Consumer Knowledge, Attitudes and Behaviors towards the Use of Plastic Bags in the Kingdom of BAHRAIN

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Abstract

People continue to use Plastic bags for daily tasks due to their quick availability, durability, strength, lightness, transparency, and cost-effectiveness. In addition to that, most shops and supermarkets give their patrons complimentary plastic bags to take their purchases home. The Gulf countries provide single-use plastic bags free of charge as part of purchasing services. As cities, become overwhelmed with plastic bags, a growing threat to marine life, soil and human health. Many governments are taking steps to reduce plastic bag consumption both for saving resources and for creating a green environment. A few people make an effort to use fewer free plastic bags. In recent years, numerous research papers have recognized the significance of public perception, knowledge, awareness, attitude, and behaviour in reducing the use of plastic bags as a practical pro-environmental approach that very few people practice. In light of this research, the knowledge, awareness, attitude and motivation toward the use of plastic bags in the Kingdom of Bahrain were investigated. Therefore, this descriptive study is explorative and qualitative research. Questionnaires were distributed via a digital Google form, an informal sampling method used to reach a target population (773 participants) over one month. To study the pro-environmental factors such as the public environmental awareness concerning the harm of plastic bags, the social pressure, and government support for banning plastic bags. The intention of using cloth bags and the behaviour of reducing plastic bags as latent variables. A research model based on Ajzen's theory (1991) of planned behaviour (TPB) was proposed, to assess the relationship between various psychosocial factors that are assumed to affect the intention to use cloth bags and the behaviour that could reduce the use of plastic bags. Most of the participants in the study had an awareness of the hazards of plastic bags and had strong intentions to minimize the use of plastic bags. However, there is a need for spreading awareness among the population: prompt intervention, and effective implementation of alternative strategies and legislation. Environmental tax enforcement could be an effective tool in achieving desired behaviour changes.

Keywords: Bahrain, Plastic Bags, Cloth Bags, Attitudes, Intention, Psychosocial, Behaviors, Structural Equation Model (SEM)

Introduction

Plastic pollution has affected the environment both the marine and terrestrial habitats. Plastic bag pollution has harmful effects on people's livelihoods. Tourists' leisure activities are affected by plastic waste in the maritime environment, stranded on shorelines. Plastics contribute to environmental air pollution if burned openly in the environment. It could also contribute to global climate change and global warming due to the release of CO_2 and dioxins into the atmosphere (Oktavilia et al., 2020). Similar results were obtained for the GDP per capita variable, which follows that the global income distribution pattern continues to have a positive significant impact on environmental degradation (Oktavilia et al., 2020). Plastic bags are made available to consumers as they wish at supermarkets. Consumers use these as garbage bags for the disposal of their domestic waste. These cause supermarkets to buy more plastic bags than required, and this in turn results in domestic waste being disposed of without sorting. There are about 300 different types of plastics available, with 60 of them being the most common. Plastics are classified an according to their intended use as either general or engineering plastics (Geyer et al., 2017). Polypropylene (PP), polyethylene (PE), and polyvinyl chloride (PVC) were among the plastic kinds that have the highest global yearly output. The most demanded plastic produced in the world is PE and PP is the most commonly used polymer in everyday plastic products, especially disposable products like SUP bags, packaging plastics and disposable water bottles (Kankanige & Babel, 2020). Plastic bags are polymeric products, which constitute an environmental hazard, and they are not biodegradable. There are 2 types of plastic bags: High-Density Polyethylene (HDPE) bags thin bags used by more than 80% of retailers that can be easily recycled. Low-Density Polyethylene (LDPE) thicker bags are often used in department and boutique stores. While these bags can be recycled, there are few collection points for recycling (Lithner et al., 2012). They may also decompose and contaminate water and food systems (Menéndez-Pedriza & Jaumot, 2020).

