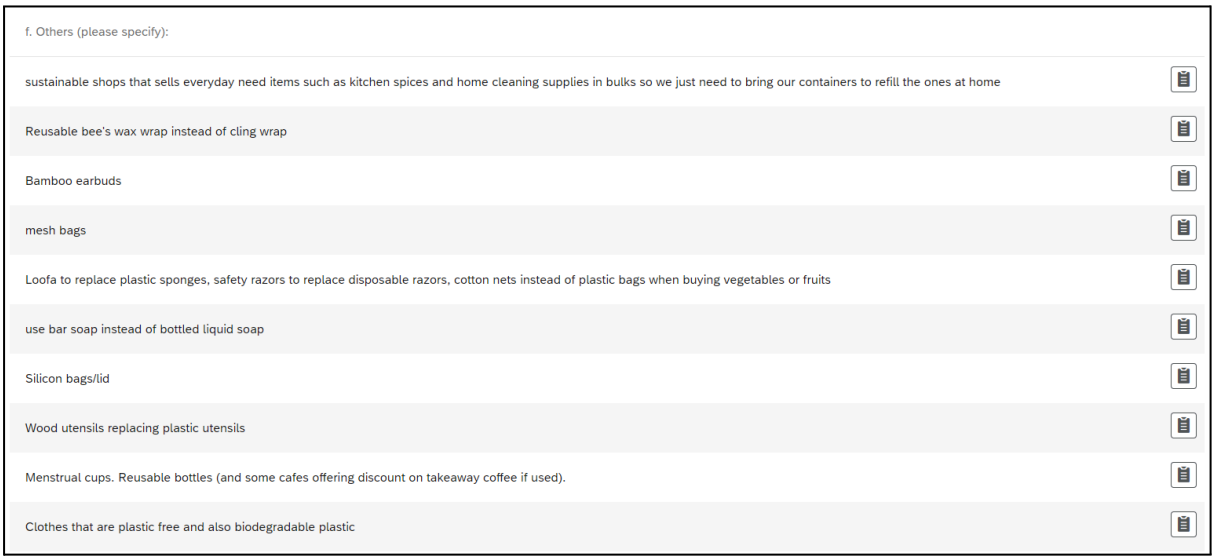


Figure C2.3 shows the data of the different options of plastic-friendly items provided by several participants.

- There were 25 participants who had successfully provided different options of items that can help reduce plastic waste (Refer figure C2.3). Most of the suggestions are items that can be used in daily life and are easy to gain access to.

Terra-i

http://www.terra-i.org/terra-i/data/data-statistics.html

Global Forest Watch

https://gfw.global/3a80ui4

Conclusion

The objectives of the survey are to analyse the overall generation of single-use plastic waste by the UNM community and their level of awareness towards plastic waste and to investigate the possible solutions to be implemented on campus to reduce single-use plastics consumption and plastic waste. Overall, the survey results have shown that our goals are achieved.

The survey is separated into 3 parts, which are Part A, B and C. All the questions in the survey focus on single-use plastics, which include the questions to ask about their behaviour, opinion and awareness about single-use plastics. Part A consists of questions asking the participants for their behaviours and actions on plastics usage in their daily lives; questions in part B ask the participants for their opinions on how to use plastic efficiently; while questions in Part C access the awareness of the participants on single-use plastic wastes.

Based on the results and analysis done in the earlier sections, we can conclude that more than half of the participants are showing awareness and behaviours on single-use plastic waste which are environmentally friendly based on the results of the survey.

However, there are exceptions especially when it comes to snack wrapper, which is shown in part A as snack wrapper becomes the plastic waste that most of the participants generated the most among other plastic products stated in Q1, and snack wrapper is being dumped by most of them into the general bin after use. Another exception is the respondents' behaviours towards single-use plastic food containers, which they prefer to throw into the general bin after use, which is shown in Q7. As such, simple ways to minimize the plastic waste due to snack wrappers and single-use food containers should be spread among the UNM community. Campaigns regarding this matter can also be held to further attract the community in paying attention and effort to the usage of these single-use plastic items.

As for the opinions on the effective ways to reduce single-use plastics usage and wastes, many of the respondents think that having discounts when using reusable products, imposing extra charges to the consumers and producers on single-use plastics usage and production is effective. As such, implementing a reward and penalty system on the campus can be a possible action course to tackle the environmental issue on campus. For example, the setting of a recycling centre that rewards the students and staff on the campus upon sending recyclable items can be done.

Suggestion on the conduction of this survey

Some of the questions in the survey can be followed up with related questions to gain more context on a topic. For example, when asking about awareness of the existence of environmentally friendly products in the market, questions asking about whether they have tried it or used it in their daily lives can be asked. Furthermore, questions asking about the reason(s) that they do not try on environmentally friendly products can be asked. This is to ensure that we can generate a more complete picture of a topic by knowing the why and wherefores and to relate awareness with behaviour.

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