Plastics might take 15 to 1000 years to biodegrade after entering the environment (Moore, 2008) Plastic bags break down into smaller more hazardous petro-polymers by absorbing sunlight since they do not biodegrade but instead go through a process called photo-degradation over (Jeftic et al., 2009). It is estimated that plastic kills up to 1 million sea birds, 100,000 sea mammals and countless fish each year (Moore, 2008). Globally, plastic bags productions have increased dramatically since 1950. Plastics make up 20% of the world's plastic garbage (Geyer et al., 2017). Only 9% of the plastic debris generated between 1950 and 2015 was recycled (Gall & Thompson, 2015). According to estimates, between 500 billion and 1 trillion plastic bags are used every year, it is expected to double in capacity again by 2040 [8]. This equates to the mass of two-thirds of the world's population for the sake of the context (Oktavilia et al., 2020).

Numerous direct and indirect effects were of concern over the possibility of sub-lethal effects from discarded and consumption of plastic debris on marine life (Moore, 2008). Large turtles of an endangered species discovered suffocated after accidentally ingesting plastic sheets mixed with seaweed (Gall & Thompson, 2015) Global plastic garbage production peaked in 2015 at over 6,300 million metric tons (Mt), which sparked a plethora of measures to cut back on plastic use (Geyer et al., 2017). Plastic lines, ropes, and fishing nets are estimated to make up 52 per cent of the plastic mass in the 'Great Pacific Garbage Patch (Lebreton et al., 2018). The increased fishing activity in the Pacific Ocean comprises 46 % of the mega-plastic component of the GPGP Plastics may also decompose into toxic products or fragment partially into micro-plastics or their hazardous substances leak into the food when heated edible goods

are packed in plastic bags, water bottles, food containers, and hard plastics. These include plasticizers that can interfere with hormone processes and have a carcinogenic effect. Polystyrene can leach from food containers; Styrene, Phthalates, and Bisphenol contribute to causing diseases such as diabetes, heart, and liver diseases and interfere with conception (Stojanoska et al., 2016). The inhalation of poisonous fumes produced by the burning of waste plastic material poses a health risk by producing lung ailments and cancer (Verma et al., 2016). However, banning plastic bags and certain limitations have already been placed on plastic bag use in some countries throughout the world. Southern African Development Community adopted the single-use plastic bag reduction policies (SUP) in 2003 (Bezerra et al., 2021). The use of plastic bags was banned in South Africa in 2003, in Somalia in 2005, in Tanzania in 2006, and in Kenya, and Uganda in 2007. In addition, member states of the European Union have made steps to decrease the use of plastic carrier bags, such as Germany and the Netherlands. While the United Kingdom UK is charging fees for using plastic bags. Belgium, in 2007 and in Italy and France in 2010 have also placed strict measures to decrease the use plastic bags (Kasidoni et al., 2015).

 In 2014, in the USA, 103.465 billion single-use plastic shopping bags were consumed with a low recyclability rate, local governments have increasingly adopted a variety of policies aimed at reducing the use of single-use shopping bags at the store level that falls banning, imposing fees and taxes, minimum bag design requirements, consumer education and retailer take-back programs (Wagner, 2017).

According to the World Government Summit held in early 2019, UAE consumed 11 billion plastic bags each year. An estimated 1,182 plastic bags used per person annually. A study that was conducted in Turkey by Erkan Arı & Veysel in 2015 on consumer attitudes and beliefs on the use of plastic bags suggests that each person uses an average of 312 plastic bags every year (Arı & Yılmaz, 2017). The global average plastic bag consumption of 307 bags per person annually. This is considered very high.

 In the kingdom of Bahrain, there is no study conducted to measure the rate of using plastic bags. To examine consumer attitudes and behaviour on the single use of plastic bags (SUP) and cloth bags in the kingdom of Bahrain. To end this, a proposed structural equation model was adopted from previous studies.

Environmental consciousness regarding the use of plastic bags, social pressure, support for the banning of plastic bags, the intention to use cloth bags and behaviour to reduce plastic bag use are employed as latent variables in the model.

Based on TPB (Ajzen, 1991) is a model developed to understand the psychosocial determinants of human social behavioural sciences (sociology, psychology, marketing etc.) and become one of the most frequently referred models in the literature.

Study Objectives

This study aimed to investigate attitudes toward the use of plastic and cloth bags. Based on a research model was designed for this study with the help of TPB to determine the psychosocial determinants that affect the plastic and cloth bag use of individuals and the relationship between these two. The prototype model provides a framework that is useful for evaluating the various processes that influence pro-environmental behaviours—including not only the intentional motivations that are based on the will of individuals but also the unintentional motivation triggered by particular contexts or situations

To answer a structured adapted Arı & Yılmaz (2017) model questionnaires as shown correlating five factors (factor A- representing Environmental awareness regarding plastic

bags and its impacts, B-social pressure in using cloth bags, C- support for the banning the use of plastic bags, D- latent variable the intention to use cloth bags, E- latent variable, the behaviour of reducing plastic bag use).

Study Hypothesis

The following hypothesis is proposed

H1 As environmental awareness regarding the use of plastic bags increases, the intention to use cloth bags intensifies.

H2 Social pressure on consumers affects the intention to use cloth bags.

H3 The support for the banning of plastic bag use affects the consumers' intention to use cloth bags.

H4 As consumers intend to use much more cloth bags; the behaviour of using plastic bags will decline.

To examine whether there is a significant relationship between the intention of using cloth bags and environmental awareness of individuals on the results of plastic bag use. The following path diagram obtained for the proposed research model is shown below (Figure 1).
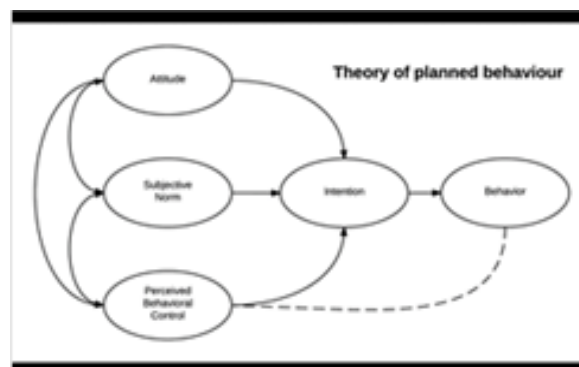

Figure 1: Theory of planned behaviour

TPB is a model developed to understand the psychosocial determinants of human social behaviour (Ajzen, 1991), which has been employed in various fields of social sciences (sociology, psychology, marketing etc.) and become one of the most frequently referred models in the literature (Ohtomo & Ohnuma, 2014)

Methodology

Theoretical Framework

Qualitative, descriptive research. Adaptive model based on TPB (to reveal the relationship between the psychosocial factors that are assumed to affect the intention to use cloth bags and the behaviour to use plastic bags.

Questionnaire Design and Items

This research employed a quantitative approach. Convenient snowball sampling (or snowball chain sampling, chain-referral sampling) was distributed over four weeks (24/7/2019-24/8/2019). A non-probability sampling technique where existing study subjects recruit future subjects from among their acquaintances. Furthermore, makes it easier to reach a wide sample size and it will help in assessing the main research hypothesis. The total response rate within one month period was 773 participants.

The questionnaire as shown in Table 1 below, was designed in two parts to measure the following constructs: In the first part of the data collection tool, questions on the demographic characteristics of the individuals were asked, and the behavioural questionnaire regarding the use and consumption of plastic bags.

The second part as shown in the table below, in turn, included statements on an individual's environmental consciousness regarding the use of plastic bags, social pressure, support for the banning of plastic bag use, intention to use cloth bags, and behaviour likely to reduce the use of plastic bags. A five-point Likert scale was used in the study to address statements of attitude (1: strongly disagree; 5: strongly agree).

The research structural model and the design of hypotheses
Structural equation modelling (SEM) is a multi-variable statistical technique(SEM enables evaluating causal relationships between these latent variables and testing and developing the theoretical model put forward.) The structural model shows the direction and strengths of the relationships of the latent variables.

Table 1
Questionnaire design &items

Survey parts	Purpose	Type of survey question
Part 1 – Demographic data	Find out the demographics of the respondents (age, gender, educational level, income status, number of plastic bags and bottles taken per week, number of plastic bags reused).	o Multiple-choice questions
Part- 2 An individual's environmental consciousness		
Part 2-A Awareness about the use of plastic bags;	If they believe that plastic bags damage, the environment and harm living beings (animals) on land if they believe that plastic bags' wastes can emit toxic gases in addition to they believe that plastic bags increase cancer risk.	o 5-point Likert scale to address statements of attitude (1: strongly to disagree; 5: strongly agree).
Part 2-B Social pressure	If the neighbours would affect their behaviour in using cloth bags instead of plastic bags, if significant others use cloth instead of plastic bags would make them more likely to use cloth bags).	o 5-point Likert scale
Part 2-C Support for the banning of plastic bag use	If groceries prohibited the government from selling fruit and vegetables in plastic bags to their customers, the government should ban the use of plastic bags.	o 5-point Likert scale

Part 2-D Intention to use cloth bags	I prefer to use cloth bags instead of plastic bags, will use cloth bags in future.	o 5-point Likert scale
Part 2-E Behaviour likely to reduce the use of plastic bags	If plastic bags given at cash registers were not free, this would use fewer plastic bags, if supermarkets offered discounts or point cards to shoppers who brought their cloth bags, this would use fewer plastic bags.	o 5-point Likert scale

Data Analysis

The number of electronic feedback collected merged (Arabic &English) during the one month was 773 completed forms. All the demographic data and the responses were entered for statistical analysis. The collected data was analysed and interpreted based on the hypothesis mentioned below, using SPSS 26 and inferential statistics used for data analyses. Frequencies and percentages were computed for the categorical variables. Mean and standard deviation was computed for the quantitative variables. A T-test was used to determine whether there is a significant difference in means between the two independent groups. ANOVA test was used to determine whether there is a significant difference in means between more than two independent groups. Multiple linear regression is used to investigate the effect of multiple independent variables on one dependent variable. Simple linear regression is used to investigate the effect of one independent variable on one dependent variable. Pearson correlation coefficients were computed between two quantitative variables. In all statistical tests, a p-value of less than 0.05 is considered statistically significant. Also the mean score interpretations of the Likert score of Tables 2, 3, 4 shown below.

 Results and discussion

Part1 (Figure2&3) of the questionnaires distributes reflecting the demographic characteristics and the number of SUP bags of the total 773 of participants. The mean scores for all demographic characteristics aspect did not show any significant variation with respect (gender, age, level of income, number of plastic bags and plastic bottle per week, except educational status, was statistically significant).
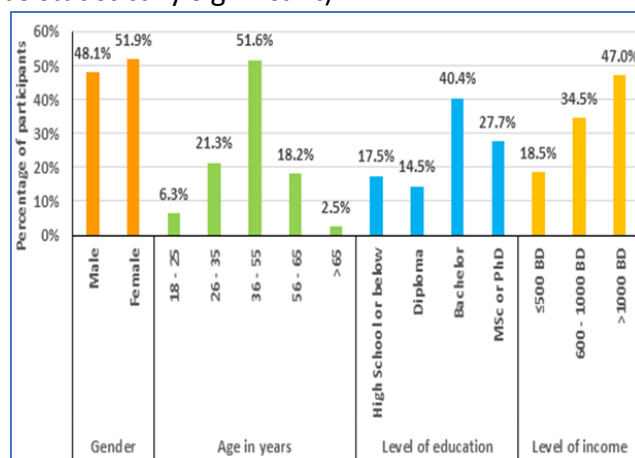

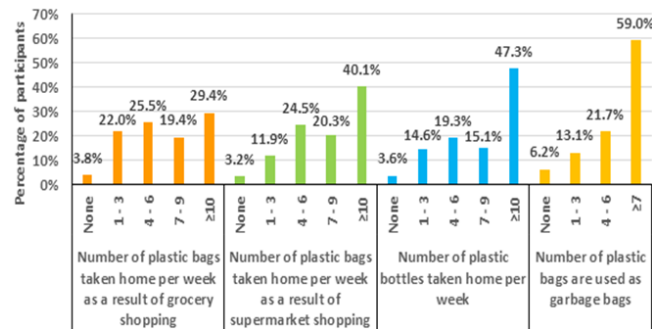Figure 2: Demographic characteristics of participants

Figure 3:Number of plastic bages taken home

Part 2; as shown (in Table 2) below, questionnaire to measure participants' attitudes toward the use of plastic and cloth bags. Participant's attitudes & believes on the use of plastic and cloth bags, the calculated means with standard deviation and the illustration of the interpretations of the means made into five categories based on the factors (A, B, C, D and E) for the study as shown below (table 3&4)

Table 2
Participants' attitudes & beliefs on the use of plastic and cloth bags

Table 2: Participants' attitudes & beliefs on the use of plastic and cloth bags						
	Strongly Disagree n (%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly Agree n (%)	Mean ± SD
Factor A: Environmental awareness regarding plastic bags						
Plastic bags damage the environment	62 (8)	45 (5.8)	136 (17.6)	273 (35.3)	257 (33.2)	3.80 ± 1.19
Plastic bags harm living beings (animals) on land	50 (6.5)	50 (6.5)	120 (15.5)	274 (35.4)	279 (36.1)	3.88 ± 1.16
Plastic bag wastes emit toxic gases	56 (7.2)	64 (8.3)	243 (31.4)	240 (31)	170 (22)	3.52 ± 1.14
Plastic bags increase cancer risk	50 (6.5)	64 (8.3)	234 (30.3)	250 (32.3)	175 (22.6)	3.56 ± 1.12
Factor B: Social pressure						
If my neighbors use cloth instead of plastic bags, I would more likely use cloth bags	82 (10.6)	105 (13.6)	228 (29.5)	222 (28.7)	136 (17.6)	3.29 ± 1.21
If significant others use cloth instead of plastic bags, I would more likely use cloth bags	65 (8.4)	65 (8.4)	169 (21.9)	281 (36.4)	193 (25)	3.61 ± 1.19
Factor C: Support for the banning of plastic bag use						
Groceries should be prohibited from selling fruit and vegetables in plastic bags to their customers	63 (8.2)	115 (14.9)	206 (26.6)	242 (31.3)	147 (19)	3.38 ± 1.19
The government should ban the use of plastic bags	67 (8.7)	124 (16)	190 (24.6)	226 (29.2)	166 (21.5)	3.39 ± 1.23
Factor D: The intention to use cloth bags						
I would prefer to use cloth bags instead of plastic bags	54 (7)	80 (10.3)	193 (25)	250 (32.3)	196 (25.4)	3.59 ± 1.17
I will use cloth bags in future	44 (5.7)	54 (7)	217 (28.1)	302 (39.1)	156 (20.2)	3.61 ± 1.06
Factor E: The behavior of reducing plastic bag use						
If plastic bags given at cash registers were not free, I would use fewer plastic bags	54 (7)	68 (8.8)	170 (22)	289 (37.4)	192 (24.8)	3.64 ± 1.15
If supermarkets offered discounts or point cards to shoppers who brought their own cloth bags, I would use fewer plastic bags	49 (6.3)	62 (8)	144 (18.6)	294 (38)	224 (29)	3.75 ± 1.14

With standard deviation and interpretation elaborated in the tables below. standard deviation and interpretation elaborated in tables below

Table 3

The mean of the study factors A to E

Table 3: The mean and standard of study factors	
	Mean ± SD
Environmental awareness regarding plastic bags	3.69 ± 1.03
Social pressure	3.45 ± 1.12
Support for the banning of plastic bag use	3.38 ± 1.16
The intention to use cloth bags	3.60 ± 1.03
The behaviour of reducing plastic bag use	3.70 ± 1.07

Table 4

Interpretation of the means levels of agreement

Score	Level of agreement
1.00 – 1.80	Strongly disagree
1.81 – 2.60	Disagree
2.61 – 3.40	Neutral
3.41 – 4.20	Agree
4.21 – 5.00	Strongly agree

Demographic characteristics (age, gender, education and occupation there was a statistically significant association between the awareness score of adults and their education level (p<0.05). Moreover, there was no significant difference

Table 5, as shown below, demographic data (age, sex, level of income) did not show a significant difference except for the education level, there was a significant difference (p-value < 0.05). That means, the higher the education level the better environmental awareness, and the higher the beliefs that social pressure, and support for banning the use of plastic bags. The intention to use cloth bags correlated with a future reduction in the use of plastic bags.

Table 5

Differences in the mean score of study factors According to demographic characteristics

	Environmental awareness regarding plastic bags	Social pressure	Support for the banning of plastic bag use	The intention to use cloth bags	The behavior of reducing plastic bag use
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Gender					
Male	3.71 ± 1.01	3.45 ± 1.11	3.35 ± 1.16	3.58 ± 1.03	3.67 ± 1.06
Female	3.68 ± 1.06	3.45 ± 1.13	3.42 ± 1.16	3.61 ± 1.04	3.72 ± 1.08
P-value	0.674	0.960	0.398	0.686	0.516
Age in years					
18 - 25	3.71 ± 0.95	3.40 ± 1.04	3.24 ± 1.07	3.58 ± 0.98	3.86 ± 0.95
26 - 35	3.67 ± 1.06	3.40 ± 1.19	3.18 ± 1.21	3.55 ± 1.08	3.68 ± 1.10
36 - 55	3.72 ± 1.04	3.49 ± 1.11	3.46 ± 1.17	3.63 ± 1.02	3.72 ± 1.06
56 - 65	3.64 ± 1.04	3.41 ± 1.10	3.45 ± 1.12	3.59 ± 1.06	3.62 ± 1.12
>65	3.70 ± 1.01	3.34 ± 1.07	3.39 ± 1.02	3.47 ± 0.98	3.61 ± 0.91
P-value	0.953	0.853	0.100	0.895	0.683
Level of education					
High School or below	3.31 ± 1.18	3.17 ± 1.25	3.03 ± 1.29	3.26 ± 1.24	3.26 ± 1.18
Diploma	3.76 ± 0.93	3.64 ± 1.06	3.59 ± 1.13	3.76 ± 0.95	3.94 ± 0.99
Bachelor	3.71 ± 0.99	3.48 ± 1.08	3.37 ± 1.12	3.64 ± 0.97	3.80 ± 1.02
MSc or PhD	3.88 ± 1.00	3.49 ± 1.10	3.52 ± 1.11	3.67 ± 0.98	3.69 ± 1.01
P-value	<0.001	0.007	<0.001	<0.001	<0.001
Level of income					
≤500 BD	3.67 ± 1.07	3.42 ± 1.16	3.41 ± 1.14	3.56 ± 1.06	3.68 ± 1.07
600 - 1000 BD	3.61 ± 1.07	3.45 ± 1.16	3.35 ± 1.21	3.61 ± 1.07	3.67 ± 1.11
>1000 BD	3.76 ± 0.99	3.46 ± 1.08	3.40 ± 1.13	3.61 ± 1.00	3.72 ± 1.04
P-value	0.214	0.910	0.814	0.899	0.841

E- The path diagram of the structural equation model
Tables 6 &7 showed that the multiple linear regression analysis of the independent variables (factors): Environmental awareness regarding plastic bags(x1), Social pressure(x2), and Support for the banning of plastic bag use on the dependent variable(x3), Intention to use cloth bags (y). The regression equation made as follow;

$$y=0.66+0.22x_1+0.19x_2+0.44x_3 \quad (1)$$

The equation indicated that the independent variable (factor A), Environmental awareness regarding plastic bag use, positively affected the dependent variable, Intention to use cloth bags(D). A unit increase in the environmental awareness of individuals regarding plastic bag use increases their intention to use cloth bags by 0.22 units. In addition, the independent variable, Social pressure on individuals (factor B), positively affected the dependent variable, Intention to use cloth bags (factor D). A unit increase in the social pressure on individuals increases their intention to use m mcloth bags by 0.19 units.

Similarly, it is seen that the independent variable, Support for the banning of plastic bag use (factor C), positively affected the dependent variable, Intention to use cloth bags(factor D). A unit increase in Support for the banning of plastic bag use increases their intention to use cloth bags by 0.44 units. The coefficient of determination $R^2=0.641$ indicated that 64.1% of the variation in the dependent variable (Intention to use cloth bags) is explained by the independent variables: Environmental awareness regarding plastic bags, Social pressure, and Support for the banning of plastic bag use.

Table 6
Model summary

R	R Square	Adjusted R Square	Std. The error of the Estimate
0.801[a]	0.641	0.639	0.620
a. Predictors are Support for the banning of plastic bag use, Social pressure, and Environmental awareness regarding plastic bags			

Table 7
Linear regression coefficients 1

Variables in the model	Coefficients	P-value
Constant	0.66	<0.001
Environmental awareness regarding plastic bags	0.22	<0.001
Social pressure	0.19	<0.001
Support for the banning of plastic bag use	0.44	<0.001
1. Dependent Variable is the Intention to use cloth bags		

Tables 8 & 9, showed the simple linear regression analysis of the independent variable, Intention to use cloth bags (x) on the dependent variable, Behaviour of reducing plastic bag use(y). The regression equation is shown below.

The equation indicated that the independent variable, Intention to use cloth bags positively affected the dependent variable, Behaviour of reducing plastic bag use. A unit increase in individuals' opinions on their intention to use cloth bags would lead to 0.71 units increase in their behaviour to use fewer plastic bags. The coefficient of determination $R^2=0.475$ indicated

that 47.5% of the variation in the dependent variable, Behaviour of reducing plastic bag use explained by the independent variable, Intention to use cloth bags.

$y = 1.14 + 0.71x$ (2)

Table 8
Model Summary

R	R Square	Adjusted R Square	Std. An error of the Estimate
0.689[a]	0.475	0.475	0.774
a. Predictor is Intention to use cloth bags.			

Table 9
Linear regression coefficients1

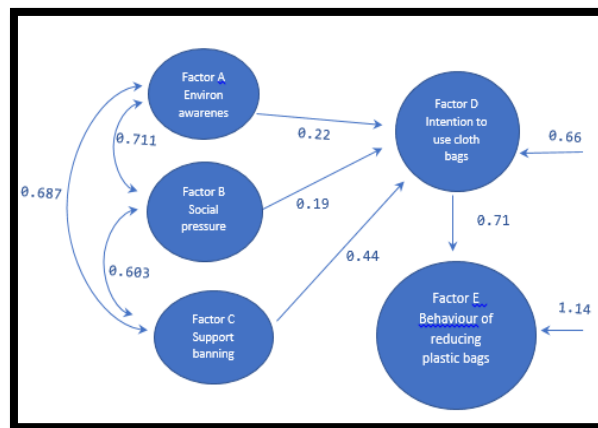|	Coefficients	P-value
Constant	1.14	<0.001
The intention to use cloth bags	0.71	<0.001
1. Dependent Variable is the Behavior of reducing plastic bag use.		

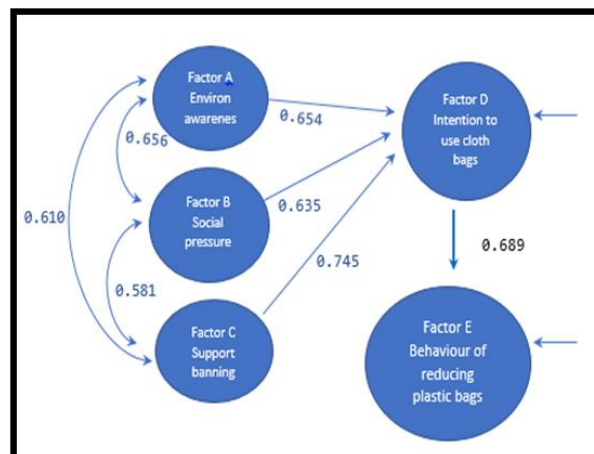Figure 4: The path diagram of the structural equation model (SEM)

Figure 5: The bivariate Pearson correlations between the five study factors (A, B, C, D & E)

Fu bivariate Pearson correlations between the fi

Study factors (A, B, C, D, E) as shown in the above diagrams showed, the value of 'r' was found to be above 0.600, value ranges anywhere from 0.0 to 1 with higher values indicating a greater degree of reliability.

The value of 'r' was also found to be value ranges anywhere from 0.635 to 0.745 ('r' values range anywhere from 0.0 to 1, with higher values indicating a greater degree of reliability). Consumptions indicating high values (0.6-0.7) revealed a high degree of significant positive correlations (p value<0.05) between any two factors as shown in the diagram, in addition, the latent variables factor D which is highly correlated to factor E, the behaviour in a future reduction in plastic bags usage.

Conclusion and Recommendations

Plastics stay permanently in the environment, resulting in chronic exposure that damages animals and humans. The widespread usage of plastic bags seems at odds with current governmental policies intended to promote sustainable development.   However, the evidence for this claim is still limited to changing consumer behaviour regarding the use of plastic bags in line with sustainable development principles. Many stakeholders and consumers require a precise understanding of the permanence of plastic goods in the environment. The most significant predictors of the use of cloth bags were those at the individual levels. More than 50% of the participants are aware of the hazards of plastic bags on the environment. Together with social support for the use of cloth bags and support from the government in banning the use of plastic bags.   However, these factors were able to predict the future behavioural reduction of plastic bag consumption by 47.5% only. However, there is a need for spreading awareness of using alternative strategies and effective implementation of legislation to minimize the usage of plastics in the community. Best practices and environmental laws together with wide popular participation are necessary to overcome these problems.

European Union directives (EU) 2015/720 persuaded nations to reduce the consumption of lightweight polythene that identified, as a major environmental problem. The goal of Directive 2015/720 is to cut the consumption of PE packets by over 15 years by 80%. (Kadeikina, 2019).

Some countries in the Gulf Corporation (GCC) had taken some initiatives and regulations focused on banning SUP bags. In the kingdom of Bahrain, recently only an order from the ministry of industry, commerce, and tourism to ban the manufacturing, selling, circulating and importing of SUP bags which are less than 35 microns in thickness effective from September 19 th 2022("Bahrain Bans Single-Use Plastic Bags, Starting Today! | Local Bahrain," n.d.).

Facts about the Plastic Bag Pandemic are that despite the efforts of recycling, the rate of the production of items is rising much faster than recycling rates. The problem lies, not within the idea of recycling itself, but rather in the habitual wasteful nature of developed societies and the rapid rate of goods demand. According to a study presented by Eco-Design Forum for Civic Society, 2010, giving up plastic bags for just one year would result in an 18.9 kg reduction in carbon dioxide emissions(Ohtomo & Ohnuma, 2014). As a result, cutting back on plastic bag use seems to be one of the easiest and most efficient resource-saving practices that everyone can engage in daily.

To make a difference and reduce the usage of plastic bags, legislative involvement is necessary. The legislative ban on plastic bags is a step in the right direction towards eliminating unnecessary wasteful items and minimizing the harmful effects on the environment. Eliminating one-time-use plastic bags will help decrease the harm that marine

debris has on the ocean environment. However, initiatives to get customers to bring reusable bags by offering incentives and rewards for their usage could help decline in distribution and consumption*.*

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